Policy Number:	**105.116**
Title:	**Fall Protection for Walking and Working Surfaces**
Effective Date:	**10/1/19**

PURPOSE: To provide safe procedures for the control of fall hazards and the means of enforcing compliance.

APPLICABILITY: All facilities

DEFINITIONS:

Anchorage – a secure point of attachment for lifelines, lanyards or deceleration devices. Examples of acceptable anchor points: I-beams, horizontal structural supports, and other substantial anchors that are capable of supporting more than 5,000 pounds per individual attached, independent of any anchorage being used to support or suspend platforms. Some examples of unacceptable anchor points are electrical conduit, fire sprinkler piping, heating ventilation and air conditioning (HVAC) duct and/or any other suspended equipment not intended to carry a load equal to the weight of a person falling from heights.

Authorized staff person – a staff person whom the employer assigns to perform a specific type of duty, or allows in a specific location or area.

Buckle – any device for closing and holding the body belt or body harness around the body.

Connector – a device that 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, such as a carabiner, or it may be an integral component of part of the system (such as a buckle or D-ring sewn into a body belt or body harness, or a snap hook spliced or sewn to a lanyard or self-retracting lanyard).

Controlled access zone (CAZ) – a controlled-access area in which certain work (e.g., overhead bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems.

Deceleration device – any mechanism such as a rope grab, rip-stitch lanyard, specially woven lanyard, tearing or deforming lanyards, and automatic self-retracting lifelines/lanyards, which serves to dissipate a substantial amount of energy during a fall arrest.

Elevated height – any platform, ladder, stairway, or working surface greater than four feet from the surrounding surface.

Floor opening – an opening measuring 12" or more in its least dimension in any floor, platform, pavement, or yard through which persons may fall, such as a hatchway, stair or ladder opening, pit, or large manhole. Floor openings occupied by elevators, dumbwaiters, conveyors, machinery, or containers are excluded.

Free fall distance – the vertical displacement of the fall arrest attachment point on the body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This 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.

Guardrail system – a barrier erected to prevent falls to lower levels.

Handrail – a single bar or pipe supported on brackets from a wall or partition, as on a stairway or ramp, to furnish persons with a handhold for support in case of tripping.

Lanyard – a flexible line of rope, wire rope, or strap, which usually has a connector at each end for connecting the 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 a deck) that 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.

Low slope roof – a roof having a slope of less than or equal to four inches of vertical rise for every 12 inches of length (4:12).

Personal fall arrest system – a system used to arrest a fall from a walking-working surface, consisting of an anchorage, connectors, and a body harness and may include a lanyard deceleration device, lifeline, or suitable combination of these.

Platform – walking-working surface that is elevated above the surrounding floor or ground, such as a balcony or platform for the operation of machinery or equipment.

Qualified staff person – one with a recognized degree, certificate or extensive knowledge and experience in the field who is capable of design, analysis, evaluation and specifications in the subject, work, project, or product.

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

Scaffold – any temporary elevated or suspended platform and supporting structure used for supporting workers and/or materials.

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

Stair railing – a vertical barrier erected along exposed sides of a stairway to prevent falls to a lower level.

Stepladder – a self-supporting portable ladder of fixed height, having flat steps, and a hinged back. Its size is designated by the overall length of the ladder measured along the front edge of the side rails.

Tie-off – the act of connecting directly or indirectly to an anchorage, or the condition of being connected to an anchorage.

Toeboard – a low, protective barrier secured along the sides and ends of a platform to guard against falling material.

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, guardrail, or stairwell system at least 39" (one meter) high.

Walking-working surface – any surface, whether horizontal or vertical, on which people walk, work, or gain access to a work area including, but not limited to, such examples as: floors, roofs, ramps, bridges, runways, formwork, and concrete reinforcing steel (but not including ladders, vehicles, or trailers) on which people must be located in order to perform job duties.

Warning line system – a barrier erected to warn people that they are approaching an unprotected side edge, and that designates an area where work may take place without the use of other means of fall protection.

Working load – load imposed by people, materials, and equipment.

PROCEDURES:

A. Staff responsibilities

1. The warden of each facility must ensure:
   a) Compliance with this policy;
   b) All authorized employees receive required training; and
   c) Fall protection equipment is provided.

2. All authorized employees must:
   a) Read and understand this policy;
   b) Attend required training (initially and as deemed necessary by their supervisors thereafter);
   c) Use approved devices and techniques;
   d) Understand the work to be performed, to ensure availability of all necessary tools and equipment;
   e) Ensure fall protection devices are in place and positioned before beginning the work and used as intended throughout the duration of the work; and
   f) Use personal protective equipment (PPE) as dictated for the work to be performed.

