



WAKE FOREST
UNIVERSITY

ELEVATED WORK SAFETY PROGRAM

Facilities, Real Estate, and Planning
Environmental, Health, and Safety

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1. INTRODUCTION

Elevated work poses a safety hazard if the equipment is not utilized and maintained properly. This program provides information for users of elevated work equipment to safely perform their job duties. Elevated work involves any work conducted above the substrate. Equipment used to vertically elevate a worker above the substrate includes, but is not limited to, aerial devices, scaffolding and ladders.

2. PURPOSE

The elevated work program is developed and maintained to provide safety related information to users of these devices and minimize injuries because of improper use.

3. SCOPE

This program covers all Wake Forest University (WFU) departmental personnel including staff and contractors utilizing equipment to perform elevated work on WFU property.

4. DEFINITIONS

ANCHOR POINT/ANCHORAGE - secure point of attachment for lifelines, lanyards or deceleration devices.

ANSI - American National Standards Institute.

BODY HARNESS - straps which may be secured about the employee in a manner that will distribute the 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.

FALL ARREST SYSTEM - a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

LADDER - Ladders are structures made of fiberglass, wood, metal, etc., commonly consisting of two side pieces between which a series of bars or rungs are set at suitable distances, forming a means of climbing up or down to access elevated work surfaces.

LANYARD - a flexible line of rope, wire rope or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline or anchorage.

LOAD - for all ladders (fold out, leaning and fixed), the load to be placed on the ladder equals the person's body weight plus materials and tools being used; scaffolds must be able to support at least four times the maximum intended load.

OSHA - Occupational Safety and Health Administration.

SCAFFOLDING - system composed of poles and planks to provide elevated work platforms.

5. RESPONSIBILITIES

ENVIRONMENTAL, HEALTH, AND SAFETY - The Office of Environmental, Health, and Safety (EHS) is responsible for program development, consultation, and plan update assistance. EHS is available to provide training and program implementation assistance to all departments within WFU.

WFU DEPARTMENTS - Responsibilities of the department include elevated work program implementation; maintenance of equipment; training of personnel assigned to conduct elevated work; and inspections and safe use of equipment. In addition, all departments will assign a competent person for this program area.

SUPERVISOR - Supervisors of employees required to utilize elevated work equipment must be knowledgeable in this program and be capable of recognizing hazards associated with elevated work equipment and share this information with employees in their department. Supervisors shall assist the competent person in ensuring employees have received the proper elevated work training prior to use of equipment.

STAFF - Staff with responsibilities involving elevated work must be appropriately trained in the contents of this program, knowledgeable of the specific equipment they work with and able to recognize hazards and equipment deficiencies related to elevated work. Staff will not use elevated work equipment when it is not safe to do so and will report all unsafe conditions to their supervisors.

6. LADDERS

Ladders are structures made of fiberglass or metal and commonly consisting of two side pieces between which a series of bars or rungs are set at suitable distances, forming a means of climbing up or down to access elevated work surfaces. Typically, ladders are self-supporting (foldout), non-self-supporting (leaning) and mounted (fixed).

All ladders used by department personnel or contractors, must meet the requirements set forth by OSHA 29 CFR 1926.1053-Ladders.

A. General Requirements

The weight of the person and the equipment/materials being used will not exceed the manufacturer's load rating. The following outlines ladder load ratings:

Type	Load Rating	Working Load (pounds)
IAA	Industrial - Special Heavy Duty	375
IA	Industrial - Extra Heavy Duty	300
I	Industrial - Heavy Duty	250
II	Commercial - Medium Duty	225
III	Household - Light Duty	200

B. Specific types of ladders

1) Step Ladders

- Do not use the top or top step of a step ladder as a step
- Do not use the cross bracing for climbing unless specifically designed with steps on the front and rear for climbing
- Metal spread bars or locking devices must be provided on step ladders to hold the front and back sections in an open position when the ladder is being used
- Do not use a step ladder without the metal spread bar or locking device in a locked position

2) Portable ladders

- The minimum clear distance between side rails for all portable ladders must be 11.5 inches. In addition, the rungs and steps of portable metal ladders must be corrugated, knurled, dimpled, coated with skid-resistant material or treated to minimize slipping.
- When portable ladders are used for access to an upper landing surface, the side rails must extend at least three feet above the upper landing surface. When such an extension is not possible, the ladder must be secured and a grasping device, such as a grab rail, must be provided to assist workers in mounting and dismounting the ladder.

3) Fixed ladders

- If the total length of the climb on a fixed ladder equals or exceeds 24 feet, it must be equipped with ladder safety devices (i.e. fall protection). An alternative to the aforementioned ladder safety device would include a self-retracting lifeline and rest platforms set at intervals not to exceed 150 feet. Another alternative would include a cage or well and multiple ladder sections with each ladder section not to exceed 50 feet. However, these ladder sections must be offset from adjacent sections and must have landing platforms at maximum intervals of 50 feet.

