Policy Number – 61 Effective Date: 11/22/11 Resolution No. 476-11 Title: Fall Protection Policy	Last Update: March 21, 2011

POLICY STATEMENT

The objective of the Cayuga County (County) Fall Protection Policy is to establish minimum requirements for practices and procedures to protect employees, volunteers, and contractors from hazards associated with falls from elevation (i.e., when working in elevated work areas such as rooftops, platforms, and aerial lifts).

This Policy is applicable to all County employees, volunteers and contractors working for the County who may be exposed to hazards associated with falls from elevation in the workplace.

This policy shall be maintained by each County Department to which the policy applies in a location that is accessible to all affected employees, volunteers and contractors.

GENERAL

29 CFR 1926 Subpart M – Fall Protection - establishes the requirements and criteria for fall protection in construction workplaces. The standard identifies those workplaces, conditions, operations, and circumstances for which fall protection shall be provided, the requirements of an employer to provide fall protection systems, and practices to be implemented before an employee begins work that requires fall protection.

Some of the associated regulations that pertain to this policy include:

- 29 CFR 1910.23 (29 CFR 1910 Subpart D) Walking-Working Surfaces: Guarding floor and wall openings and holes.
- 29 CFR 1910.66 (29 CFR 1910 Subpart F) Powered Platforms, Manlifts, and Vehicle-Mounted Work: Powered platforms for building maintenance.
- 29 CFR 1910.132 (29 CFR 1910 Subpart I) Personal Protective Equipment: General Requirements.
- 29 CFR 1910.269 (29 CFR 1910 Subpart R) Electronic Power Generation, Transmission and Distribution.

DEFINITIONS

***Fall Protection System* -** Fall Protection Systems are designed to protect personnel from the risk of falls when working at elevation. Recognized systems include:

- ***Fall Prevention*** - a structural design to limit a fall to the same level (e.g., guardrails, positioning/restraint systems), and

- ***Fall Arrest System*** - an approved full body harness, shock absorbing lanyard or self retractable lifeline, locking snap hooks and anchor points approved for a static load of 5,000 pounds or engineered to meet a two to one safety factor.

Aerial Lift **-** Vehicle mounted elevating work platform (e.g., Boom Lifts, Articulating Telescoping Boom Lifts).

Competent Person **-** A person who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are hazardous to personnel and who has authorization to quickly correct the situation.

Qualified Person **-** A person with a recognized degree or professional certificate (e.g. civil or mechanical engineering profession or Certified Safety Professional), and extensive knowledge and experience in this area, capable of doing design, analysis, evaluation and specifications.

Certification **-** ANSI (American National Standards Institute) defines certification as documentation that determines criteria meets the requirements of the standard through testing or proven analytical method (e.g., engineering calculations) or both, carried out under the supervision of a Qualified Person.

Controlled Access Zone **-** A work area designated and clearly marked in which certain types of work (such as over-hand bricklaying) may take place without the use of conventional fall protection systems (guardrail systems, personal fall arrest systems, or safety net systems) to protect the employees working in the zone. Access to the zone must be controlled to limit the number of workers exposed to fall hazards.

Monitoring System **–** Consists of a competent person capable of recognizing fall hazards and who monitors the safety of other employees from the same walking/working surface. The safety monitor must be within visual sighting distance of the employee being monitored and close enough to communicate orally. Safety monitors have no other responsibilities which could take their attention away from monitoring. The safety monitor is responsible for warning the employee when it appears that the employee is unaware of a fall hazard or is acting unsafely.

Warning Line System **–** Consists of 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, body belt, or safety net systems to protect employees in the area.

TRAINING

The Public Employee Safety and Health Bureau (PESH) requires that employees who may be exposed to fall hazards be trained to recognize the hazards and the procedures to follow to minimize the hazards. Such training will take place before an employee is exposed to a fall hazard, and at a minimum will include the following topics:

- Recognition of fall hazards in the workplace,
- Types of fall protection systems,

- Procedures for erecting, maintaining, disassembling and inspecting the fall protection systems used,
- Use and operation of fall protection systems used,
- Role of employees in fall protection plans,
- Rescue procedures to follow in case of a fall, and
- Overview of fall 29 CFR fall protection standards.

Training documentation will include employee name, date of training, and the signature of the person who conducted the training (See Appendix A for example Fall Protection Training Log). Retraining will be conducted at a minimum of every two years, anytime there is a change in the fall protection system being used, or anytime an employee's actions demonstrate that the employee has not retained the understanding or skills important to fall protection.

