State of Iowa Department of Corrections

Policy and Procedures

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1. PURPOSE

To establish safe procedures for the control of fall hazards and the means of enforcing compliance in the Iowa Department of Corrections (IDOC).

2. POLICY

The IDOC shall ensure that authorized employees are trained, equipped, and required to use approved devices and techniques in order to minimize the risk of death or injury due to an unexpected fall.

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3. DEFINITIONS

A. Authorized Employee – An employee who the employer assigned to perform a specific type of duty, or allowed in a specific location or area.

B. Anchor Point - 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 5000 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, HVAC duct and/or any other suspended equipment not intended to carry a load equal to the weight of a person falling from heights. Anchor points used for positioning devices shall be capable of supporting 3000 pounds per individual.

C. 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. For use as positioning device only. **Not allowed to be used in the IDOC.**

D. Body Harness – Straps which may be secured about the employee in a manner that shall distribute the fall arrest force over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

E. Buckle - Any device for closing and holding the body harness around the body.

F. 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.

G. 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).

H. Controlled Access Zone (CAZ) - An area designated and clearly marked in which leading edge work may take place without the use of a guardrail, safety net or personal fall arrest systems to protect the employees in the area.

I. 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.

J. Elevated Height - Any platform, ladder, stairway, or working surface greater than four feet from the surrounding surface.

K. 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.

L. 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.

M. Guard Rail System - A barrier erected to prevent falls to lower levels.

N. 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 in case of tripping.

O. Hole – A gap or void 2 inches or more in its least dimension, in a floor, roof, or other walking or working surface.

P. 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.

Q. 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.

R. Low Slope Roof - A roof having a slope less than or equal to a four-foot rise in 12 feet (vertical to horizontal) 4:12 pitch.

S. Personal Fall Arrest System - A system used to arrest a fall from a working level, consisting of an anchorage, connectors, body harness and may include a lanyard deceleration device, lifeline, or suitable combination of these.

T. Qualified Person - An individual, who by possession of a recognized degree, certificate, or professional standing or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems relating to the subject matter, work, or project.

U. Safety Monitoring System - A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards. **The Safety Monitoring System is not allowed in the IDOC.**

V. Scaffold - Any temporary elevated platform and supporting structure used for supporting workers and/or materials.

W. Self-Retracting Lifeline/Lanyard - A deceleration device containing a drum-wound line that can 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.

X. Stair Railing - A vertical barrier erected along exposed sides of a stairway to prevent falls.

Y. Standard Guardrail – Consists of a top rail 42 inches (+-3 inches) above the walking/working surface. Mid rails installed at a height midway between the top edge of the guardrail system and the walking/working surface. Toe boards, if required, have a minimum vertical height of 3.5 inches as measured from the top edge of the toe board to the level walking/working surface.

Z. Stepladder - A self-supporting portable ladder, nonadjustable in length, 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.

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

BB. Toe board - A barrier secured along the sides and ends of a platform to guard against falling material.

CC. Unprotected Sides and Edges - Any side or edge (except at entrances to points of access) or a walking/working surface (e.g., floor roof, ramp, or runway) where there is no wall or guard rail system at least 39" (1 meter) high.

DD. Wall Opening – Any opening (door, window, etc) where the outside bottom edge of the wall opening is 6 feet (1.8 m) or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches (1.0 m) above the walking/working surface, shall be protected from falling by the use of a guard rail system, a safety net system, or a personal fall arrest system.

EE. Walking/Working Surface - Any surface, whether horizontal or vertical, on which people walk or work including, but not limited to: floors, roofs, ramps, bridges, runways, formwork, and concrete reinforcing steel on which people must be located in order to perform job duties.

FF. Warning Line System - A barrier erected on a roof to warn people that they are approaching an unprotected side roof or edge, and that designates an area where work may take place without the use of guard rail, or safety net systems protecting people in the area.

GG. Working Load - Load imposed by people, materials, and equipment.

HH. See IDOC Policy **AD-GA-16** for additional Definitions.

