

ARKANSAS TECH UNIVERSITY HEALTH & SAFETY POLICY

DATE: March 9, 2022

SUBJECT: Working at Heights

PURPOSE: Slipping, tripping, and falling constitute the majority of general industry accidents. These incidents cause 15% of all accidental deaths and are second only to motor vehicles as the cause of fatalities. Active participation by management, supervisors and employees is necessary to prevent hazardous conditions that could result in slipping, tripping and falling.

SCOPE: This policy applies to all managers, supervisors and employees of Arkansas Tech University.

RESPONSIBILITY: It shall be the responsibility of **Supervisors;**

- to conduct periodic inspections;
- to ensure walking and working surfaces are free from slip, trip and fall hazards (both in their respective work areas and campus wide);
- to conduct training for employees who use ladders, scaffolds or other elevated platforms;
- to conduct training in use and inspection of fall prevention and arrest equipment;
- to ensure proper ladders, scaffold and other elevated platforms, as well as, fall prevention and arrest systems are used for specific tasks where it is necessary and
- to ensure employees follow the provisions of this policy.

It shall be the responsibility of **Employees;**

- to maintain work areas free from slip, trip and fall hazards;
- to correct or immediately report slip, trip and fall hazards and use proper ladders, scaffolds or other elevated platforms and fall prevention and arrest systems in areas where it is required.

It shall be the responsibility of the **Occupational Safety Coordinator**

- to ensure this policy is kept up to date in accordance with State and Federal standards, as well as, industry best practices;
- to ensure identified hazards are corrected in a timely fashion;
- to ensure adequate fall prevention and arrest equipment is specified and ordered;

ARKANSAS TECH UNIVERSITY HEALTH & SAFETY POLICY

- to ensure this policy is reviewed and updated at least on an annual basis.

Hazard Control

The following are specific ways that hazards can be controlled and/or corrected when identified.

A. Engineering Control

1. Proper construction of elevated locations.
2. Use of hand, knee and toe rails where required.
3. Proper design of fixed ladders and stairs.
4. Adequate lighting in all areas.

B. Administrative Controls

1. Training for all employees who work, or may work, at elevated heights.
2. Routine inspections of ladders, stairs, walking and working surfaces and fall arrest systems.
3. Following strict housekeeping requirements.
4. Immediate cleanup of material spills.

C. Housekeeping

1. All work areas – passageways, storerooms and service rooms shall be kept clean and orderly and in sanitary condition.
2. The floor of every area shall be maintained in a clean and dry condition. Where wet processes are used, drainage shall be maintained and gratings, mats or raised platforms shall be provided.
3. Every floor, work area and passageway shall be kept free from protruding nails, splinters, holes or loose boards.

NOTE: Housekeeping is undoubtedly the single best way of preventing slips, trips and falls.

D. Aisles and Passageways

1. Aisles and passageways shall be kept clear and in good repair with no obstructions across or in the aisle that could create a hazard.
2. Permanent aisles and passageways shall be appropriately marked.
3. Where mechanical handling equipment is used, aisles shall be sufficiently wide. Improper widths coupled with poor housekeeping and vehicular traffic can cause injury to employees, damage the equipment and materials and can limit egress in emergencies.

E. Elevated Floor Loading Protection

Load rating limits shall be marked on plates and conspicuously posted. It shall be unlawful to place, cause to be placed, or permit to be placed on any floor, roof of a building, or other structure, a load greater than that for which such floor or roof is engineered and approved.

ARKANSAS TECH UNIVERSITY HEALTH & SAFETY POLICY

F. Guarding Floor and Wall Openings

Floor openings and holes, wall openings and holes and the open sides of platforms may create hazards. People may fall through the openings or over the sides to the level below. Objects, such as tools or parts, may fall through the holes and strike people or damage machinery on lower levels.

Protection for Floor Openings

Standard railings shall be provided on all exposed sides of a stairway opening, except at the stairway entrance. For infrequently used stairways, where traffic across the opening prevents the use of a fixed standard railing, the guard shall consist of a hinged floor opening cover of standard strength and construction along with removable standard railings on all exposed sides, except at the stairway entrance.

A “standard railing” consists of a top rail, mid rail, and post, which shall have a vertical height of 42 inches nominal from the upper surface of the top rail to floor, platform, runway, or ramp level. The top rail must be able to support at least 200 pounds applied in any outward or downward direction.

Nominal height of the mid rail is 21 inches. A “standard toe board” is 4 inches nominal vertical height, with not more than ¼ inch clearance above floor level.

Floor openings (any opening in the floor greater than 1 inch) may be covered rather than guarded with rails. When the floor opening cover is removed, a temporary guardrail shall be in place, or an attendant shall be stationed at the opening to warn personnel.