RESPONSIBILITIES AND AUTHORITY

The following identifies some of the responsibilities for various parties affected by this policy.

County Management (County Legislature, Compliance Officer, County Administrator and/or their Appointed Risk Management Committee)

County Management is responsible for:

- Developing, maintaining, and distributing County policies that are in accordance with all applicable federal and state regulations, and best industry practices,

- Conducting periodic safety inspections of work locations, and

- Assisting Department Heads in developing appropriate fall protection plans, providing technical guidance, and assuring availability of funding for employee training and fall protection systems.

Department Heads

Department Heads are responsible for:

- Identifying the specific jobs or individuals to whom this policy applies,
- Identifying fall hazards within your department,
- Providing fall protection systems to protect employees from fall hazards,
- Determining the appropriate fall protection system for the job/project at hand,
- Providing appropriate training for supervisors and employees,
- Assuring appropriate training and maintaining training documentation,
- Assuring that manufacturer's safety information is available for all safety equipment in the department or that is used by the department,

- Ensuring that safety procedures presented in this and other County policies are implemented and enforced,
- Halting unsafe practices not in accordance with this policy, and
- Requiring that contractors, subcontractors, and volunteers working for, or on behalf of the County, meet the minimum requirements stipulated in this policy, and that their fall protection program meets the requirements of 29 CFR 1926 Subpart M and all other applicable state or federal regulations.

Supervisors

Supervisors are responsible for:

- Identifying fall hazards that employees may be exposed to during assigned work tasks,
- Assuring that the selected fall protection system(s) selected for a given project, task or job is properly implemented,
- Confirming that employees exposed to fall hazards have been properly trained in accordance with this policy,
- Assuring that only trained individuals are assigned work that requires use of fall protection systems (other than guardrails),
- Halting any unsafe practices not in accordance with this policy,
- Conducting and documenting frequent toolbox/tailgate talks on various safety topics applicable to your workers (including fall protection) so that safety becomes part of the culture,
- Observing/inspecting work areas, practices and equipment to assure that fall protection systems are appropriate and are suitably protective, and
- Inspecting components of fall protection systems Checking and ensuring that tools, equipment, and protective devices are in place, properly and safely maintained and used.

Employees and Volunteers

Employees and volunteers are responsible for:

- Understanding the risks associated with fall hazards,
- Attending appropriate training as recommended by their Supervisor/Department Head,
- Not knowingly exposing themselves to fall hazards,
- Reading, understanding, and complying with the procedures and practices outlined in this and other County policies,
- Refusing to work in areas where fall hazards exist and where appropriate fall protection has not been provided, and
- Immediately reporting fall protection hazards that have not already been identified to your Supervisor/Department Head so that appropriate action can be taken (i.e., implementing an appropriate fall protection system).

Vendors and Contractors

Vendors and contractors who are exposed to falls from elevation, while performing tasks for or on behalf of the County, are responsible for complying with all elements of this Policy or providing documentation of a fall protection program that meets or exceeds the requirements presented in this policy.

FALL PROTECTION SYTSTEMS

One of the following systems should be in place whenever an employee is exposed to a fall of greater than six feet.

Guardrail Systems

Guardrails are needed at the edge of work areas 6 feet or more in height to protect employees from falling. This includes elevated structures and the edge of excavations greater than six feet in height and depth, respectively. Guardrail systems need to meet the following criteria:

- Top rail is 42 inches, +/- 3 inches above the walking/working level,
- Mid rail is located midway between the top rail and the walking/working level,
- Both top and mid rails should be constructed of materials at least one-quarter inch in thickness or diameter. If wire rope is used for top rails, it needs to be flagged with a high-visibility material at least every 6 feet and can have no more than 3" of deflection (the cable may not droop more than 3"),
- Top rail needs to withstand a force of 200 pounds when applied in any downward or outward direction,
- The mid rail needs to withstand a force of 150 pounds applied in any downward or outward direction,
- The system should be smooth to prevent punctures, lacerations or snagging of clothing,
- The ends of the top rail should not overhang the terminal posts, except when such overhang does not present a projection hazard, and
- When a hoisting area is needed, a chain, gate or removable guardrail section must be placed across the access opening when hoisting operations are not taking place.

Note: The working level is that level where the work is being done. Someone working on a stepladder next to an edge may raise his/her working surface well above the walking surface.

Personal Fall Arrest Systems

Personnel requiring the use of personal fall protection equipment shall employ the "Buddy System" or have an observer to render assistance when and if required.

