LAFAYETTE COLLEGE

Fall Protection Program

Department of Public Safety - Environmental, Health and Safety
Standard Operating Procedure (SOP) #31

Introduction

When work is performed on elevated surfaces such as roofs, or during construction activities, protection against falls must be considered. Fall arrest systems, which include lifelines, body harnesses, and other associated equipment, are often used when railings, floors, nets, and other means cannot control fall hazards. These systems are designed to stop a free fall of up to six feet while limiting the forces imposed on the wearer.

Scope and Application

Fall protection is required by the Occupational Safety and Health Association (OSHA) whenever work is performed in an area that is 4 feet higher than its surroundings (6 feet for construction activities). Exceptions to this rule include work done from scaffolds, ladders, derricks and cranes, and work involving electrical transmission and distribution. Also excluded is the performance of inspections, investigations, or assessments of existing conditions prior to the beginning or after the completion of construction.

Fall protection can generally be provided through the use of guardrail systems, safety net systems, fall restraint systems, or personal fall arrest systems. Where it can be clearly demonstrated that the use of these systems is infeasible or creates a greater hazard, a fall protection program that provides for alternative fall protection measures may be implemented.

Fall Hazard Identification

Any working height greater than 4 feet is considered a fall hazard and employees must be protected (for construction, the height is 6 feet). Potential fall hazards include, but are not limited to:

- Roofs
- Floor Openings
- Shafts
- Catwalks
- Work Platforms
- Pits

Fall Hazard Evaluation

This program has been designed to evaluate potential fall hazards through a logical hazard assessment process. When a work task or work area presents a potential fall hazard the supervisor or competent person must evaluate these potential hazards using this process and determine if a hazard can first be eliminated, if the hazard cannot be eliminated, it must be determined how the hazard can be prevented or controlled.

This process is known as the Hierarchy of Fall Protection and is the preferred order of control to eliminate or reduce fall hazards. This system reflects common safety practices for removing hazards from the workplace — beginning with methods of elimination and ending with training and administrative controls.

1. **Elimination of Fall Hazards**: Fall hazard elimination is the first choice when presented with a fall hazard. The elimination of a fall hazard requires an assessment of the workplace and the work being conducted. Eliminating the risk means avoiding work at height when possible or preventing people

from reaching the fall hazard by creating a barrier between the person and the fall hazard. This is the most ideal means of preventing workers from a potential fall.