Every floor hole into which a person can accidentally walk through shall be guarded by either:

1. A standard railing with toe board or
2. A floor hole cover of standard strength and construction

While the cover is not in place, the floor hole shall be constantly attended by someone or shall be protected by a removable standard railing.

When a floor opening or hole is protected with a cover, the cover shall be fixed to the floor so that it cannot move in any direction and must be constructed of such strength to accommodate normal and expected traffic weight.

Protection of Open-Sided Floors, Platforms, and Runways

Every open-sided floor or platform 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing on all open sides, except where there is an entrance to the ramp, stairway or fixed ladder. The railing shall be provided with a toe board wherever, beneath the open sides:

1. Persons can pass;

ARKANSAS TECH UNIVERSITY HEALTH & SAFETY POLICY

2. There is moving machinery, or
3. There is equipment with which falling materials could create a hazard.

Every runway shall be guarded by a standard railing, or equivalent, on all sides 4 feet or more above floor or ground level. Whenever tools, machine parts or materials are likely to be used on the runway, a toe board shall always be provided on each exposed side.

Stairway Railings and Guards

Every flight of stairs with four or more risers shall have standard stair railing or standard handrails as specified below. Stair width is measured clear of all obstructions except handrails.

1. On stairways less than 44 inches wide with both sides enclosed, at least one handrail shall be affixed, preferably on the right hand side descending.
2. On stairways less than 44 inches wide with one open side, at least one stair rail shall be affixed on the open side.
3. On stairways less than 44 inches wide having both sides open, two stair rails shall be provided, one on each side.
4. On stairways more than 44 inches, but less than 88 inches wide, one handrail shall be provided on each enclosed side and one handrail on each open side.
5. On stairways 88 inches or more in width, one handrail shall be provided on each enclosed side, one stair rail on each open side, and one intermediate stair rail placed approximately middle of the stairs.

A "standard stair railing" (stair rail) shall be of construction similar to a standard railing, but the vertical height shall be no more than 34 inches nor less than 30 inches from the upper surface of the top rail to the surface of the tread in line with the face of the riser at the forward edge of the tread.

Fixed Industrial Stairs

Fixed industrial stairs shall be provided for access to and from places of work where operations require regular travel between levels. Requirements include:

1. Fixed industrial stairs shall be strong enough to carry five times the normal anticipated live load.
2. At a very minimum, any fixed stairway shall be able to carry safely a moving concentrated load of 1000 pounds.
3. All fixed stairways shall have a minimum width of 22 inches.
4. Fixed stairs shall be installed at angles to the horizontal of between 30 and 50 degrees.
5. Vertical clearance above any stair tread to an overhead obstruction shall be at least 7 feet measured from the leading edge of the tread.

Ladders

To get the maximum serviceability, safety, and to eliminate unnecessary damage of equipment, good safe practices in the use and care of ladder equipment must

ARKANSAS TECH UNIVERSITY HEALTH & SAFETY POLICY

be employed by all users. The following rules are essential to the life of the equipment and the safety of the user:

1. Ladders must be maintained in good usable condition at all times.
2. Ladders having defects are to be marked and immediately taken out of service until repaired by the manufacturer or the onsite carpenters.
3. Any ladder determined to be unusable should be cut into small pieces and placed in the dumpster.
4. If a ladder is involved in any of the following, immediate inspection is required:
 - If the ladder tips over, inspect ladder for side rail dents or bends, or excessively dented rungs; check all rung-to-side-rail connections; and/or check hardware connections, and/or check rivets for shear.
 - If ladders are exposed to oil and grease, equipment should be cleaned of oil, grease, or slippery materials. This can be accomplished with solvent or pressure washing.
5. All manufacturer's labels must be visible and legible.
6. Paint or any other product that would cover labels or defects should not be used on a ladder
7. Follow the manufacturer's load limits.

Use of Ladders

1. A simple rule for setting up a ladder at the proper angle is to place the base distance from the vertical wall equal to one-fourth the working height of the ladder.
2. Commonly referred to as the 4:1 rule. Portable ladders are designed as a one-man working ladder based on a 200-pound load.
3. The ladder "feet" must be placed on solid secure footing.
4. The top of the ladder must be placed with the two rails against the building or other support, when necessary.
5. The top of the ladder must extend at least 3 feet above the landing surface.
6. When ascending or descending a ladder the user must always face the ladder.
7. When ascending or descending a ladder, nothing is to be carried in the user's hands.
8. Maintain 3-point contact with the ladder.
9. Ladders must be secured at the top to prevent tipping or sliding.
10. Ladders must not be tied or fastened together to provide longer sections.
11. Ladders should never be used in the horizontal position as a scaffold or work platform.
12. The top two steps of a ladder should never be used as a step.

