

FALL PROTECTION SAFETY PROGRAM

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1. OBJECTIVE

The objective of the Bainbridge Island Metropolitan Park & Recreation District Fall Protection Safety Program is to identify and evaluate fall hazards to which employees will be exposed and to provide specific training as required by WAC 296-155 (Part C1).

2. INTENT

It is the intent of the Park District to protect its employees from occupational injuries by implementing and enforcing safe work practices and appointing a competent person(s) to manage the Fall Protection Safety Program. This Fall Protection Program shall comply with the requirements of the Division of Occupational Safety & Health (DOSH, a division of the WA State Dept. of Labor & Industries). A copy of the DOSH Fall Protection Standard as outlined in WAC 296-155 (Part C-1) is available online at the WA State website.

3. RESPONSIBILITIES

A. Employer

It is the responsibility of Park District to provide fall protection to affected employees, and to ensure that employees understand and adhere to the procedures of this plan.

B. Program Administrator

It is the responsibility of the Fall Protection Program Administer to implement this program by:

- Ensuring employees and supervisors are trained in recognizing fall hazards and the use of fall protection systems.
- Ensuring records related to this safety program such as employee training, equipment issue, and fall protection system usage are kept in accordance with WA State retention requirements.
- Assisting in investigating and documenting incidents that result in employee injury.

The Executive Director will be responsible for appointing the Program Administrator.

C. Project Lead

It is the responsibility of the project lead to implement this program by:

- Performing routine safety checks of work operations.
- Correcting any unsafe practices or conditions immediately.
- Training employees and supervisors in recognizing fall hazards and the use of fall protection systems.

D. Employees

It is the responsibility of District employees to:

- Understand and adhere to the procedures outlined in this Fall Protection Program;
- Follow the instructions of the project lead.
- Bring to management's attention any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employees.
- Report any incident that causes injury to an employee, regardless of the nature of the injury.

4. FALL PROTECTION SAFETY

Falls from elevation are a major cause of injuries and death in the construction and related industries. The Park District is committed to eliminating injuries caused by fall hazards by instituting a program of fall protection for fall hazards of 4 feet or greater.

Work sites with fall hazards of 10 feet or more will have a site specific fall protection work plan completed before employees begin work. Employees on that specific job will be trained in the fall hazards and the method used to implement fall protection for this site. (See Exhibit 1 for Fall Protection Work Plan form). It will specify what fall hazards exist on site and the method of fall arrest or restraint to be used, as well as guide employees in the inspection and use of fall protection equipment.

The evaluation of the jobsite and the completion of the fall protection work plan will be done by the project lead who will have an understanding of the DOSH fall protection requirements, the fall protection systems available for use, and who will also have the authority to take corrective action to eliminate employee exposure to fall hazards on the site.

The following chart provides guidelines for determining what method of fall protection should be used depending on whether the intent is fall restraint or fall arrest.

FALL PROTECTION

| <u>For Fall Restraint</u> (to prevent a fall) | <u>For Fall Arrest</u> (to stop after a fall) |
|--|--|
| Guardrails | Full body harness |
| Full body harness | Safety nets |
| Warning line system OR | Catch platforms |
| Warning line system & safety monitor | |

5. TRAINING

- A. All employees who may be exposed to fall hazards are required to receive annual online training on how to recognize such hazards and how to minimize their exposure to them. Employees shall

receive this training shortly after employment begins, and before they are required to work in areas where fall hazards exist. Additional training will be conducted on-site by the project lead.

- B. A record of employees who have received training shall be maintained by the Program Administrator. Training of employees shall include:
- 1) Nature of fall hazards employees may be exposed to.
 - 2) Correct procedures for erecting, maintaining, disassembling and inspecting fall protection systems.
 - 3) Use and operation of controlled access zone, guardrail, personal fall arrest, safety net, warning line and safety monitoring systems.
 - 4) Use of mechanical equipment during roofing work on low-slope roofs (if applicable).
 - 5) Correct procedures for equipment and materials handling, and storage and erection of overhead protection.
 - 6) WA State requirements specified in WAC 296-155 (Part C-1).
 - 7) Park District requirements for reporting incidents that cause injury to an employee.
- C. Additional training shall be provided as needed or when changes are made to this Fall Protection Program.