- Individual rungs on fixed ladders must extend 42 inches above the access level or landing platform either by a continuation of the rung spacings as horizontal grab bars or by providing vertical grab bars that have the same spacing as the horizontal grab bars.
- Step-across distance between the center of the steps or rungs of fixed ladders and the nearest edge of a landing area must be no less than seven inches and no more than 12 inches. A landing platform must be provided if the step-across distance exceeds 12 inches.
- Fixed ladders must be used at a pitch no greater than 90 degrees from the horizontal, measured from the back side of the ladder.

C. Ladder Safety

Whenever ladders are used, the following safety guidelines will be followed for all types of ladders:

- Always read and follow all manufactures labels/markings on the ladder
- Always look for overhead power lines before moving or setting up a ladder
- Avoid using a metal ladder near power lines or exposed energized electrical equipment
- Always inspect a ladder prior to use (see Pre-Use Ladder Checklist in Appendix A)
- A damaged ladder must be tagged as “Do Not Use” and taken out of service until repaired or discarded
- Always maintain a three point contact with the ladder (two hands and one foot or two feet and one hand)
- Keep your body near the middle of the step and always face the ladder while climbing
- Ladders must be free of any slippery material on the rungs, steps or feet
- Do not use a step ladder as a single ladder or in a partially closed position
- Use a ladder only on a stable and level surface, unless it has been secured (top or bottom) to prevent displacement
- Do not place a ladder on boxes, barrels or other unstable bases to obtain additional height
- Do not move or shift a ladder while a person or equipment is on the ladder
- A leaning ladder used to access an elevated surface must extend at least three feet above the point of support
- Do not stand on the three top rungs of a leaning ladder
- Always set the base of a leaning ladder one-foot out horizontally from the support for every four feet the ladder extends vertically

- A ladder placed in any location where it can be displaced by other work activities must be secured to prevent displacement or a barricade must be erected to keep traffic away from the ladder
- Be sure that all locks on a non self-supporting ladder are properly engaged
- Ladders should never be painted (with the exception of metal ladders) due to potential of masking damage (i.e. dry rot, cracks or splinters)

D. Training

It is the responsibility of supervisors (or a competent person) to train all personnel using ladders to recognize the hazards associated with the type of ladder being used and be instructed on how to minimize hazards.

7. SCAFFOLDING

Scaffolding is a temporary structure for holding workers and materials during the erection, repair or decoration of a building. Scaffolding will be erected by a competent person who is properly trained. All scaffolding exceeding 125 feet in height must be designed by a registered professional engineer. All scaffolding must meet the construction requirements as set forth by OSHA 29 CFR 1926 Subpart L – Scaffolds.

A. Fall protection or fall arrest

All employees working 10 feet above the ground or above the next lower level will be protected from falls by using either guardrails or a fall arrest system.

B. Guardrail height

The height of the top rail for scaffolds must be between 36 inches and 45 inches.

C. Cross Bracing

When the cross point of the cross bracing is going to be used as a top rail, it must be between 38 inches and 48 inches above the working surface.

D. Midrails

Midrails must be installed halfway between the top rail and the working surface. When the cross point of the cross bracing is going to be used as a midrail, it must be between 20 inches and 30 inches above the working surface.

E. Guardrails are not required when the front end of the working surface is less than 14 inches from the face of the work.

F. Footings

Support scaffold footings will be level and capable of supporting the loaded scaffold without settling or displacement. The legs, poles, frames and uprights will be placed on the base plates, mud sills or other adequate firm foundations.

G. Platforms (working surfaces)

Supported scaffold working surfaces will be fully planked or decked.

- The space between the working surface and the uprights must not exceed one inch in width.
- Scaffolding planking must be able to support its own weight and at least four times the intended load without failure.
- Solid sawn-wood, fabricated planks and fabricated work surfaces may be used as scaffolding planks following the recommendations by the manufacturer or a lumber grading association or inspection agency.
- The planking material for the working surface must not deflect more than 1/60th of the span when loaded.
- All scaffolding work surfaces and walkways must be at least 18 inches wide. When the area is less than 18 inches wide, guardrails and/or fall arrest systems must be used.

H. Guying ties and braces

Supported scaffolding with a height to base ratio of more than 4:1 will be restrained from tipping by guying, tying, bracing or some equivalent means.

I. Inspections

Before each work shift and after any occurrence that could affect the structural integrity of a scaffold, a competent person must inspect the scaffold and scaffold components for visible defects. Any defects will be corrected prior to use.

J. Erecting and dismantling

When erecting or dismantling supported scaffolds, a competent person must determine the feasibility of providing a safe means of access and fall protection for these operations.