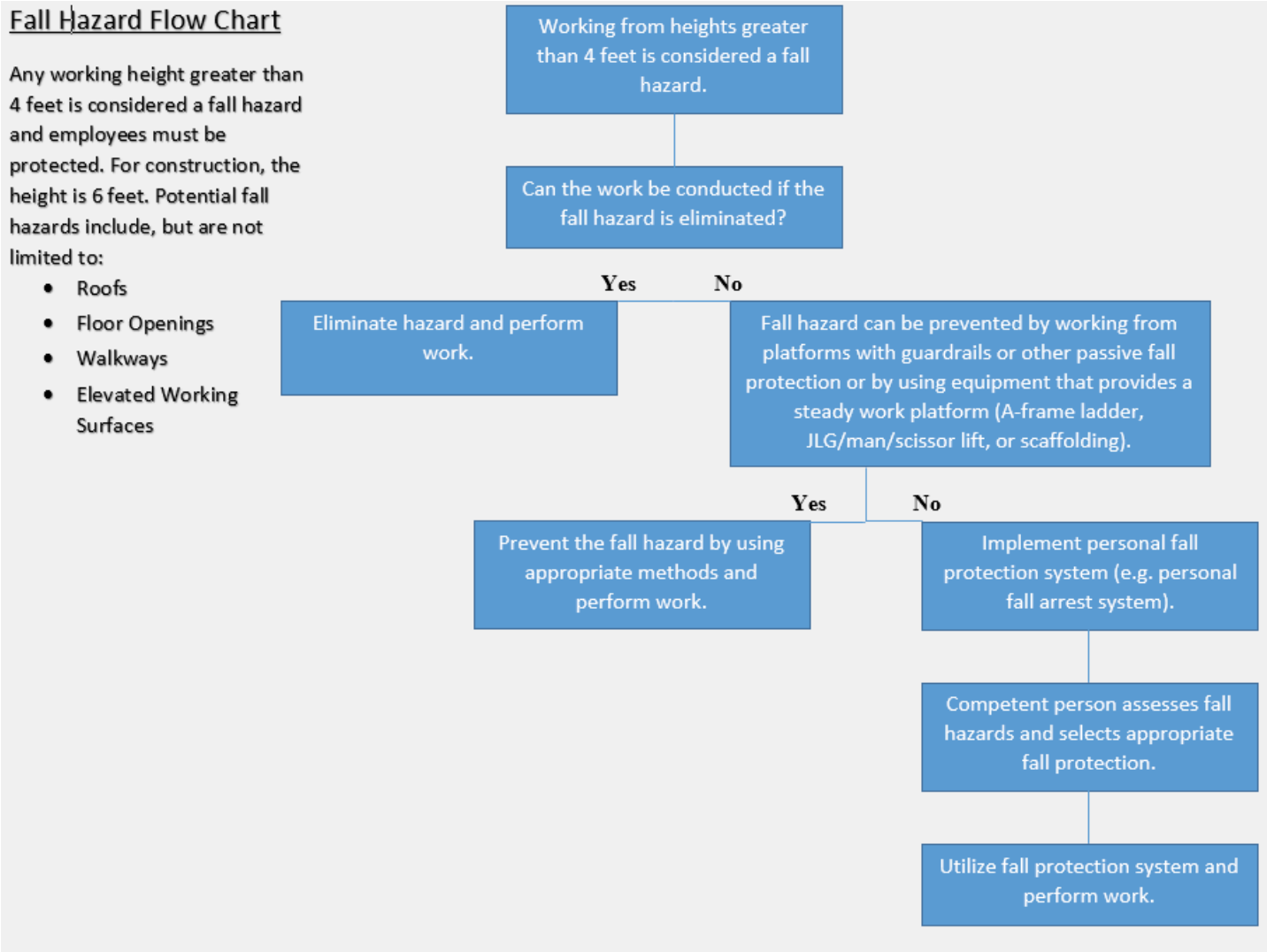
2. **Prevention of Fall Hazards**: Fall hazard prevention is utilized when a fall hazard cannot be eliminated from a work place or the work task. Prevention involves making changes to the workplace or worker's behavior to prevent falls. Fall hazard prevention involves the use of stairs, guardrails, work platforms or other means of passive fall protection, or the use of A-Frame ladders, man lifts, and scissor lifts which provide a steady work platform and reduce potential fall distances and unguarded hazards.
3. **Administration Controls:** Implementing thorough administrative controls is one of the best ways to prevent falls. Administrative controls directly affect workplace policies and procedures and involve adequate training and education for all employees who have to work at height. Administrative controls reduce the duration, frequency, and severity of exposure to hazardous situations. Administrative controls — like proper training, safety regulations, safety monitors, warning lines, designated areas, and control lines — can make tasks safer and reduce the risk of workers encountering a fall hazard.
4. **Control of Fall Hazards**: Fall hazard control is accomplished through the use of assorted fall protection equipment. This equipment, used to control the risk of a fall and limit fall distance and the forces associated with a fall, may include full body harnesses, lanyards, fall arrest systems, lifelines, and anchorage points. Controlling fall hazards requires significant planning and training to be implemented correctly.

    - **Fall Restraint**: Fall restraint is a form of active fall protection because the worker is connected to a lanyard and anchorage point. It is designed to protect against a fall and means that no arrest is necessary. Fall restraint systems prevent workers from reaching a fall hazard using a tie-off system. When used properly, it prevents the worker's center of gravity from reaching the fall hazard. These systems are generally comprised of personal protective equipment that is used to restrict the worker's range of motion, which prevents a worker from physically coming into contact with an unprotected edge.

    - **Fall Arrest**: Fall arrest systems are not a preventive form of fall protection. Control of fall hazards through fall arrest systems may only be used after it has been determined that a specific hazard cannot be eliminated or prevented. Fall arrest systems are to be the last choice in fall hazard assessment. Fall arrest systems are an essential tool for workers at height when fall prevention isn't feasible or practicable. Fall arrest systems help to prevent injuries and fatalities, but it's designed to address the symptoms associated with a potential fall, not the actual problem.

      Examples of fall arrest equipment include: an anchorage or fixed structure with a coordinating connector, a full body harness, a lanyard to connect the harness to the anchorage, and a deceleration device to absorb the forces that occur during a fall arrest.

A Competent Person must assess all fall hazards before employees are permitted to work. The Competent Person must review fall protection to ensure it is appropriate and set up and installed properly. This flow chart can be used by the Competent Person to assess fall hazards.



Fall Protection Systems

A variety of systems may be chosen from when providing fall protection. These systems include:

Guardrails

- The top rail or top of guardrail system must be 42 inches (plus or minus 3 inches) above the walking/working surface.
- Mid-rails or intermediate rails must be installed between the top edge of the top rail and the walking/working surface.

- A toe board must be installed at the walking/working surface (floor, platform, ramp, etc.) and must extend at least 4 inches in height above the surface.
- All parts of the guardrail system must be capable of withstanding a force of at least 200 pounds applied within two inches of the top edge in any outward or downward direction.

Fall Restraint Systems or Lifelines

The following minimum requirements must be met for all lifelines (self-retracting, vertical, horizontal, etc.).