6. CONTROLLED ACCESS ZONES

A controlled access zone is a work area designated and clearly marked for certain types of work that may take place without the use of conventional fall protection systems to protect employees who work in these zones. Controlled access zones shall be defined by control lines consisting of ropes, wires, tapes, or equivalent material, with supporting stanchions, and shall be:

- Flagged with a high-visibility material at 6 foot intervals.
- Rigged and supported so that the line is between 39 and 50 inches (including sag) from the walking/working surface.
- Strong enough to sustain stress of at least 200 pounds.
- Extended along the entire length of an unprotected or leading edge.
- Parallel to the unprotected or leading edge.
- Connected on each side to a guardrail system or wall.
- Erected between six (6) feet and 25 feet from an unprotected edge.

7. EXCAVATIONS

Fall protection will be provided to employees working at the edge of an excavation that is 6 feet or deeper. Employees in these areas are required to use the fall protection systems as designated in this program.

Excavations that are 6 feet or deeper shall be protected by guardrail systems, fences, barricades, or covers.

Walkways that allow employees to cross over an excavation that is 6 feet or deeper shall be equipped with guardrails.

8. FALL PROTECTION SYSTEMS

A. Covers

- All covers will be secured to prevent accidental displacement.
- Covers will be color-coded or bear the markings "HOLE" or "COVER".
- Covers located in roadways will be able to support twice the axle load of the largest vehicle that might cross them.
- Covers will be able to support twice the weight of employees, equipment and materials that might cross them.

B. Guardrail Systems

Guardrail systems shall be erected at unprotected edges, ramps, runways, or holes where it is determined by your supervisor or project lead that erecting such systems will not cause an increased hazard to employees. The following specifications will be followed in the erection of guardrail systems. Toprails shall be:

- At least 1/4 inch in diameter (steel or plastic banding is unacceptable).
- Flagged every six (6) feet or less with a high visibility material if wire rope is used.
- Inspected by the supervisor, project lead or employee as frequently as necessary to ensure strength and stability.
- Forty-two (42) inches (plus or minus three (3) inches) above the walking/working level.
- Adjusted to accommodate the height of the stilts, if they are in use.

Midrails, screens, mesh, intermediate vertical members, and solid panels shall be erected in accordance with the DOSH Fall Protection Standard.

Gates or removable guardrail sections shall be placed across openings of hoisting areas or holes when they are not in use to prevent access.

C. Personal Fall Arrest Systems

- 1) Personal fall arrest systems will be issued to and used by employees as determined by the supervisor or project lead and may consist of anchorage, connectors, body harness, deceleration device, lifeline, or suitable combinations.
- 2) All components of a fall arrest system will meet the specifications of the DOSH Fall Protection Standard, and shall be used in accordance with manufacturer's instructions.
 - a. The use of non-locking snaphooks is prohibited.
 - b. Dee-rings and locking snaphooks shall:
 - Have a minimum tensile strength of 5000 pounds; and
 - Be proof-tested to a minimum tensile load of 3600 pounds without cracking, breaking, or suffering permanent deformation.

- c. Lifelines shall be:
 - Designed, installed and used under the supervision of your supervisor or project lead;
 - Protected against cuts and abrasions; and
 - Equipped with horizontal lifeline connection devices capable of locking in both directions on the lifeline when used on suspended scaffolds or similar work platforms that have horizontal lifelines that may become vertical lifelines.
- d. Self-retracting lifelines and lanyards must have ropes and straps (webbing) made of synthetic fibers, and shall:
 - Sustain a minimum tensile load of 3600 pounds if they automatically limit free fall distance to two (2) feet; or
 - Sustain a minimum tensile load of 5000 pounds (includes ripped stitching, tearing, and deforming lanyards).
- e. Anchorages must support at least 5000 pounds per person attached and shall be:
 - designed, installed and used under the supervision of your supervisor or project lead;
 - capable of supporting twice the weight expected to be imposed on it; and
 - independent of any anchorage used to support or suspend platforms.

D. Positioning Device Systems

Body belt or body harness systems will be set up so that an employee can free fall no farther than two (2) feet, and shall be secured to an anchorage capable of supporting twice the potential impact load or 3000 pounds, whichever is greater. Requirements for snaphooks, dee-rings and other connectors are the same as detailed in this Program under Personal Fall Arrest Systems.

E. Safety Monitoring Systems

In situations when no other fall protection has been implemented, the supervisor or project lead will ensure a safety monitor is present for the safety of employees in these work areas. This individual shall be:

- 1) Competent in the recognition of fall hazards.
- 2) Capable of warning workers of fall hazard dangers.
- 3) Operating on the same walking/working surfaces as the employees and able to see them.
- 4) Close enough to work operations to communicate orally with employees.
- 5) Free of other job duties that might distract from the monitoring function.