3. The facility safety administrator or designee must:
   a) Annually review and update the procedure;
   b) Evaluate and authorize the use of fall protection devices when necessary;
   c) Conduct job-specific inspections as needed to evaluate worker safety during activities involving work from heights;
   d) Work with supervisors and staff to develop alternate work practices that may be required in unique situations; and
   e) When necessary, review fall protection plans prior to start of work.

4. All facility supervisors must:
   a) Be familiar with fall protection equipment and procedures that employees in the supervisor's area may need;
   b) Ensure that all authorized employees are trained and proficient in the use of fall protection equipment;
   c) Determine the locations and tasks that require fall protection;
   d) Ensure that fall protection procedures are followed; and

e) Communicate any issues regarding fall protection procedures or equipment to the facility safety administrator, and assist in resolution.

5. All training must be recorded in the agency-approved electronic training management system.

6. Staff must complete incident reports, and employee injury reports as needed, due to any fall or misuse of equipment. Reports are retained at the appropriate facility according to the retention schedule.

B. Ladders

1. Staff must use ladders for their intended purpose only. (Staff must not use portable ladders in horizontal position as platforms, runways, or scaffolds.) Ladders must meet all design requirements set forth by OSHA standards.

2. Staff must use the correct size of ladder for the job, and must not tie ladders together to make longer extensions. If the correct size of ladder is not available, staff must use a mobile elevated work platform, refer to Policy 105.121, "Mobile Elevated Work Platforms."

3. Staff must tag defective or damaged ladders immediately and dispose of them as soon as possible. Repairs are not allowed.

4. Before use, staff must inspect:
   a) The stability and cleanliness of the ladder (and must clean it if there is grease or oil on the steps or rails);
   b) The ladder rails for bends, splits, or cracks;
   c) The steps/rungs for bends, splits, cracks, missing or loose components;
   d) The feet for smooth or missing tread;
   e) The spreader bar on step ladders for missing bolts or bent bars; and
   f) Extension ladders for correct engagement of rung locks and for frays and signs of wear on cables

5. General setup
   a) If ladder work is being performed in front of a closed door, a means of notifying approaching personnel must be displayed (e.g., posting a sign or caution tape).

   b) The staff person must position the ladder's feet on a level, stable base.

   c) Staff must set up extension ladders at a four to one pitch, vertical to horizontal (e.g., if the ladder is elevated 12 feet it should be positioned three feet from the base of the wall).

   d) Staff must extend the ladder three feet above the working surface and tie it off to prevent movement or slippage.

6. Working from ladders
   a) Only one person may be on a ladder.

b) Staff must use both hands and face the ladder when climbing up or down, and must maintain three points of contact at all times.

c) Staff must face the ladder while working. Staff must move or reposition the ladder to accommodate its proper use.

d) Staff must remain centered on the ladder, never moving the body's center line outside either rail (belt buckle rule). Staff must move or reposition the ladder to accommodate its proper use.

e) Staff must carry tools or equipment in tool belts or bags or hand off to different levels. If necessary, staff must use a mechanical hoist.

f) Temperatures as low as 150 degrees Fahrenheit can damage fiberglass ladders. Staff must use caution when ladders are near hot surfaces or when welding or cutting.

g) Staff must not stand, climb, or sit on the top three rungs of a single/extension ladder or on the top step, back bracing, or paint shelf of a step ladder.

h) Staff must clean the ladder immediately if it is exposed to oil, grease, or other slippery material.

i) Ladder climbing devices are required on any fixed ladder greater than 30 feet in unbroken length.

C. Scaffolds

1. Scaffold designs must meet all design requirements set forth by OSHA standards.

2. Staff must tag defective or damages scaffolding immediately and dispose of it as soon as possible. Repairs are not allowed.

3. Qualified persons must install all scaffolds/work access platforms.

4. Before use, staff must inspect the scaffold to determine that:
   a) Handrails, midrails, toeboards, and decking are in place;
   b) All wheels on moveable scaffolds are locked; and
   c) Locking pins are in place at each joint.

5. General setup
   a) Staff must not change or remove scaffold members unless authorized.

   b) Guardrails, including top and midrails, and toeboards must be installed on all open sides and on ends of scaffolds and platforms more than ten feet above the ground or lower surface.

   c) Scaffolds must be tied off or stabilized with outriggers when the height is more than three times the smaller base dimension. Scaffolds must also be tied off horizontally every 30 feet.

d) Access ladder or equivalent means of safe access must be provided on all elevated work platforms.

e) When space permits, all scaffold platforms must be equipped with standard 42" high handrails rigidly secured (not wired), standard 21" high midrails, completely decked with safety plank or manufactured scaffold decking, and rigidly secured toeboards on all four sides.

f) Staff must not use adjusting or leveling screws on scaffolds equipped with wheels. Adjusting screws must not be extended more than 12" of thread.

