



UNIVERSITY OF MINNESOTA
University Health and Safety

Fall Protection Program

Effective Date: October 2015, revision September 2019

I. PURPOSE

The purpose of this program is to establish guidelines to protect University of Minnesota employees potentially exposed to falls from elevations or heights, such as rooftops, open sided floors or other elevated work surfaces elevated at heights greater than 4 feet (6 feet for construction activities).

II. SCOPE

This program applies to all University of Minnesota employees required to work in areas where fall hazards may be present.

III. DEFINITIONS

Administrative controls – are procedures and policies, such as restricting access to rooftops and postponing work during severe weather.

Anchorage or Anchor – a secure point of attachment for lifelines, lanyards, or deceleration devices for personal fall protection.

Body harness – personal fall protection equipment having straps made of synthetic webbing material that are secured about the worker to distribute fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders, with means for attaching it to other components of a personal fall arrest system.

Building Manager – a person who exercises control over any management relating to a building or facility, or both, in which window cleaning operations or maintenance operations covered by MN 5205.0730 apply.

Construction Activities - construction, alteration, and/or repair, including painting and decorating.

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

Deceleration device – any personal fall protection mechanism (such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting

lifelines, etc.) which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on a worker during fall arrest.

Fall protection system – fall protection equipment installed to prevent or stop a fall including: guardrails, wall and floor-hole covers, fall restraint equipment, and personal fall arrest equipment.

Guardrail – a barrier erected along an unprotected or exposed side, edge, or other area of a walkingworking surface to prevent employees from falling to a lower level.

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

Lanyard – a flexible line of rope, wire rope, or strap used for personal fall protection which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

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

Opening – a gap or void 30 inches or more high and 18 inches or more wide, in a wall or partition, through which workers can fall to a lower level.

Personal fall arrest system (PFAS) – a system used to arrest a worker in a fall from a working level. It consists of an anchorage, connectors, lanyard or self-retracting lifeline (SRL) and a body harness.

Personal fall restraint system – a system used as a means of restricting the worker’s travel to not allow the worker to extend over an unprotected edge, thereby preventing a fall from occurring. It consists of a body harness, lanyard, lifeline, and connectors and is rigged to an anchorage capable of withstanding at least 3,000 lbs. or twice the maximum expected force.

Qualified Person – one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems relating to the subject matter, the work, or the project.

Rope grab – a personal protective fall deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of a worker. A rope grab usually employs the principles of inertial locking, cam/level locking, or both.

Self-retracting lifeline (SRL) – a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal worker movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

Snaphook – personal protective device attached to a lanyard used to secure lanyard to body harness and anchorage or lifeline. The hook part of the device must incorporate a positive

locking mechanism in addition to the spring loaded keeper, which will not allow the keeper to open under moderate pressure without someone first releasing the mechanism. A snaphook must automatically lock and remain closed until unlocked and pressed open by the worker.

Toeboard – a low protective barrier that will prevent the fall of materials and equipment to lower levels and provide workers protection from falls.

Unprotected sides and edges – any side or edge (except at entrances to points of access) of a walking or working surface (for example, floor, roof, ramp, or runway) where there is no wall or guardrail system at least 39 inches high.

IV. RESPONSIBILITIES

Employee Responsibilities

- Ensure fall protection systems are in place before performing work.
- Wear personal fall arrest or fall restraint equipment when working within fifteen feet of an unguarded roof edge or platform, or where a fall of greater than four feet (maintenance activities) or six feet (construction activities) can occur.
- Use approved anchor points or restraint lines.
- Inspect fall arrest and restraint equipment prior to each use.
- Remove damaged or suspect equipment from service and report it to your supervisor.
- Report unsafe conditions and falls to your supervisor.
- Attend training upon initial assignment and at least every three years thereafter.

Supervisor Responsibilities

- Evaluate work areas to identify floor openings, wall openings, and other unprotected fall hazards.
- Eliminate fall where possible.
- Ensure appropriate anchor points and restraint lines have been identified and are understood by employees.
- Provide employees with appropriate fall protection equipment.
- Ensure employees understand and comply with fall protection system requirements and limitations.
- Communicate and enforce the use of safe work practices, including the proper use of fall protection equipment.
- Ensure employees using PFAS have rescue plans and all necessary equipment to perform a safe, prompt rescue.
- Ensure employee training is provided and documented upon initial assignment and at least every three years thereafter.
- Notify management of unsafe or uncorrected hazardous conditions.

Departmental Responsibilities

- Ensure work areas are evaluated to identify fall hazards.
- Eliminate fall hazards where feasible.

