

SECTION 20—WALKING-WORKING SURFACES

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20.1 FALL PROTECTION REQUIREMENTS

A. Objective

To protect employees and students from injury while working on elevated surfaces such as roofs, maintenance activities such as changing lighting , and/or in the theater, protection against falls must frequently be considered. Fall arresting systems, which include lifelines, body harnesses, and other associated equipment, are often used when fall hazards cannot be controlled by railings, floors, platforms, and other means. These systems are designed to stop a free fall of up to six feet while limiting the forces imposed on the wearer.

B. Scope

This procedure requires fall protection whenever the work is performed in an area that is four (4) feet higher than its surroundings. Exceptions to this rule include work done on scaffolds, ladders and stairways, 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.

C. References

Department of Labor, Occupational Health and Safety Administration (OSHA) 29 Code of Federal Regulations 1910 Subpart F Section .66, Appendix C, 1926 Subpart M .501 and Illinois Department of Labor 820 ILCS 225 Health and Safety Act.

D. Types of Fall Protection

A variety of systems may be chosen from when providing fall protection. These systems include, but are not limited to:

Guardrails: Standard guardrails consist of a top rail, located 42 inches above the floor, and a mid-rail. Screens and mesh may be used to replace the mid-rail, so long as they extend from the top rail to the floor.

Personal Fall Arresting System: Components of a personal fall arresting system include a body harness, lanyard, lifeline, connector, and an anchorage point capable of supporting at least 5000 pounds.

Position Device Systems: Positioning device systems consist of a body belt or 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.

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 its 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 removing at regular intervals. Toeboards should be used to prevent objects from being inadvertently kicked to a lower level. When necessary, canopies should be provided.

E. 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.

20.1 FALL PROTECTION PERMIT

FALL PROTECTION PERMIT

BEFORE INITIATING WORK IN THIS AREA, CAN THE JOB BE AVOIDED?
IS THERE A SAFER WAY?

This Fall Protection Permit is **required** for any work is performed in an area that is six feet higher than its surroundings. Exceptions to this rule include work done on scaffolds, ladders and stairways, derricks and cranes, and work involving electrical transmission and distribution.

Work being done by:

Employee

Contractor _____

Name of Employee Doing work:

Department:

Date:

Location/Building:

Nature of Job:

I verify the above employee has received training in 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.

The employee has reviewed the EH&S Manual Section 22.1 Fall Protection Requirements.

Signed: (Supervisor or Manager of Reg. Compliance)

I have received the above training and understand the information provided:

Signed: (Employee doing work)

The Competent Person conducting safety monitoring is:

**Permit
Expires:**

Date:

Time:

AM
PM

Other Precautions Taken:

20.2 LADDER- SAFE WORK PRACTICES & SELECTION

A. Objective

Portable ladders are used at Harper in a wide variety of settings, both academic and administrative. Misuse of ladders can result in serious injuries from falls or, in the case of metal ladders, electrical shock. Portable ladders must be maintained in good condition at all times, and inspected at regular, frequent intervals. Training is also an important aspect of portable ladder safety and accident prevention.

B. Scope

This procedure is established to address the requirements for using portable ladders in all departments. This section does not address the OSHA requirements for fixed ladders.

C. References

Department of Labor, Occupational Health and Safety Administration (OSHA) 29 Code of Federal Regulations 1910 Subpart D Sections 21, 22,25,.26 and Illinois Department of Labor 820 ILCS 225 Health and Safety Act.

D. Ladder Types

- Stepladder (or “A” frame ladder)-A self-supporting portable ladder, non-adjustable in length, having flat steps and a hinged back, additionally:
 - Shall not be longer than 20 feet.
 - Shall be equipped with a metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in an open position
 - Further classified into 3 types based on their use:
 - Type I – Industrial stepladder 3-20 feet, for heavy duty use.
 - Type II – Commercial stepladder 3-12 feet, for medium duty use.
 - Type III – Household stepladder 3-6 feet, for light duty use.
- Single Ladder (or “straight” ladder) – A non-self supporting portable ladder, non-adjustable in length, consisting of but one section. Its size is designed by overall length of the side rail, additionally:
 - Shall not be longer than 30 feet.
- Extension Ladder – A non self-supporting potable ladder adjustable in length, additionally:
 - Shall not be longer than 60 feet.

E. Ladder Use Guidelines

The following are a list of guidelines to follow that help prevent accidents when using a portable ladder:

- Wear shoes with nonskid soles that are free of snow, mud or grease. Metal rungs can be very slippery in certain conditions.
- Ladders shall be placed on a stable, level base with a secure footing. Boxes barrels, or other unstable surfaces should never be used to obtain additional height. Additionally, ladders should not be placed on slippery surfaces unless secured by holding or lashing
- Ladders shall not placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded.
- Short ladders shall never be spliced together to make long ladders.
- Don't stand on the top step of a stepladder, and do not stand any higher than the third highest rung from the top of a straight ladder. This can make the ladder unsteady and leaves the user with no handhold.