Portable Ladder Requirements

The chief hazard when using a ladder is falling. A poorly designed, maintained, or improperly used ladder may collapse under the load placed upon it and cause the employee to fall.

1. Portable stepladders longer than 20 feet shall not be used.

ARKANSAS TECH UNIVERSITY HEALTH & SAFETY POLICY

2. Stepladders shall be equipped with a metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in the open position.
3. Single ladders more than 30 feet shall not be used.

Fixed Ladders

A fixed ladder is a ladder permanently attached to a structure, building, or equipment. A point to remember is that a fixed ladder, with a length of more than 20 feet to a maximum unbroken length of 30 feet shall be equipped with cages or a ladder safety device. A "cage" is a guard that is fastened to the side rails of the fixed ladder or to the structure encircling the climbing space of the ladder for the safety of the person who must climb the ladder.

- Cages shall extend a minimum of 42 inches above the top of a landing, unless other acceptable protection is provided.
- Cages shall extend down the ladder to a point no less than 7 feet or more than 8 feet above the base of the ladder.

Scaffolding Safety

The Carpenter Foreman is the competent person at Arkansas Tech University, capable of identifying existing and predictable hazards involving scaffolds and who has the authority to take prompt corrective measures to eliminate them. He will train and supervise the employees who will assemble, move, operate, repair, disassemble, maintain and use scaffold equipment.

1. The footing or anchorage for scaffolding shall be sound, rigid and capable of carrying the maximum intended load without settling or displacement. Unstable objects, such as barrels, boxes, loose brick or concrete blocks shall NOT be used to support scaffolds or planks.
2. Scaffolds and their components shall be capable of supporting at least the maximum intended load.
3. Scaffolds shall be maintained in a safe condition and shall NOT be altered or moved horizontally while in use or occupied.
4. Damaged or weakened scaffolds shall be immediately taken out of service and not used until proper repairs have been completed and re-inspected.
5. A safe means must be provided to gain access to the working platform level by use of a ladder, ramp, etc.
6. Overhead protection must be provided for personnel on a scaffold exposed to overhead hazards.
7. Guardrails, mid-rails and toe-boards must be installed on all open sides and ends of platforms more than 10 feet above the ground or floor. Wire mesh must be installed between the toe-board and the guard-rail along the entire opening, where persons are required to work or pass under the scaffold.
8. Employees shall not work on scaffolds during storm or high winds or when covered with ice or snow.

ARKANSAS TECH UNIVERSITY HEALTH & SAFETY POLICY

NOTE: There are several different types of scaffold. The manufacturer's specifications should be reviewed carefully for any special requirements that apply to each type.

Manually Propelled Mobile Ladder Stands and Scaffold Towers

1. All exposed surfaces of mobile ladder stand's and scaffold shall be free from sharp edges, burrs, or other safety hazards.
2. The maximum work height shall not exceed four times the minimum base dimension unless outriggers or braces are added to provide greater stability.
3. Guard-rails and toe-boards are required on the platforms 10 feet or more above the ground or floor.

Fall Prevention and Fall Arrest Systems

Where employees are working 4 feet or more above an adjacent floor or ground level not guarded by standard railings on all open sides, a fall arrest system must be used. The fall arrest systems must be designed to prevent the employee from falling more than 6 feet

Fall arrest system (harness and retractable life line) will be inspected before each use by the user. Inspection shall include all buckles, webbing, leg straps, D-rings, etc. User shall look for

cuts, tears, corrosion, or anything that might lessen the integrity of the device.

Periodically the fall arrest systems shall be inspected by a supervisor.

The full body harness shall have the connection point in the middle of the upper back. Approved connectors are required for all connection points.

- Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds.
- Anchorage points used for the attachment of personal fall arrest equipment must be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached.
- Shock absorbing devices must be used to limit the arresting force on an employee to 1,800 pounds when used with a body harness.
- Lanyards and lifelines (including shock absorbing devices) must be rigged so that an employee can neither freefall more than 6 feet, nor contact any lower level.
- When employees enter a space vertically, the free end of the lifeline must be attached to a mechanical means of retrieval, and the anchor point for this device must be capable of supporting at least 5,000 pounds.
- NO part of any fall arrest system can be used to hoist materials.
- Body harnesses, lanyards, lifelines, and all connect equipment must be removed from service after it has been involved in any fall incident. A competent person must inspect the equipment, and determine, if the equipment is undamaged and suitable to be returned to service.