- Ensure resources are available to provide necessary fall protection equipment to affected employees.
- Ensure employee training program covers all affected employees.
- Ensure fall protection systems used by your employees meet the fall protection system specifications.
- Ensure departmental fall protection policies and procedures are evaluated at least every three years.
- Ensure annual personal fall protection equipment inspections are completed as outlined by the manufacturer.

Facilities Management Responsibilities

- Number, tag and maintain a list of fall protection anchors and other permanent installations of building supporting structures related to powered platforms.
- Maintain written anchorage certifications including, but not limited to, test data, equipment specifications verified by a registered professional engineer.
- Ensure periodic inspections of roof anchors and support structures are performed by a competent person at intervals not exceeding 12 months prior to the use of the related building supporting structures. Inspection records shall include:
 - date of the inspection
 - signature of the person who performed the inspection
 - the number, or other identifier, of the equipment which was inspected
- Ensure inspection records and anchorage certifications are available to University Building Managers.

Building Manager Responsibilities

- Provide written documentation of identified and certified anchorages to window cleaning and building maintenance contractors (this information can be obtained from Facilities Management).
- Review site specific written fall protection plans created by window washing and building maintenance operations contractors. The written plan should include the following:
 - the locations of where workers may utilize suspended equipment, and where workers are exposed to falls and other known hazards;
 - the identification of hazardous areas or drop zones, and safety features to be used, which shall include self-rescue;
 - a step-by-step procedure on the control of each hazardous area or drop zone; and
 - an on-site evaluation of the plan implementation by the building manager or a qualified person.
- Identify, communicate and review hidden or latent hazards associated with window washing and building maintenance contractors prior to work commencing.
- Notify Facilities Management of any deficiencies or if any fall protection infrastructure has been involved in a fall.
- Maintain a current copy of roof safety logbook at a primary roof access point.

Capital Project Management

- Maintain and periodically review construction standards related to fall protection
- Ensure requirements are implemented where appropriate

University Health and Safety

- Maintain the Fall Protection written program.
- Inform affected departments of program requirements.
- Develop and provide training resources.
- Provide technical assistance to impacted work areas
- Monitor implementation of the written program.

V. PROCEDURE

When fall hazards are present in the work area, at least one fall protection method must be implemented. Depending on the type of work and location, certain control methods may not be feasible, but following the hierarchy of control is essential for choosing the most effective control method. In order from most to least effective, fall protection methods include:

- Elimination
- Passive fall protection (guardrails or barriers)
- Fall restraint
- Fall arrest
- Administrative controls

After selecting a fall protection method, communicate the proper installation and use to affected employees and ensure all equipment is properly used, maintained and stored.

1. Inspect work areas for fall hazards

Potential fall hazards include, but are not limited to, the unprotected sides and edges of the following situations:

- Open sided floors, platforms, roofs and walkways
- Regardless of height, any open sided floor, platform, walkway, ramp etc. above dangerous equipment
- Floor holes and openings
- Wall holes and openings, including debris chutes and open windows.
- Hoist areas
- Hatchways
- Skylights
- Excavations

For assistance analyzing fall hazards contact your University Health and Safety service partner at 612-626-6002.

2. Facilitate installation or guardrails or other passive controls

Guardrails must have a top rail 42-inches (plus or minus 3 inches) above the walking surface and be capable of supporting a minimum of a 200 pound force applied horizontally, along with a mid-rail or equivalent, and if employees or members of the public are below the

elevated work surface, a 4 inch high toeboard. Submit a request for fall protection through your department's leadership team.

For technical assistance contact your University Health and Safety service partner at 612-626-6002.

3. Obtain fall restraint or arrest equipment

Fall restraint, as opposed to fall arrest, should be used whenever possible to prevent a fall from occurring. Only manufactured personal fall protection system components designed for personal fall protection can be utilized. Since not all components are interchangeable, any substitution or change to a personal fall arrest system should be fully evaluated by a competent person before the modified system is put in use. This includes using components from multiple manufacturers in a single system.

Lanyards and lifelines must have a minimum breaking strength of 5,000lbs.

Snaphooks, D-rings, and carabiners must be able to sustain a tensile load of 5,000lbs. Carabiners and snaphooks must be automatic locking type with gates capable of withstanding 3,600lbs of force applied in any direction.

Never use fall protection equipment for purposes other than fall protection, such as hoisting, rigging or pulling.

For assistance with fall protection equipment contact your University Health and Safety service partner at 612-626-6002.