No employees other than those engaged in the work being performed under the Safety Monitoring System shall be allowed in the area. All employees under a Safety Monitoring System are required to promptly comply with the fall hazard warnings of the project lead.

F. Safety Net Systems

Safety net systems are not approved for set up or use by district employees. Should a safety net system be the preferred safety system, a contracted professional will be used to install such a system to meet the DOSH standard.

G. Warning Line Systems

Warning line systems consisting of supporting sanctions and ropes, wires, or chains shall be erected around all sides of roof work areas.

- 1) Lines will be flagged at no more than six (6) foot intervals with high-visibility materials.
- 2) The lowest point of the line (including sag) will be between 34 and 39 inches from the walking/working surface.
- 3) Stanchions of warning line systems will be capable of resisting at least 16 pounds of force without tipping over.
- 4) Ropes, wires or chains must have a minimum tensile strength of 500 pounds.

Warning line systems shall be erected at least 6 feet from the edge, except in areas where mechanical equipment is in use. When mechanical equipment is in use, warning line systems shall be erected at least 6 feet from the parallel edge and at least 10 feet from the perpendicular edge.

9. TASKS AND WORK AREAS REQUIRING FALL PROTECTION

Unless otherwise specified, the supervisor or project lead shall evaluate the worksite(s) and determine the specific type(s) of fall protection to be used in the following situations.

A. Holes

Floor holes and floor openings will either have covers or guardrails.

B. General Construction

Guardrail systems, safety net systems, or personal fall arrest systems shall be provided to employees working 4 feet or more above the lower level on general construction projects. However, certain tasks may be performed without the use of conventional fall protection if the supervisor or project lead has determined that such fall protection is infeasible or creates greater hazards to employees. The supervisor or project lead shall follow the DOSH guidelines in the development of alternative Fall Protection Plans.

C. Roofing

The type of roofing material, surface conditions, and weather conditions will factor into the selection of fall protection systems. Any metal roof that is wet will require a fall restraint system and anytime wind speeds exceed a unsafe level. When the roofing material is loose or badly damaged/weathered or if the roof substrate may fail, a fall restraint system will be used.

- 1) Low-Slope Roofs (Flat to a maximum of 4/12 pitch)

Fall protection shall be provided to employees engaged in roofing activities on low-slope roofs with unprotected sides and edges 4 feet or more above lower levels. The type(s) of fall protection needed shall be determined by the supervisor or project lead and may consist of guardrail systems, safety net systems, personal fall arrest systems, or a combination of a warning line system and safety net system, warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs 50 feet or less in width, the use of a safety monitoring system without a warning line system is permitted.

2) Steep Roofs/Hazardous Slopes (5/12 pitch or greater)

Guardrail systems with toeboards, a safety net system, or a personal fall arrest system will be provided to employees working on a steep roof with unprotected sides and edges 4 feet or more above lower levels, as determined by your supervisor or project lead

D. Wall Openings

Guardrail systems, safety net systems, or a personal fall arrest system will be provided to employees working on, at, above or near wall openings when the outside bottom edge of the wall opening is 4 feet or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches above the walking/working surface. The type of fall protection to be used will be determined by your supervisor or project lead.

E. Ramps, Runways, and Other Walkways

Employees using ramps, runways, and other walkways 4 feet or more above the lower level shall be protected by guardrail systems.

10. PROTECTION FROM FALLING OBJECTS

When guardrail systems are in use, the openings will be small enough to prevent passage of potential falling objects. The following procedures must be followed by employees to prevent hazards associated with falling objects.

- A. No materials (except masonry and mortar) will be stored within four (4) feet of working edges.
- B. Excess debris will be removed regularly to keep work areas clear.
- C. During roofing work, materials and equipment will be stored no less than six (6) feet from the roof edge unless guardrails are erected at the edge.
- D. Stacked materials must be stable and self supporting.
- E. Canopies will be strong enough to prevent penetration by falling objects.
- F. Toeboards erected along the edges of overhead walking/working surfaces will meet the OSHA standard.
- G. Equipment will not be piled higher than the toeboard unless sufficient paneling or screening has been erected above the toeboard.