There are three main components to the personal fall arrest system; the personal protective equipment, the connecting devices and the anchorage point. Prior to tying off to perform the work, a means of rescue in the event of a fall must be immediately available. The system needs to meet the following criteria for each component:

Personal Protective Equipment

The principal piece of personal protective equipment in a personal fall arrest system is the **full body harness**.

- ***Full body harnesses are required*****.** The use of body belts as fall protection is prohibited.
- The attachment point of the body harness is the center D-ring on the back.
- Employees must **always** tie off at or above the D ring of the harness except when using lanyards 3 feet or less in length.
- Harnesses or lanyards that have been subjected to an impact load shall be destroyed.
- Load testing shall not be performed on fall protection equipment.

Connecting Devices

This device can be a rope or web lanyard, rope grab or retractable lifeline with the following provisions or restrictions:

- Only locking snaphooks may be used.
- Horizontal lifelines will be designed by a qualified person and installed in accordance with the design requirements.
- Lanyards and vertical lifelines need a minimum breaking strength of 5,000 pounds.
- Lanyards may not be clipped back to itself (e.g. around an anchor point) unless specifically designed to do so.
- If vertical lifelines are used, each employee will be attached to a separate lifeline.
- Lifelines need to be protected against being cut or abraded.

Anchorage

Secure anchor points are the most critical component when employees must use fall arrest equipment. County buildings may have existing structures (e.g., steel beams that may meet the criteria for a secure anchor point). Other work locations and assignments may require the installation of a temporary or permanent anchor. As a minimum, the following criteria must be considered for each type of anchor point:

- Structure must be sound and capable of withstanding a 5,000 lb. static load per person to be attached.
- Structure/anchor must be easily accessible to avoid fall hazards during hook up
- Direct tying off around sharp edged structures can reduce breaking strength by 70% therefore; chafing pads or abrasion resistant straps must be used around sharp edged structures to prevent cutting action against safety lanyards or lifelines.
- Structures used as anchor points must be at the worker's shoulder level or higher to limit free fall to 6 feet or less and prevent contact with any lower level (exception – when self retracting lifelines and/or 3 foot lanyards are used).
- Choose structures for anchor points that will prevent swing fall hazards. Potentially dangerous "pendulum" like swing falls can result when a worker moves horizontally away from a fixed anchor point and falls. The arc of the swing produces as much energy as a vertical free fall and the hazard of swinging into an obstruction becomes a

major factor. Raising the height of the anchor point can reduce the angle of the arc and the force of the swing. Horizontal lifelines can help maintain the attachment point overhead and limit the fall vertically. **A qualified person must design a horizontal lifeline.**

Permanent Anchor Requirements

In addition to all the criteria listed above, the following points must be considered:

- Environmental factors and dissimilarity of materials can degrade exposed anchors.
- Compatibility of permanent anchors with employee's fall arrest equipment.
- Inclusion of permanent anchors into a Preventive Maintenance Program with scheduled annual re-certification.
- Visibly label permanent anchors.
- Anchors must be immediately removed from service and re-certified if subjected to fall arrest forces.

Reusable Temporary Anchors

- Reusable temporary roof anchors must be installed and used following the manufacturer's installation guidelines.
- Roof anchors must be compatible with employee's fall arrest equipment.
- Roof anchors must be removed from service at the completion of the job and inspected prior to reuse following the manufacturer's inspection guidelines.
- Roof anchors must be immediately removed from service and disposed of if subjected to fall arrest forces.

Complete system

- If a fall occurs, the employee should not be able to free fall more than 6 feet nor contact a lower level.
- To ensure this, add the height of the worker, the lanyard length and an elongation length of 3.5 feet. Using this formula, a six-foot worker with a six-foot lanyard would require a tie-off point at least 15.5 feet above the next lower level.
- A personal fall arrest system that was subjected to an impact needs to be removed from service immediately.
- Personal fall arrest systems need to be inspected by the employee prior to each use and damaged or deteriorated components removed from service.
- Personal fall arrest systems should not be attached to guardrails or hoists.

Work from Aerial Lifts and Self Powered Work Platforms

Body harnesses must be worn with a shock-absorbing lanyard (lanyard length not to exceed 3 feet in length) and must be worn when working from an elevated work platform (exception: scissor lifts and telescoping lifts that can move only vertically do not require the use of a harness and lanyard **as long as the work platform is protected by a complete guardrail system**). The point of attachment must be the lift's boom or work platform. Employees cannot attach lanyards to adjacent poles, structures or equipment while they are working from the aerial lift.