4. PROCEDURES

A. Staff Responsibilities

1. The Warden of each facility shall ensure:

a. Compliance with this policy.

b. All authorized employees receive required training.

2. All authorized employees shall:

a. Visual inspection all equipment prior to use. This shall include ladders.

b. Read and understand this policy.

c. Use fall protection when working within 15 feet from the roof edge or other unprotected edge or opening.

d. Notify supervisor prior to accessing a roof.

e. Perform a hazard analysis prior to accessing a roof or elevated work surface.

f. Attend required training.

g. Understand the work to be performed, to ensure availability of all necessary tools and equipment.

h. Follow all work rules.

3. The institution Safety Officer shall:

a. Review annually the institution procedures and revise the procedures if necessary.

b. Evaluate and authorize the use of fall protection devices.

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.

e. Review fall protection plans prior to start of work.

f. Train and/or arrange training for affected workers.

4. The Plant Operation Manager shall:

a. Be familiar with fall protection equipment and procedures that employees in their area may need.

b. Ensure that all authorized employees are trained and proficient in the use of fall protection equipment.

c. Ensure that fall protection procedures are followed.

d. Communicate any issues regarding fall protection procedures or equipment to the Safety Officer, and assist in resolution.

e. Ensure all work rules are followed.

B. Ladder Use

1. Use ladders for intended purpose only. (Do not use portable ladders in horizontal position as platforms, runways, or scaffolds.)

2. Tag defective or damaged ladders immediately. Repair ladders with only manufacturer recommended repair kits. If no repair kit is available then dispose of ladder.

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

4. Ladders shall not be placed on a scaffold to gain additional height.

5. The Safety Officer shall complete a documented inspection every 12 months on all ladders. Each institution shall identify in their institutional procedure the method of documentation.

    a. Ladder for stability and cleanliness (clean if there is grease or oil on steps or rails).

    b. Rails for bends, splits, or cracks.

c. Steps/ rungs for bends, splits, cracks, missing or loose components.

d. Steps/ rungs for smooth or missing tread.

e. Spreader bar on stepladders for missing bolts or bent bars.

f. Extension ladders for correct engagement of rung locks and for frays and signs of wear on cables.

g. Tag or destroy/dispose of defective or damaged ladders immediately.

6. General setup

a. Use the correct size ladder for the job.

b. Position the ladder's feet on a level, stable base.

c. Set up extension ladders at a four to one pitch, vertical to horizontal (e.g., if ladder is elevated 12 feet it shall be three feet from base of wall).

d. Extend ladder three feet above working surface and tie it off to prevent movement or slippage.

e. Ensure only one person on a ladder at a time.

f. Select ladder size based on work height and weight of worker and tools.

g. Ensure that no one stands, climbs, or sits on the three top rungs of a straight ladder or top step of a step ladder.

7. Working from ladders

a. Use both hands and face the ladder when climbing up or down and always maintain 3 points of contact on the ladder.

b. Face ladder while working. Move or reposition the ladder as needed to accommodate its proper use.

c. Remain centered on the ladder and never lean from the ladder.

d. Carry tools or equipment in tool belts or bags hand up or down to different levels or lift by mechanical hoist.

e. Use caution when ladders are near hot surfaces or when welding or cutting.

f. Ensure that no one climbs, stands or sits on the bracing on the back legs of a folding ladder or a paint shelf (when present).

g. Clean ladder immediately if exposed to oil, grease or other slippery material.

h. Ensure ladders are not tied together to make longer extensions.

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

   NOTE: Any new fixed ladder over 24 feet installed after 2018 must have a ladder safety system or personal fall arrest system.

C. Scaffolds

1. Ensure the erection and dismantling of all scaffolds is supervised by a competent person.

2. Inspect visually all scaffolding before starting work to determine that:

   a. Handrails, mid-rails, toe boards, and decking are in place;

   b. All wheels on moveable scaffolds are locked; and

   c. Locking pins are in place at each joint.

3. Change or removal of scaffold members shall only be done if properly authorized.

4. Riding on a rolling scaffold when it is being moved is prohibited.

5. Install guard rails, including top and mid rails, and toe boards on all open sides and on ends of scaffolds and platforms more than four feet above the ground or lower surface. (Guard rails must be 42 inches high and the mid rail approximately 21 inches from the work surface.)