6. Working from scaffolding

a) Staff must never move scaffolding while it is occupied.

b) Staff must use the ladder to get on and off the scaffold, and must never climb on or work from any handrail, midrail, or brace member.

c) Staff must be aware of the safe working load of all scaffolds.

d) Staff must not rig from scaffold handrails, midrails, or braces.

D. Loading docks

1. Only trained individuals may perform loading and unloading duties in dock areas.

2. Staff must ensure chain lashing is in place across the opening of any loading dock when a truck is not parked in the loading well.

3. Staff must use the designated stairway or ladder to access docks.

E. Elevated working surfaces

The primary means of fall protection is the installation of a guardrail system around the work area. Guardrail systems must meet the following requirements:

1. The top rail (handrail) must be 42" (plus or minus three inches) from the working surface. Guardrail systems must be capable of withstanding a force of more than 200 pounds within two inches of the top edge, in any direction, at any point along the top edge.

2. When conditions warrant, the height of the top edge may exceed 45" height provided that the guardrail system meets all other criteria.

3. Guardrail systems must be smooth surfaced and designed to prevent injury from punctures or lacerations, and snagging of clothing.

4. Midrails must be located midway between the top rail and the working surface. The midrail must be capable of withstanding a force of 150 pounds applied at any downward or outward direction at any point along the midrail.

5. Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members must 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" high.

6. Toeboards must be provided to prevent tools and other objects from falling off the working surface. Toeboards must be a minimum of 3.5 inches in vertical height and capable of withstanding 50 pounds of outward force applied at any point in the direction of the exposed perimeter.

7. Screens or paneling from the toeboard to the midrail or top rail are required when equipment or material is piled higher than the toeboard and is capable of being ejected from the working surface to the level below.

8. Where gates or openings are required in the guardrail system to facilitate material movement, employees working at the opening must employ personal fall arrest or restraint systems.

9. All normal walking-working surfaces with open-sided floors, such as platforms or docks with a drop off of four feet or more, must be guarded by a guardrail or equivalent (chain lashing at docks) except where there is a ramp, stairway or fixed ladder. Guards must always be in place when the area is not being used.

10. Every floor hole into which persons may accidentally fall must be guarded by a standard guardrail system or by a suitable floor covering of sufficient strength.

11. When guardrails are used around points of access (such as ladder-ways), they must be provided with a means of closure (e.g., gate or chain).

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

13. Prior to removal of a guardrail, the employee must be protected from fall hazard by a personal fall arrest or restraint system.

F. Roofs

1. Warning line systems are only applicable in low-pitched roofing operations (less than or equal to four feet of rise in 12 feet). Personal fall arresting systems or safety nets must be used in steep roof situations (greater than four feet of rise in 12 feet).

2. Where warning lines are employed:
   a) The warning line must be erected around all sides of the roof work area.

   b) When mechanical equipment is not being used, the warning line must be erected no less than six feet from the roof edge.

   c) When mechanical equipment is being used, the warning line must be erected no less than six feet from the roof edge which is parallel to the direction of mechanical equipment operation, and no less than ten feet from the roof edge which is perpendicular to the direction of mechanical equipment operation.

   d) Points of access, material handing areas, storage areas, and hoisting areas must be connected to the work area by an access path formed by two warning lines.

e) Warning lines must consist of ropes, wires, or chains and supporting stanchions erected as follows:
   (1) The rope, wire, or chain must be flagged at not more than six-foot intervals with high-visibility material;
   (2) The rope, wire, or chain must be rigged and supported in such a way that its lowest point (including sag) is less than 34" from the walking-working surface and its highest point is no more than 39" from the walking-working surface; and
   (3) After being erected with the wire, rope, or chain attached, stanchions must be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30" above the walking-working surface perpendicular to the warning line, and in the direction of the floor, roof, or platform edge.

f) No employee is allowed in the area between the roof edge and a warning line unless the employee is performing roof work in that area and is tied off.

g) Staff must use proper notification for affected persons. This may be in the form of hazard awareness training, proper barricading/signage, flier notifications, or other recognized method.

h) Mechanical equipment on roofs must be used or stored only in areas where employees are protected by a warning line system, guardrail system, or personal fall arrest system.