11. CHANGES TO THE PLAN

Changes to the Fall Protection Safety Program may be recommended by the Safety Committee to management, and shall be reviewed by a qualified person as jobs progress to determine whether additional practices, procedures or training is needed to prevent fall injuries. Affected employees shall be notified of all procedure changes, and trained if necessary. A copy of this plan, and any additional alternative Fall Protection Plans, shall be maintained at the jobsite by the supervisor or project lead.

12. DEFINITIONS

Affected area means the distance away from the edge of an excavation equal to the depth of the excavation up to a maximum distance of fifteen feet. For example, an excavation ten feet deep has an affected area extending ten feet from the edge of any side of the excavation.

Anchorage means a secure point of attachment for lifelines, lanyards, or deceleration devices which is capable of withstanding the forces specified in this part.

Catch platform means a type of fall arrest system that consists of a platform installed within four vertical feet of the fall hazard, is at least forty-five inches wide and is equipped with a standard guardrail system on all exposed sides.

Catenary line - See horizontal lifeline.

Competent person means an individual knowledgeable of fall protection equipment, including the manufacturer's recommendations and instructions for the proper use, inspection, and maintenance; and who is capable of identifying existing and potential fall hazards; and who has the authority to take prompt corrective action to eliminate those hazards; and who is knowledgeable of the rules contained in this part regarding the installation, use, inspection, and maintenance of fall protection equipment and systems.

Connector means a device which is used to 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 harness, or a snap hook spliced or sewn to a lanyard or self-retracting lanyard).

Controlled access zone: a work area designated and clearly marked in which certain types of work (such as overhand bricklaying) may take place without the use of conventional fall protection systems (guardrail, personal arrest or safety net) to protect the employees working in the zone.

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

Deceleration distance means 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 full body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

Dropline means a vertical lifeline secured to an upper anchorage for the purpose of attaching a lanyard or device.

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

Fall arrest system means a fall protection system that will arrest a fall from elevation. Fall arrest systems include personal fall arrest systems that are worn by the user, catch platforms, and safety nets.

Fall distance means the actual distance from the worker's support to the level where a fall would stop.

Fall protection work plan means a written planning document in which the employer identifies all areas on the job site where a fall hazard of ten feet or more exists. The plan describes the method or methods of fall protection to be used to protect employees, and includes the procedures governing the installation,

use, inspection, and removal of the fall protection method or methods which are selected by the employer. See WAC [296-155-24611\(2\)](#).

Fall restraint system means a system in which all necessary components function together to restrain/prevent an employee from falling to a lower level. Types of fall restraint systems include standard guardrail systems, personal fall restraint systems, warning line systems, or a warning line system and safety monitor.

Floor hole means an opening measuring less than twelve inches but more than one inch in its least dimension in any floor, roof, platform, or surface through which materials but not persons may fall, such as a belt hole, pipe opening, or slot opening.

Floor opening means an opening measuring twelve inches or more in its least dimension in any floor, roof, platform, or surface through which persons may fall.

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

Free fall distance means the vertical displacement of the fall arrest attachment point on the employee's full 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.

Full body harness means a configuration of connected straps that meets the requirements specified in ANSI Z359.1-2007, that may be adjustable to distribute a fall arresting force over at least the thighs, shoulders and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration devices.

Full body harness system means a full body harness and lanyard which is either attached to an anchorage meeting the requirements of this part; or it is attached to a horizontal or vertical lifeline which is properly secured to an anchorage(s) capable of withstanding the forces specified in this part.

Handrail means a rail used to provide employees with a handhold for support.

Hardware means snap hooks, D-rings, bucklers, carabiners, adjusters, O-rings, that are used to attach the components of a fall protection system together.

Hazardous slope means a slope where normal footing cannot be maintained without the use of devices due to the pitch of the surface, weather conditions, or surface material.

Horizontal lifeline means a rail, rope, wire, or synthetic cable that is installed in a horizontal plane between two anchorages and used for attachment of a worker's lanyard or lifeline device while moving horizontally; used to control dangerous pendulum like swing falls.

Lanyard means a flexible line of webbing, rope, or cable used to secure a positioning harness or full body harness to a lifeline or an anchorage point usually two, four, or six feet long.

Leading edge means the advancing edge of a floor, roof, or formwork which changes location as additional floor, roof, or formwork sections are placed, formed, or constructed.

Lifeline means a vertical line from a fixed anchorage or between two horizontal anchorages, independent of walking or working surfaces, to which a lanyard or device is secured. Lifeline as referred to in this text is one which is part of a fall protection system used as back-up safety for an elevated worker or as a restraint for workers on a flat or sloped surface.