4. Only use certified anchorages or those identified by a competent person

Roof top fall protection anchors on the University of Minnesota Twin Cities campus are numbered and tagged. Anchors that are not current on their annual visual inspection and physical testing cannot be used for fall protection or fall restraint. When anchors are needed, building managers should complete the follow steps before allowing the use of anchors.

1. Contact Facilities Management to schedule a visual inspection
2. Contact FM Design to request physical anchor testing.

Use fall protection anchor points in a way that limits falls to six feet or less.

For technical assistance contact your University Health and Safety service partner at 612-626-6002.

5. Equipment Inspection, Storage and Care

Users are to inspect personal fall protection systems before each use and any other interval specified by the manufacturer. Perform inspections according to manufacturer instructions. Inspections points include hardware, software (webbing), stitching and labels. Immediately remove from service and report to the supervisor any equipment found to be defective, damaged, and undergone a shock load from a fall.

Perform cleaning and storage according to manufacturer instructions. Webbing materials should be cleaned using water and a mild detergent solution. Wipe off hardware with a clean, dry cloth, and hang to air dry. Store equipment in a cool, dry, clean environment out of direct sunlight.

Marking directly onto webbing can only be performed if done with an appropriate marker. Generally, waterproof/water resistant, quick drying permanent markers (e.g. Avery® Dennison Marks-A-Lot®, Sanford Sharpie®) may be used, but manufacturer instructions should be reviewed to verify compatibility. Paint or paint pens should not be used as the paint can weaken webbing fibers when it dries. It is preferred to place marking on equipment tags where the webbing will not be damaged.

6. Rescue Plans

After a fall, a worker may not be able to perform a self-rescue and may remain suspended as a result. Suspension trauma results from blood pooling and lack of circulation, and can lead to unconsciousness and death. Symptoms can occur after rescue; therefore, anyone who experiences a fall requires immediate medical attention.

Prior to the start of work, develop and communicate a plan to all workers for the prompt rescue in the event of a fallen worker. See Appendix A for a rescue plan template. Part of the rescue plan is to ensure that each body harness is equipped with and the user knows how to deploy suspension trauma straps. Workers using a personal fall protection system must not work alone, and workers who are not being suspended need to be able to contact 9-1-1.

When working over or near water where the danger of drowning exists, the following provision must be provided.

- A U.S. Coast Guard-approved life jacket for each employee
- Ring buoys with at least 90 feet of line located within 200 feet
- An immediately available lifesaving skiff

7. Train employees

All employees who may be exposed to potential fall hazards must be trained on existing and recognition of such hazards, procedures or strategies to minimize their exposure to them and correct setup and use of fall protection systems as appropriate. Employees must receive training before they are required to work in areas where fall hazards exist. Training records must be maintained by the operating unit and include, at a minimum:

- name of employee
- date of training
- name of the trainer

For assistance identifying training resources contact your University Health and Safety service partner at 612-626-6002.

VI. REFERENCES

29 CFR 1926.501, 502, 503

29 CFR 1910.21-1910.30

MN 5205.0730

MN 5207.0250

Appendix A

Rescue Plan

Scope: This is template is to be used as a site or job specific rescue plan when employees are using a personal fall arrest system (PFAS) while in aerial lifts or working at heights. This plan should be discussed, completed, and posted on the job prior to starting work.

Date:	Work Description:
Work Location:	
Rescue Equipment Location:	

Before beginning work, review and answer the following questions

Check box for yes	Comments
<input type="checkbox"/> Have fall arrest alternatives been considered?	
<input type="checkbox"/> Has the rescue and fall arrest equipment been inspected and found to be in good condition?	
<input type="checkbox"/> Has a competent person installed the fall arrest system?	
<input type="checkbox"/> Do fall arrest harnesses have correctly installed trauma straps?	
<input type="checkbox"/> Do all rescuers know how to use rescue equipment?	

Personnel	Rescue Equipment	Rescue Concerns
Rescuer(s):	<input type="checkbox"/> Ladder <input type="checkbox"/> Aerial Lift <input type="checkbox"/> Emergency lifting or lower device <input type="checkbox"/> Scaffold <input type="checkbox"/> Life boat & ring <input type="checkbox"/> First aid kit <input type="checkbox"/> Other:	Describe hidden, latent or other hazards that need to be considered:
Competent Person:		
Emergency Contact:		
Phone Number:		
Closest Emergency Care:		
	Equipment Location	

Rescue Procedures (fill in steps 4-6 as appropriate, continue on back with additional steps)

Step	Responsible Person(s)
1. Make initial assessment of employee	
2. Notify emergency responders and contact	
3. Perform self-rescue if possible	
4.	
5.	
6.	