G. Personal fall arrest systems

1. Use of a body belt is not acceptable. Only full body harnesses that meet the American National Standards Institute (ANSI) A10.14-1998 are acceptable fall arrest equipment.

2. Lanyards must be made from synthetic fiber, limit the total fall distance to six feet, and be made of the shock absorbent type.

3. Shock absorbent lanyards must be attached to the D-ring on the back of the harness between the shoulder blades. D-rings and snap hooks must have a minimum tensile strength of 5,000 pounds.

4. Only locking-type snap hooks may be used to prevent disengagement of the snap hook. Non-locking snap hooks must not be used under any circumstances.

5. Personal fall arrest systems must be used per the manufacturer's specifications.

6. Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds.

7. Self-retracting lifelines and lanyards must:
   a) Automatically limit free-fall distance to less than two feet; and
   b) Be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

8. Anchorage/tie off points used for attachment of personal fall arrest equipment must:

a) Be capable of supporting more than 5,000 pounds per employee attached, independent of any anchorage being used to support or suspend platforms; and
b) Be part of a complete fall arrest system with a safety factor of two.

9. Personal fall arrest systems must:
   a) Be rigged so that, if an employee falls, it is the shortest possible distance so as to minimize the impact and swing of the arrest. The absolute maximum free fall distance is six feet.

   b) Limit the maximum arresting force on an employee to 1,800 pounds with a body harness.

   c) Bring the employee to a complete stop and limit the maximum deceleration distance to 3.5 feet.

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

10. Once a personal fall arrest system or its components have been used in a fall, it must immediately be removed from service.

11. All fall protection equipment (e.g., body harnesses and lanyards) must be inspected before each use. All straps, buckles, D-rings and stitching must be in good working condition before donning equipment. Any defective components must be tagged, removed from service, and must not be used again until inspected and determined by a competent person to be undamaged and suitable for use.

12. Personal fall arrest systems must not be attached to guardrail systems or hoists.

H. Housekeeping
1. To prevent slipping, tripping, and falling, all places of employment, passageways, storerooms, and service rooms must be kept clean and orderly and in a sanitary condition. The floor of every workroom must be maintained in a clean and, so far as possible, dry condition. Where wet processes are used, drainage must be maintained and false floors, platforms, mats, or other dry standing places provided where practicable.

2. Every floor, working place, and passageway must be kept free from protruding nails, splinters, holes or loose boards.

I. Training
1. Each facility supervisor must ensure affected employees are trained, initially and as deemed necessary thereafter, by a qualified person regarding:
   a) Nature of fall hazards in the work area;
   b) Correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems;
   c) Use of personal fall arrest systems and other protection;
   d) Role of each employee in the safety monitoring system; and
   e) Correct procedures for using ladders and use of tools and equipment while on ladders.

2. Employee development maintains a written record of all training conducted by outside vendors on new fall protection equipment or systems, including the name or other identity of the employee trained and the name of the person conducting the training.

3. Retraining is required when:
   a) Changes in the workplace render previous training obsolete;
   b) Changes in the types of fall protection and ladder safety or equipment render previous training obsolete;
   c) Inadequacies in the employee's knowledge or use of fall protection equipment indicate that the employee has not retained proper understanding or skill; or
   d) Changes in codes or regulations render previous training obsolete.

J. Program evaluation
The facility safety administrator conducts periodic reviews to determine the effectiveness of the program. The evaluation includes a review of reported accidents, as well as near misses, to identify areas where additional safety measures are required. This review may include a facility walk-through or interviews with employees to determine whether they are familiar with program requirements and safety practices. The facility safety administrator retains the reviews according to the retention period.

INTERNAL CONTROLS:

A. All training is documented in the agency-approved electronic training management system.

B. Incident and employee injury reports completed due to any fall or misuse of equipment are retained according to the retention schedule at the appropriate facility.

C. Reviews of the fall protection program are retained by the facility safety administrator.

ACA STANDARDS: None

REFERENCES: Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1910 subpart D - Walking and Working Surfaces
OSHA Standard 29 CFR 1926 subpart M - Fall Protection
Policy 105.121, "Mobile Elevated Work Platforms"

REPLACES: Division Directive 105.116, "Fall Protection for Walking and Working Surfaces," 10/7/14.
All facility policies, memos, or other communications whether verbal, written, or transmitted by electronic means regarding this topic.

ATTACHMENTS: None

APPROVALS:
Deputy Commissioner, Community Services
Deputy Commissioner, Facility Services
Assistant Commissioner, Operations Support
Assistant Commissioner, Facility Services