- Self-retracting lifelines must attach to the back "D" ring of a harness.
- The lifeline must attach to an appropriate anchorage.
- Self-retracting lifelines must not be lengthened by attaching lanyards or other components.
- The lifeline must be situated in a manner which will prevent the individual from becoming entangled in it.
- It must not be exposed to corrosive materials, acids, caustics, or excessive heat.
- Lifelines must be inspected before every use and in accordance with manufacturer recommendations. Any damaged or defective equipment must be removed from service immediately and tagged out of service.

Personal Fall Arresting Systems

A Personal Fall Arrest System consists of a full body harness, lanyard, connectors, and anchorage point. This system may also include deceleration devices, a self-retracting lifeline, or a combination of devices. A Personal Fall Arrest System must meet the following general requirements:

- The system must meet or exceed all requirements of applicable American National Standards Institute (ANSI) standards.
- It must be set up so that an employee cannot free fall more than 6-feet or make contact with any lower level.
- It must limit the maximum arresting force on an employee to 1,800 pounds.

Anchorage Points

The following minimum requirements must be met for all anchorage points.

- The anchorage point must be independent and serve no other function unless rated to do so.
- It must be capable of supporting at least 5,000 pounds per employee.
- It must be engineered and designed specifically for fall arrest.
- Material rigging equipment may not be used as anchorage points.
- Anchorage points must be designed and installed by a Qualified Person.
- Documentation displaying the rating and installation details for all anchorage points must be maintained.
- Anchorage points must be inspected before every use and in accordance with manufacturer recommendations. Any damaged or defective equipment must be removed from service immediately and tagged out of service.

Fall Protection Harnesses

The following minimum requirements must be met for all fall protection harnesses. Full body harnesses must be used for fall protection. The use of body belts is prohibited. Only National Institute for Occupational Safety and Health (NIOSH)-approved harnesses are permitted to be used.

- Harnesses must be inspected before every use and in accordance with manufacturer recommendations. Any damaged or defective equipment must be removed from service immediately and tagged out of service.

Positioning Device Systems

Positioning device systems consist of a harness rigged to allow work on a vertical surface, such as a wall, with both hands free.

Safety Monitoring by a Competent Person

This system allows a trained person to monitor others as they work on elevated surfaces and warn them of any fall hazards.

Safety Net Systems

These systems consist of nets installed as close as possible under the work area.

Warning Line Systems

Warning line systems are made up of lines or ropes installed around a work area on a roof. These act as a barrier to prevent those working on the roof from approaching it edges.

Covers

Covers are fastened over holes in the working surface to prevent falls.

Additional Precautions

Protection should also be provided from falling objects. Work surfaces should be kept clear of material and debris by removal at regular intervals. Toe boards should be used to prevent objects from being inadvertently kicked to a lower level. When necessary, canopies should be provided.

Prohibited Devices

Body harnesses are required for use with all personal fall arresting systems. **Body belt use is prohibited.** Also, only locking-type snap hooks may be used as part of a fall arresting system.

Training

Training must include the following:

- How to recognize and minimize fall hazards.
- The nature of the fall hazards in the work area.
- Procedures for erecting, maintaining, disassembling, and inspecting the specific fall protection systems used.
- Use, operation, and limitations of fall protection systems.
- The user's role in fall protection systems.

Roles and Responsibilities

Department

- Identify areas where fall protection is needed.
- Assists employees in the implementation of safe work practices addressed in this program.
- Designates Competent Persons for Fall Protection and ensures they are properly trained.
- Obtain or develop fall protection systems.
- Ensure workers are trained.

Supervisors

- Know when fall protection is necessary.
- Assists employees in the implementation of safe work practices addressed in this program.
- Provide workers with fall protection devices.
- Ensure workers use fall protection devices.

EHS

- Assists in the implementation of this program.
- Coordinates general fall protection training.
- Retains all training records.
- Periodically reviews and updates this written program.
- Evaluates work being performed and determines compliance with this program.
- Evaluates the overall effectiveness of this program on a periodic basis.

Employees

- Complete fall protection training.
- Know when fall protection is necessary.
- Request further instruction if unclear or are unsure how to use fall protection systems.
- Conduct assigned tasks in a safe manner and wear appropriate personal protective equipment.
- Report any unsafe work conditions to their supervisor.

Competent Person

- Have the experience and knowledge to recognize fall hazards.
- Correct all unsafe conditions.
- Train employees in the proper use of fall protection.
- Regularly audit work areas to ensure fall protection is being used appropriately.

- Shut down work until hazardous conditions are corrected.
- Take damaged fall protection equipment out of service.

Contractors

- Contractors engaged in activities that require working at heights shall comply with all applicable OSHA regulations regarding fall protection.
- Contractors are responsible for providing their own fall protection equipment and using it properly.

For more information contact Environmental, Health and Safety at extension 5330.