TO: **ALL COUNTY PERSONNEL**

FROM: **VERDENIA C. BAKER**
COUNTY ADMINISTRATOR

PREPARED BY: **RISK MANAGEMENT DEPARTMENT / LOSS CONTROL DIVISION**

SUBJECT: **FALL PROTECTION POLICY**

PPM #: **CW-P-070**

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ISSUE DATE	**EFFECTIVE DATE**
July 15, 2016	**July 15, 2016**

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PURPOSE:

To protect Palm Beach County employees in the event work must take place in areas where there is the potential of a fall to a lower level, or into mechanical equipment or machinery.

UPDATES:

Future updates to this PPM are the responsibility of the Director of Risk Management.

AUTHORITY:

- Occupational Safety and Health Administration (OSHA), Code of Federal Regulations 29 CFR 1926.500 Subpart M - Fall Protection, as may be amended.

DEFINITIONS:

See Attachment 1

POLICY:

The County's policy is to engineer out the fall hazard on a permanent basis whenever possible. The following procedures should only be used as a last resort, which is when all other attempts to control the fall hazard have failed or are not possible. For purposes of this policy, Fall Protection is required at 4 feet unless otherwise stated. It should be noted that portable ladders are not part of this policy.

PROCEDURE:

A. Applications:

1. Leading Edge - Each employee who is constructing a leading edge 6 feet or more above a lower level where leading edges are under construction, but who

is not engaged in leading edge work, shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system.

2. Change in Elevation - Any change in elevation where an employee is exposed to a fall hazard must be protected by a guardrail system, safety net system, or personal fall arrest system.

3. Dangerous Equipment - Each employee ***less*** than 4 feet above dangerous equipment shall be protected from falling onto or into the dangerous equipment by guardrail systems, or equipment guards. Each employee ***4 feet or more*** above dangerous equipment shall be protected from fall hazards by guardrails systems, personal fall arrest systems, or safety net systems.

B. Training

Loss Control will provide all Fall Protection training as required. Initial training for employees will be done prior to working on a job that requires Fall Protection. Employees will then receive Fall Protection awareness training once per year thereafter. Training will include:

1. Basic understanding of fall protection systems.
2. Fall hazard recognition.
3. Proper Personal Protective Equipment selection.
4. Emergency Procedures.

C. Additional Fall Protection Topics

Fall protection should be used at all points where there is a danger of a fall of 4 feet or more. The following exceptions exist:

1. Scaffolding - Because scaffolding is considered a temporary structure, fall protection is required when an employee is exposed to a fall of 10 feet or greater above a lower level. Scaffolding applications also differ depending on the work being done. Because the use of scaffolding is rare within the county, please contact Loss Control to discuss the best method for your application. Scaffolding is covered in Subpart L of the OSHA 1926 Construction Standards.

2. Portable Ladders - These are not covered under the fall protection standard Portable ladders must only be utilized if the use of the ladder can be accomplished using proper ladder safety use (e.g. 3 point anchor).

3. Fixed Ladders - These ladders can have different types of Fall Protection Depending on the length of the ladder from the surface below to the working area above, certain criteria must be followed. Fixed ladders are covered in Subpart X of the OSHA 1926 Construction Standards, as well as 1910.27 of the OSHA Standards for General Industry. For purposes of this policy, Fall Protection will be required at 20 feet. Cages do not provide fall protection.

4. All Lifts, Booms, and Bucket Trucks - lanyards and harnesses shall be worn **100% of the time**. Separate training will be done for this equipment.

5. Roofs - Fall Protection is required at 4 feet in height if you are 6 feet or closer to an unprotected edge. Because all roofs present different hazards due to their size and shape, the department working on the roof shall work in conjunction with Loss Control to find the best solution.

D. Outside Personnel

1. Whenever outside personnel are to be engaged in any activity that requires Fall Protection on County projects, they must abide by the guidelines outlined in 29 CFR 1926.500-503.

2. All bid documents for contracted services, involving situations that may require the use of Fall Protection, shall contain verbiage that requires outside contractors to abide by the procedures outlined in 29 CFR 1926.500-503.

E. Guardrail Systems (29 CFR 1926.502(b))

1. The top height of the top rails shall be 42 inches plus or minus 3 inches above the walking/working surface.

2. Midrails, screen, mesh, intermediate vertical structure members shall be installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches in height.

   a. Midrails when used, must be installed at a height midway between the top rail edge and the walking/working surface.

   b. Screens and mesh, when used, shall extend from the top rail to the walking/working surface and along the entire opening between the top rail supports.

   c. Intermediate members, such as balusters, when used between posts, shall not be more than 19 inches apart.

3. Guardrail systems shall be capable of withstanding without failure, a force of at least 200 pounds applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge. When the 200 pounds specified is applied in an outward and downward direction the toprail shall not deflect to a height of less than 39 inches.

4. Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding without failure; a force of at least 150 pounds applied in any downward or outward direction at any point along the midrail or other member.