K. Falling object protection

To protect employees from falling objects, toeboards must be installed on the working surfaces. Toeboards must be at least four inches wide.

Other acceptable falling object protection methods include screens, debris nets, catch platforms, canopy structures or the use of barricades.

L. Inspections and maintenance

- Prior to use, the operator/user will perform a visual inspection of the scaffolding system to ensure no deficiencies are present.
- Scaffolding will be certified upon erection by a competent person. Scaffolds in place for more than one year require an annual certification by a competent person.

8. ELEVATED WORK HAZARDS

Elevated work being conducted must take into consideration additional hazards, which may affect the safety of the individual performing the work. The following hazards will be addressed prior to and during use of elevated work equipment. It is the policy of WFU to minimize the risk of injury to employees and contractors utilizing these systems. Their use is not permitted if the following hazards are not appropriately addressed or controlled.

A. Inclement weather

Elevated work equipment for use outdoors must address inclement weather as a prerequisite of operating the elevated work equipment. It is the department's responsibility to maintain "on-call" individual(s) for all activities when outdoor use of elevated work equipment is conducted. It is the responsibility of the on-call individual to monitor the weather and determine if changes occur, which may create unsafe work conditions and to alert aerial lift/elevated work platform users when these conditions arise.

1) Wind

Scaffolds must have a posted wind speed limitation. The equipment manufacturer is responsible for supplying this information to the department. If wind speeds exceed 25 miles per hour, use of an elevated work platform is not recommended as per the department's policy. Refer to the manufacturer's specifications or design criteria for specific wind limitations.

- All operators and users of elevated work platforms will be informed of these limitations and have suitable means for detecting elevated wind speeds prior to performing elevated work through approved wind gauges, up-to-date weather reports or other approved methods.

2) Precipitation

Rain, snow, hail, sleet or fog, which may adversely affect the safe use of aerial lifts/elevated work platforms, will be appropriately addressed prior to elevated work being performed. If these conditions cannot be appropriately addressed, work will not be performed until weather conditions improve.

3) It is the responsibility of the aerial lift operator or elevated work platform user and their supervisor to determine when inclement weather will render elevated work platforms unsafe.

4) Suitable means of communication between the aerial lift/elevated work platform user and their supervisor(s) must be maintained and available for use at all times to convey pertinent information.

B. Electrical hazards

1) Only personnel certified to work on electrical lines will be permitted to approach electrical lines during aerial work platform operations.

2) Elevated work equipment will not come within 10 feet of overhead electrical lines at any time, unless approved to work on overhead electrical lines.

3) Electrical lines carrying voltages greater than 50 kV will be addressed by a certified individual prior to elevated work being performed.

4) It is the responsibility of the employee to ensure overhead electrical lines are addressed prior to elevated equipment use, and avoided during use.

C. Vehicular and pedestrian traffic

At all times during the use of elevated work equipment, the employee will ensure vehicular and pedestrian traffic does not create additional hazards.

1) During the use of mobile lifts, the operator will ensure the path of travel is not made unsafe due to excess vehicular or pedestrian traffic.

2) Stationary elevated work platforms will be constructed and protected to ensure vehicular and pedestrian traffic is restricted.

9. TRAINING

All employees and users of elevated work equipment will receive training prior to any use of this equipment. At no time will an employee or other non-department staff member be authorized to utilize elevated work equipment unless formal training is completed and documented.

Stationary elevated work platform training will be provided to all personnel utilizing/maintaining the platforms. Training should be conducted by a competent individual and address the following topics:

- Safe equipment use
- Equipment limitations (wind, precipitation, occupancy, etc.)
- Restricting access when in use and not in use

Training for mobile elevated work platforms (MEWP) such as manual or self-propelled units, push around vertical, track mount, scissor lifts, articulating booms, telescoping booms, and vehicle mounted articulating booms is addressed in the [MEWP Policy](#).

10. RECORDKEEPING

It is the responsibility of the supervisor and department to maintain records for all stationary elevated work platforms and employee training records. Records should include:

A. Inventory of all elevated work platforms, scaffolds and ladders.

B. Manufacturer specifications/engineering design for all elevated work systems

C. Employee training records should include:

- Employee name
- Dates of training
- Trainer
- Equipment covered in the training
- Testing results

D. Department specific Standard Operating Procedures for elevated work systems

E. Equipment inspection records

- Pre-use inspection records
- Annual inspection/certification records

F. Equipment maintenance records

11. CONTRACTORS

A. It is the department's supervisor responsibility to ensure all contractors adhere to the policies outlined in this program when working on/with elevated work equipment.

B. Contractors utilizing their own equipment must have their own safety policy and be capable of providing training records for all employees utilizing the equipment.