Inspection

The entire personal fall arrest system will be inspected by the employee prior to every use and by the competent person at the initial installation and weekly thereafter. Inspection will follow the manufacturer's recommendations. An example of a complete inspection is included as Appendix B.

NON-CONVENTIONAL FALL PROTECTION SYSTEMS

Warning Line Systems

29 CFR Part 1926 Subpart M (beginning at §1926.500) **requires** the use of guardrails, personal fall arrest systems or safety net systems to keep employees away from an edge. In a few, very specific situations (low-slope roof work, some leading-edge work, precast concrete erection and residential construction; see §1926.501(b)(2), (12), and (13)), because of feasibility limitations, the standard permits the use of a warning line, in combination with other measures (example: with the use of a safety monitor), instead of conventional fall protection (guardrail systems, personal fall arrest systems or safety net systems) to keep employees away from an edge.

Warning line systems and work in controlled access zones must be developed in accordance with §1926.502 and must be approved by County Management before employees, volunteers, and contractors are exposed to fall hazards.

Controlled Access Zones

Controlled Access Zones are recognized as acceptable only for specific tasks in specific trades in specific trades (i.e., overhand brick laying in the masonry trade) and is highly controversial as it is not a protective measure. Controlled access zones are not applicable for the protection of County Employees.

Monitoring System

Safety monitoring systems are used in industry in situations where it is not physically possible for conventional fall protection to be employed. Monitoring systems are not applicable as a the sole means of protection of County Employees but may be employed in combination with warning line systems when work is being performed on low-slope roofs (i.e., slope less than 4:12).

APPENDIX A

CAYUGA COUTY FALL PROTECTION TRAINING LOG

This record certifies that the following employees have been trained to recognize fall hazards and to use appropriate fall protection systems and methods to minimize exposure to the hazards.

Employee Name	Training Date	Trainer's Signature	Type of Training

APPENDIX B
EXAMPLE PERSONAL FALL ARREST SYSTEM INSPECTION

All fall protection equipment shall be inspected before each use in accordance with the manufacturer's instructions. The following is general guidance for the inspection of this equipment.

<u>HARNESS INSPECTION</u>

Webbing

- Inspect the entire surface of webbing for damage and cleanliness. Beginning at one end, bend the webbing in an inverted "U". Holding the body side of the belt toward you, grasp the belt with your hands six to eight inches apart. This surface tension makes the damaged fibers or cuts easier to see. Watch for frayed edges, broken fibers, pulled stitches, cuts, burns, and chemical damage.

"D" Rings/Back Pads

- Check "D" rings for cleanliness, distortion, cracks, breaks, and rough or sharp edges. The "D" ring should pivot freely. "D" ring back pads should also be inspected for damage.

Attachment of Buckles

- Note cleanliness, any unusual wear, frayed or cut fibers, or distortion of the buckles.

Tongue/Grommet

- The tongue receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted or broken grommets. The webbing should not have any additional punched holes.

Tongue Buckle

- Buckle tongues should be clean and free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. The roller should turn freely on the frame. Check for distortion or sharp edges.

Friction and Mating Buckles

- Inspect the buckle for cleanliness and distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points of the center bar.

<u>Lanyard Inspection</u>

Hardware

- **Snaps:** Inspect closely for hook and eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should seat into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper. Keeper locks must prevent the keeper from opening when the keeper closes.
- **Thimbles:** The thimble must be firmly seated in the eye of the splice, and splice should have no loose or cut strands. The edges of the thimble must be clean and free of sharp edges, distortion, or cracks.

Web Lanyard

- While bending the webbing over a curved surface such as a pipe, observe each side of the webbed lanyard. This will reveal any cuts or breaks. Examine the webbing for swelling, discoloration, cracks, or burns. Observe closely for any breaks in the stitching.

Rope Lanyard

- Rotation of the rope lanyard while inspecting from end to end will bring to light any fuzzy, worn, broken or cut fibers. Weakened areas from extreme loads will appear as a noticeable change from the original diameter. The rope diameter should be uniform throughout, following a short break-in period. Make sure the rope has no knots tied in it. Knots can reduce the strength of the rope by up to 60%.

Shock-absorbing Lanyard

- Shock-absorbing lanyards should be examined as a web lanyard. However, also look for signs of deployment. If the lanyard shows signs of having been put under load (e.g. torn out stitching), remove it from service.