6. The work surface shall be fully planked.

7. Do not climb on or work from any handrail, mid rail, or brace member.

8. Tie off or stabilize all scaffolds with outriggers when the height is more than three times the smaller base dimension. (Scaffolds must also be tied off horizontally every 30 feet.)

9. A ladder or equivalent means of safe access shall be provided.

10. Ensure that adjusting or leveling screws are not used on scaffolds equipped with wheels. (Adjusting screws must not be extended more than 12" of thread.)

11. Alteration of a scaffold member by welding, burning, cutting, drilling or bending is not allowed.

D. Elevated Working Surfaces - Guard rail systems must meet the following:

1. Top rail (handrail) must be 42" (plus or minus three inches) from the working surface. Guard rail 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 guard rail system meets all other criteria.

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

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

5. Mid rails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guard rail system and the walking/working surface when there is no wall or parapet wall at least 21" high.

6. Toe boards must be provided to prevent tools and other objects from falling off the working surface. Toe boards must have a minimum vertical height of 3.5 inches 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 toe board to the mid or top rail are required when equipment or material is piled higher than the toe board and is capable of being ejected from the working surface to the level below.

8. Where gates or openings are required in the guard rail 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 protected by a guard rail 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 can accidentally fall must be protected by a standard guard rail system or by a suitable floor covering of sufficient strength.

11. When guard rails are used around points of access (such as ladder-ways) they must be provided with a self-closing gate meeting the requirements of a guard rail system.

12. When guard rail systems are used at hoisting areas a self-closing gate or removable guard rail section must be placed across the access opening between the guard rail sections when hoisting operations are not taking place.

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

E. Personal Fall Arrest Systems

1. Only full body harnesses that meet American National Safety Institute (ANSI) standard A10.14-1998 are acceptable.

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

3. Shock absorbing lanyards must be attached to the D-ring on the back of the harness between the shoulder blades. D-rings, snap hooks, and carabineers must be capable of sustaining a minimum tensile load of 5,000 lbs. (1910.140(c)(7))

4. Only locking-type snap hooks shall 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 and inspected per the manufacturer's specifications.

6. Lanyards and vertical lifelines must have a minimum breaking strength of 5000 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 3000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

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

    Be capable of supporting more than 5000 pounds per employee attached, independent of any anchorage being used to support or suspend platforms; and as 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 shall be 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 maximum arresting force on an employee to 1800 pounds with a body harness.

c. Bring the employee to a complete stop and limit 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 used.

10. Once a personal fall arrest system and/or its components have arrested a fall, it/they must immediately be removed from service.

11. All fall protection equipment (body harnesses, lanyards, etc.) shall 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 removed from service.

12. Personal fall arrest equipment shall be stored in a clean environment.

13. Personal fall arrest systems shall not be attached to guard rail systems or hoists.

F. Walking/Working Surfaces

1. All places of employment, passageways, storeroom, service rooms, and walking/working surfaces are to be kept clean, orderly and in sanitary condition.

2. Walking/working surfaces are maintained free of hazards and in a clean and, to the extent feasible, in a dry condition.

3. Employers must correct or replace hazardous conditions on walking/working surfaces.

4. If immediate repairs or corrections cannot be made, guard the hazard to prevent employees from using the walking/working surface until repairs can be made.

5. Any correction or repair that involves the structural integrity of the walking/working surfaces must be performed or supervised by a qualified person.

6. 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.

7. To warn persons of wet floors, cones, signs, or other warning devices shall be properly displayed.

8. To facilitate cleaning every floor, working place and passageway must be kept free from protruding nails, splinters, holes or loose boards.

G. Training

The Safety Officer and Plant Operations Manager shall ensure training has occurred. See **IO-SE-03**, *Safety and Health Management Program*.

H. Rescue

Each facility shall have a rescue plan in effect when fall protection is in use, i.e., ladder, articulating lift, etc.

Staff shall be able to communicate the rescue plan prior to starting work.