Locking snap hook means a connecting snap hook that requires two separate forces to open the gate; one to deactivate the gatekeeper and a second to depress and open the gate which automatically closes when released; used to minimize roll out or accidental disengagement.

Low pitched roof means a roof having a slope equal to or less than four in twelve.

Mechanical equipment means all motor or human propelled wheeled equipment except for wheelbarrows, mopcars, robotic thermoplastic welders and robotic crimpers.

Personal fall arrest system means a fall arrest system that is worn by the employee to arrest the employee in a fall from elevation. It consists of an anchor point, connectors, a full body harness, and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

Personal fall restraint system means a fall restraint system that is worn by the employee to keep the employee from reaching a fall point, such as the edge of a roof or elevated work surface. It consists of an anchor point, hardware assemblies, a full body harness and may include a lanyard, restraint lines, or suitable combinations of these.

Platform means a work surface elevated above the surrounding floor or ground.

Positioning device system means a full body harness or positioning harness that is worn by an employee, and is rigged to allow an employee to be supported on an elevated vertical or inclined surface, such as a wall, pole or column and work with both hands free from the body support.

Positioning harness means a body support that meets the requirements specified in ANSI Z359.3-2007 that encircles and closes around the waist and legs with attachment elements appropriate for positioning work.

Qualified person means one 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 related to the subject matter, the work, or the project.

Restraint line means a line from a fixed anchorage or between two anchorages to which an employee is secured in such a way as to prevent the worker from falling to a lower level.

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

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

Rope grab means a fall arrester that is designed to move up or down a lifeline suspended from a fixed overhead or horizontal anchorage point, or lifeline, to which the full body harness is attached. In the event of a fall, the rope grab locks onto the lifeline rope through compression to arrest the fall. The use of a rope grab device is restricted for all restraint applications. See WAC [296-155-24615](#) (1)(f).

Runway means a passageway for persons, elevated above the surrounding floor or ground level, such as a footwalk along shafting or a walkway between buildings.

Safety line - See lifeline.

Safety monitoring system means a type of fall restraint system in which a competent person whose only job responsibility is to recognize and warn employees of their proximity to fall hazards when working between the warning line and the unprotected sides and edges, including the leading edge of a low pitch roof or other walking/working surface.

Safety net system means a type of fall arrest system, as described in WAC [296-155-24613\(2\)](#).

Safety watch system means a fall protection system as described in WAC [296-155-24615\(6\)](#), in which a competent person monitors one worker who is engaged in repair work or servicing equipment on low pitch roofs only.

Self-rescue device means a piece of equipment designed to allow a person, who is suspended in a personal fall arrest system, to independently rescue themselves after the fall by moving the device up or down until they reach a surface and are no longer suspended.

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

Shock absorbing lanyard means a flexible line of webbing, cable, or rope used to secure a full body harness to a lifeline or anchorage point that has an integral shock absorber.

Snap hook - See "locking snap hook."

Standard guardrail system means a type of fall restraint system that is a vertical barrier consisting of a top rail and mid rail, and toe board when used as falling object protection for persons who may work or pass below, that is erected along all open sides or edges of a walking/working surface, a floor opening, a floor hole, wall opening, ramp, platform, or runway.

Standard strength and construction means any construction of railings, covers, or other guards that meets the requirements of this part.

Static line - See horizontal lifeline.

Steep pitched roof means a roof having a slope greater than four in twelve.

Toe board means a vertical barrier at floor level erected along all open sides or edges of a floor opening, platform, runway, ramp, or other walking/working surface to prevent materials, tools, or debris from falling onto persons passing through or working in the area below.

Unprotected sides and edges means any open side or edge of a floor, roof, balcony/deck, platform, ramp, runway, or walking/working surface where there is no standard guardrail system, or parapet wall of solid strength and construction that is at least thirty-nine inches in vertical height.

Walking/working surface means any area including, but not limited to, floors, a roof surface, bridge, the ground, and any other surfaces whose dimensions are forty-five inches or more in all directions, through which workers can pass or conduct work. A walking/working surface does not include vehicles or rolling stock on which employees must be located in order to perform their job duties.

Wall opening means an opening at least thirty inches high and eighteen inches wide, in any wall or partition, through which persons may fall, such as an opening for a window, a yard arm doorway or chute opening.

Warning line system means a barrier erected on a walking and working surface or a low pitch roof (four in twelve or less), to warn employees that they are approaching an unprotected fall hazard(s).