5. Guardrail systems shall be surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.

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

7. Steel banding and plastic banding shall not be used as top rails and midrails.

8. Top rails and midrails should be designed or installed to prevent cuts and lacerations. If wire rope is used for top rails, it shall be flagged at not more than 6 foot intervals with high visibility material.

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

10. When guardrail systems are used at holes, they shall be erected on all unprotected sides or edges of the hole.

11. When guardrail systems are used around holes used for the passage of materials, the hole shall not have more than 2 sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it shall be closed over with a cover or a guardrail system shall be provided along all unprotected sides or edges.

12. When guardrail systems are used around holes which are used as points of access (such as ladderways), they shall be provided with a gate or be so offset that a person cannot walk directly into the hole.

13. Guardrail systems used on ramps and runways shall be erected along each unprotected side or edge.

14. Manila, plastic or synthetic rope being used for top rails or midrails shall be inspected as frequently as necessary to ensure that it continues to meet the strength requirements required for use as fall protection.

F. Safety Net Systems (29 CFR 1926.502(c))

1. Safety nets 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. When nets are used on bridges, the potential fall area from the walking/working surface to the net shall be unobstructed.

2. Safety nets shall be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to the drop test specified in paragraph (c)(4) of the OSHA 1926 manual.

3. Safety nets and their installations shall be capable of absorbing an impact force equal to that produced by a drop test that shall consist of a 400 pound bag of sand 30 inches in diameter dropped into the highest walking / working surface at which employees are exposed to a fall hazard but not less than 42 inches above that level.

4. Defective nets shall not be used. Safety nets shall be inspected by a competent person at least once per week for wear, damage, and other deterioration. Defective components shall be removed from service. Safety nets shall also be inspected by a competent person after any one occurrence which could affect the integrity of the safety net system.

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

6. The maximum size of each safety net mesh opening shall not exceed 36 square inches nor be longer than 6 inches on any side, and the opening measured center to center of mesh ropes or webbing, shall not be longer than 6 inches. All mesh crossings shall be secured to prevent enlargement of the mesh opening.

7. Each safety net (or section of it) shall have a border rope for webbing with a minimum breaking strength of 5000 pounds.

8. Connections between safety net panels shall be as strong as integral components and shall be spaced not more than 6 inches apart.

G. Personal Fall Arrest Systems (29 CFR 1926.502(d))

All information below in numbers 1 through 15 is based on a total body and tool weight of 310 pounds. If a person's total body and tool weight exceeds this number, the fall arrest system must be adjusted accordingly.

1. Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials.

2. Connectors shall have corrosion resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system.

3. Dee-rings and snap hooks shall have a minimum tensile strength of 5000 pounds.

4. Dee-rings and snap hooks shall be proof tested to a minimum tensile load of 3600 pounds without cracking, breaking, or taking permanent deformation.

5. Snap hooks shall be sized to be compatible with the member to which they are connected to, and shall be a locking type snap hooks designed to prevent

disengagement of the snap hook by the contact of the snap hook keeper by the connected member. **Any snap hooks without a positive locking device should be removed from service immediately as they no longer meet OSHA Standards. If you have any questions about your equipment please contact Loss Control.**

6. On suspended scaffolds or similar work platforms with horizontal lifelines which may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline.

7. Horizontal lifelines shall be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system.

8. Lanyards and vertical lifelines shall have a minimum breaking strength of 5000 pounds.

9. When vertical lifelines are used, each employee shall be attached to a separate lifeline.

10. Lifelines shall be protected against being cut or abraded.

11. Self-retracting lifelines and lanyards which automatically limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in a fully extended position.

12. Self-retracting lifelines and lanyards which do not limit free fall distance to 2 feet or less, ripstitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyards in the fully extended position.

13. Ropes and straps (webbing) used in lanyards, lifelines, and strength components of safety belts and harnesses shall be made from synthetic fibers.

14. Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used as follows:

    a. As part of a complete personal fall arrest system which maintains a safety factor of at least two.

    b. Under the supervision of a qualified person.

15. Personal fall arrest systems, when stopping a fall shall:

    a. Limit maximum arresting force on an employee to 1800 pounds when using a body harness,

b. Be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level,

c. Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet, and

d. Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet, or the free fall distance permitted by the system, whichever is less.

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

17. Body harnesses and components shall be used only for employee protection (as part of the personal arrest system or positioning device system) and not to hoist materials.

18. 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.

19. Rescue of persons involved in a fall should only be attempted if the rescue does not pose an additional hazard to the rescuer.

20. Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service.

21. Personal fall arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists, except as approved in advance by Loss Control.

22. When a personal fall arrest system is used at hoist areas, it shall be rigged to allow the movement of the employee only as far as the edge of the walking /working surface.

H. Positioning Device Systems (29 CFR 1926.502(e))

1. Positioning devices shall be rigged such that an employee cannot fall more than 2 feet.

2. 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, whichever is greater.

3. Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials.

4. Connectors shall have corrosion resistant finish, and all surfaces and edges shall be smooth to prevent damage to the interfacing parts of the system.