- Straight or extension ladders should extend at least 3 feet above the point of support.
- Straight or extension ladders shall be set up using the 1-to-4 rule: the bottom of the ladder should be 1 foot away from the wall for every 4 feet that the ladder rises. For example, if the ladder touches the wall 16 feet above the ground, the feet of the ladder should be 4 feet from the wall.
- Overreaching can also cause instability. A good rule of thumb is to not let one's belt buckle outside the uprights. Also, when climbing or descending ladders, always face the ladder and hold onto each side rail.
- Ladders shall never be used in the horizontal position as scaffolds or work platforms.
- Metal ladders shall never be used near electrical equipment.
- Do not use a ladder as a seat between tasks. You might want to take a break from your chores, but never use a stepladder's top or pail shelf as a seat.

F. Care of Ladders

Ladders should be maintained in good conditions at all times, use the following Ladder Inspection Checklist as well as these inspection items:

- The joints between the steps and siderails shall be tight.
- Hardware and fittings shall be secure.
- Moveable parts shall operate freely.
- Metal bearings should be frequently lubricated.
- Frayed or worn rope shall be replaced.
- Safety feet and other auxiliary equipment shall be kept in good repair.
- Rungs shall be kept free of grease and oil.
- If tipped over, inspect for dents, bends, rungs, hardware security or other damage.
- Never paint ladders, as paint may hide defects that could lead to failure.

G. Training

Supervisors should cover the proper use, inspection of, and hazards related to portable ladders. Information should include the information included in this program, OSHA regulations as applicable and manufacturer recommendations on use of specific ladders. This may include the following topics:

- The nature of fall hazards,
- Correct usage, and
- Load-carrying capacities.

Those who use ladders near exposed electrical conductors should also receive training in electrical safety-related work practices.

20.2 LADDER INSPECTION CHECKLIST

Items to be checked:	Condition O.K.	Needs Repair
GENERAL		
Loose steps or rungs (consider loose if they can be moved by hand)		
Loose nails, screws, bolts, or other metal parts.		
Cracked, split or broken uprights, braces, steps or rungs.		
Slivers on uprights, rungs or steps.		
Damaged or worn nonslip bases.		
STEPLADDERS		
Wobbly (from side strain)		
Loose or bent hinge spreaders.		
Broken Stop on hinge spreaders.		
Loose hinges.		
EXTENSION LADDERS		
Loose, broken, or missing extension locks.		
Defective locks that do not seat properly when the ladder is extended.		
Deterioration of rope.		

If there are any items that “Need Repair” the ladder should immediately be taken out of service, tagged as “Dangerous – Do Not Use” and the responsible supervisor notified. If a ladder cannot be repaired, it should be destroyed.

20.3 AERIAL LIFTS -SAFE WORK PRACTICES & SELECTION

A. Objective

Aerial lifts are considered any of the following: all aerial devices to elevate personnel to work areas not accessible from the ground, including vehicle and non-vehicle mounted lifts with; extendible boom platforms; aerial ladders; articulation booms, vertical towers, and a combination of any such device.

Aerial lifts, like ladders are also used at Harper in a wide variety of settings, both academic and administrative. The dangers are also similar as ladders with hazards including injuries from falls and electrical shock. Lifts must be maintained in good condition at all times, and inspected at regular, frequent intervals. Individual training is required on the specific aerial lift.

B. Scope

This procedure is established to address the requirements for using aerial devices in all departments.

C. References

Department of Labor, Occupational Health and Safety Administration (OSHA) 29 Code of Federal Regulations 1910.67 for Aerial devices and 1910.68 for Manlifts. Illinois Department of Labor 820 ILCS 225 Health and Safety Act.

D. Program Requirements

The following is a list of safety requirements for use of all aerial lift devices:

- Only trained and authorized personnel may operate aerial lifts. (Authorization must be from the Supervisor of the Department, see Section 20.4 Aerial Lift Inventory).
- Employees shall always stand firmly on the floor of the basket or platform and shall not sit, climb or lean on the edge of basket or the basket guardrails, nor shall they ever use planks, ladders or other devices within the basket or platform for positioning.
- A fall protection harness with a lanyard attached to the boom, basket or platform shall be worn at all times.
- Load limits on the basket or platform shall not be exceeded.
- Outriggers must be positioned and on pads or solid ground and breaks must be set.
- Do not work on slopes that exceed the slope limits listed by the manufacturer. Wheel chocks must be installed before the lift is used when working on an incline.
- Lift controls must be tested daily prior to operating and be clearly marked.
- The lift must not be moved when it is in an elevated position.
- If there is any malfunction or problem with the lift it should be immediately taken from service, tagged and notify the responsible supervisor.
- The manufacturer or equivalent shall certify any modifications.
- The area beneath an operating lift must be cordoned off and access to that area must be restricted, by placing barricades and signs.
- Employees must stay at least 10 feet away from overhead power lines, to prevent electrocution.

E. Care and Inspection of Aerial Lift Devices

Inspection by the manufacturer or a manufacturer representative shall be conducted annually, coordinated by the responsible supervisor, they shall further keep the inspection records.

F. Training

No person shall operate any aerial lift until they have been trained and certified on that specific lift. Training is required prior to permitting an employee to operate a lift (except for training purposes).