5. Connecting assemblies shall have a minimum tensile strength of 5,000 pounds.

6. Dee-rings and snap hooks shall be proof-tested to a minimum tensile load of 3,600 pounds without cracking, breaking, or taking permanent deformation.

7. Positioning device systems shall be inspected prior to each use by a competent person, for wear, damage, and other deterioration, and defective components shall be removed from service.

8. Positioning device systems should never be used for hoisting.

I. Covers (29 CFR 1926.502(i))

1. Covers located in roadways and 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.

2. 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 covers at any one time.

3. All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees.

4. All covers shall be color coded or they shall be marked with the word HOLE or COVER to provide warning of the hazard.

J. Protection From Falling Objects (29 CFR 1926.502(j))

1. Toeboards, when used as protection from falling object protection, shall be erected along the edge of the overhead walking/working surface for a distance sufficient to protect employees below.

2. Toeboards shall be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or outward direction at any point along the toeboard.

3. Toeboards shall be a minimum of 3 inches in vertical height from their top edge to the level of the walking/working surface. They shall not have more than 1/4 inch clearance above the walking/working surface. They shall be solid or have openings not over 1 inch in the greatest dimension.

4. Where tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening shall be erected from the walking/working

surface or toeboard to the top of the guardrail systems top rail or midrail, for a distance sufficient to protect employees below.

5. Canopies, when used as falling object protection, shall be strong enough to prevent collapse and to prevent penetration by any objects which may fall onto the canopy.

Responsibilities:

A. Department / Division Heads

Each Department/Division Head is responsible for ensuring the implementation of this policy in their divisions and operations under their control.

B. Supervisors

1. Must ensure that all employees attend training and follow these policies and procedures for Fall Protection.

2. Supervisors who are involved in activities that require Fall Protection must be a Competent Person as defined in the definitions section of this policy. Training will be provided by Loss Control.

C. Employees

1. Must comply with the standards and procedures included in this policy.

2. Must participate in training and re-training, as necessary.

D. Employee Safety / Loss Control

1. Coordinate all Fall Protection training and safety meetings to reinforce safety procedures for all supervisors and employees.
2. Perform site inspections to determine the best type of fall protection for the department's application.

3. Monitor all aspects of this Fall Protection policy for compliance.

Verdenia C. Baker

VERDENIA C. BAKER
COUNTY ADMINISTRATOR

Supersession History
1. PPM #CW-P-070, dated 7/1/2000
2. PPM# CW-P-070, reviewed and current 5/11/2011

ATTACHMENT 1: DEFINITIONS

1. Anchorage Point - a secure point of attachment of lifelines, lanyards, or deceleration devices.

2. Body Belt - (safety belt) - means a strap with means for both securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device. **(Body belts cannot be used by County employees for any purpose).**

3. Body Harness - straps which can be secured in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, chest, and shoulders with means for attaching it to other components of a personal fall arrest system.

4. Buckle - any device for holding the body belt or body harness closed around the employee's body.

5. Competent Person - one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

6. Connector - a device which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, or it could be an integral component or part of the system (such as a buckle or dee-ring sewn into a body belt or harness, or a snap hook spliced or sewn to a lanyard or self retracting lanyard).

7. Deceleration Device - means 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.

8. Dangerous Equipment - dangerous equipment means equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment or other units) which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.

9. 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 harness attachment point at the moment of activation during a fall, and the location of the attachment point after the employee comes to full stop.

10. Equivalent - means alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials, or designs specified in the standard.

11. Failure - means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

12. Fall Protection - Devices, equipment, guardrails and toe boards that function as a barrier to prevent people and equipment from falling (toeboards and guardrails) or provide protection to provide life saving protection to employees should they experience a fall.

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

14. Free Fall Distance - the vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between the onset of the fall and just before the system begins to apply force to arrest the fall. The distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

15. Guardrail System - means a barrier erected to prevent employees from falling to lower levels.

16. Hole - a gap or void of 2 inches or more in its least dimension, in a floor, roof, or other walking/working surface.

17. Infeasible - means that it is impossible to perform the construction work using a conventional fall protection system (ie., guardrail system, safety net system, or person;) or that it is technologically impossible to use any one of these systems to provide fall protection.

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

19. Leading edge - the edge of a floor, roof, or formwork for a floor or other walking/working surface which changes location as an additional floor, roof, or deck is formed, placed, or constructed.

20. Lifeline - a component consisting of flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for the 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.

21. 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, runways, ramps, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

22. Mechanical Equipment - all motor or human propelled wheeled equipment used for roofing work, except wheelbarrows and mopcarts.

23. Opening - a gap or void 30 inches or more in height, and 18 or more inches wide, in a wall or partition, through which employees can fall to a lower level.

24. Personal Fall Arrest System - a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, and body belt or harness and may include a lanyard, deceleration device, lifeline, or suitable combination of these.

25. 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 wail, and work with both hands free while leaning.

26. Rope Grab - a deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline, and locks it so as to arrest the fall of an employee.

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

28. Safety-Monitoring System - a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

29. 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.

30. Snaphook - a connector compromised 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.

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

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

33. 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.