20.3 AERIAL LIFT INSPECTION CHECKLIST

Inspector: _____

Date: _____

Aerial Lift Make/Model: _____

Operation Checklist is to be used before EVERY use of the lift:

Items to be checked:	Condition O.K.	Needs Repair
Walk around the lift; look for loose or missing parts or visible damage		
Check controls for correct operation		
Operation is on a smooth, firm and level surface		
The platform load capacities are not exceeded		
Lifts with outriggers, are positioned properly before raising platform		
The area beneath an operating lift is cordoned off and access to that area is restricted with barricades and signs		
There is at least 10 feet of clearance between any part of the machine and any overhead electrical sources.		

Three Month Inspection

The following checklist should be completed on all aerial lifts every three months. In addition there are annual inspections made by a manufacture representative.

Items to be checked:	Condition O.K.	Needs Repair
All functions and their controls for speed(s) smoothness and limits of motion;		
Lower controls including the provisions for overriding of upper controls		
All chain and cable mechanisms for adjustment and worn or damaged parts		
All emergency and safety devices		
Lubrication of al moving parts, inspection of filter element(s), hydraulic oil, engine oil, and coolant as specified by the manufacturer		
Visual inspection of structural components and other critical components such as fasteners, pins, shafts and locking devices;		
Placard, warnings and control markings		

If there are any items that “Need Repair” the lift should immediately be taken out of service, tagged as “out of service” and the responsible supervisor notified. Repairs should be made only by a manufacture representative.

20.3 AERIAL LIFT INVENTORY

Name (Manuf.)	Capacity	Maximum Platform Height	Power Source	Department Responsible	Supervisor to contact for authorization to use	Storage Location
Genie AWP-25S	350 lb. One person	24 feet	Electric	Box Office	Thom Lange	J bldg.
JLG30	350 lb. One person	30 feet	Electric	Box Office	Thom Lange	R bldg.
JLG30	350 lb. One person	30 feet	Electric	Maintenance	Jerry Goff	W bldg.
JLG36	300 lb. One person	36 feet	Electric	Maintenance	Jerry Goff	Y bldg.
Upright UL38	300 lb. One person	38 feet	Electric	Maintenance	Jerry Goff	M bldg.
Skyjack 4626	700 lb. Two person *Extension platform -300 lb. One person	20 feet	Electric	Maintenance	Jerry Goff	Avante
Upright AB-46 I/C	500 lb. Two person	46 feet	Gas	Maintenance	Jerry Goff	Maint. Garage
JLG600	500 lb. Two person	60 feet	Gas	Maintenance	Jerry Goff	Maint. Garage
JLG19	350 lb. One person	19 feet	Electric	Utilities	Bob Pellican	B bldg.

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20.4 SCAFFOLDING- SAFE WORK PRACTICES & SELECTION

A. Objective

There may be the requirement to use scaffolding on campus. If and when any scaffolding is used these safe work practices and selection must be followed as well as all the rules and regulations that apply to erecting, dismantling, fall protection, furnishing and engaging in work on a scaffold in accordance with OSHA regulation in 1910 and 1926 CFR.

B. Scope

This procedure is established to address the requirements for using scaffolding in all departments.

C. References

Department of Labor, Occupational Health and Safety Administration (OSHA) 29 Code of Federal Regulations 1910.28- Safety Requirements for Scaffolding and 1910.451-454. Illinois Department of Labor 820 ILCS 225 Health and Safety Act.

D. Program Requirements

If it is determined that scaffolding is to be erected, the department supervisor must designate a **competent person** with specialized training to oversee the erecting, securing, and dismantling of the scaffolding. The competent person also inspects all scaffolds for visible defects before each work shift and after any occurrence that may affect the scaffolds' structural integrity. The competent person must have a complete grasp of functions, rules, and regulations as they pertain to the scaffold they oversee.

Competent persons will manage the daily activities on and around scaffolds and ensure the following:

- **Capacity**- Scaffolds and scaffold components must be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.
- **Footing**-The footing or anchorage for scaffolds must be sound, rigid, and capable of supporting the scaffold and its maximum intended load without surface settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks must not be used to support scaffold or planks.
- **Planking** – All planking, if applicable, must be overlapped a minimum of 12 inches or secured from movement by nails or bolts, unless the scaffold is prefabricated and interlocking. If nails or bolts are used in the construction of the scaffold they must be of sufficient size and number to secure planks from movement.
- **Fall Protection** – Fall protection is required for any scaffold greater than 10 feet in height. Guardrails, midrails, and personal fall arrest system, when applicable, must be in place when the scaffold is being used by employees.
- **Electrical Safety** – A 10 foot distance rule must be taken into consideration when working near overhead power lines or any high voltage electrical equipment. (See Section 10- Electrical Safety for more information).
- **Weather Stoppages** – Work on scaffolds is not allowed during high winds or when ice or snow collects on planking.

E. Training

All employees who are required to erect, work on or dismantle scaffolds must attend scaffold safety training. The designated competent person must be trained for the specific job as well as on the specific type of scaffolding. Training covers the proper use, inspection of and hazards relating to erection, working on and dismantling scaffolds.

