

IUPUI
**OFFICE OF ENVIRONMENTAL
HEALTH & SAFETY**

INDIANA UNIVERSITY-PURDUE UNIVERSITY
Office of Finance and Administration
Indianapolis

Aerial Lift Program

Purpose and Background

The IUPUI Department of Environmental Health and Safety (EHS) has developed this program to establish guidelines for the safe operation and use of aerial lifts by University employees. The program requires training and certification in aerial lift operation to assure that operators have a basic understanding of related hazards and safe operation of the specific equipment used by the department. This program is intended to comply with the OSHA standards contained in 29 CFR 1910.67.

Scope

This program applies to all powered or manually operated personnel lifting devices being operated by IUPUI personnel regardless of location, such as:

- **Telescoping:** ex. scissor lifts and vertical man lifts. The personnel basket or platform only goes up and down. There are no hinged sections in the boom. This type is generally used indoors.
- **Articulating:** ex. construction-type lifts. The personnel basket or platform can be maneuvered up, down, over, and sideways. There are one or more hinged boom sections. This type is generally used outdoors.
- **Boom Trucks:** The personnel basket or platform is located on a vehicle. There may or may not be hinged boom sections. This type is used outdoors for painting or overhead power line access. The boom may or may not be insulated for electrical hazards.

This policy applies to the all employees that may set-up or operate an aerial lift. Employees must be able to understand proper operating procedures, how to use the equipment safely and shall comply with the manufactures guidelines.

Policy

This policy has the following objectives:

1. Establishing safe operating procedures for all employees working in, on, or around aerial lifts; and
2. Ensuring all operators are authorized by their department to use aerial lift equipment, and are trained and certified through EHS or an Aerial Lift Vendor.

Authority and Responsibility

EHS shall be responsible for:

1. Developing the written Aerial Lift Program and revising the program as necessary;
2. Assisting with the inspection requirement of aerial lifts when requested;
3. Conducting required training to ensure proper compliance; and
4. Maintaining documentation for the training.

The Departments shall be responsible for:

1. Ensuring employees using an aerial lift have been properly trained before operating any lift;
2. Contacting EHS for assistance when purchasing an aerial lift;
3. Ensuring that no modifications or additions are made to an aerial lift without the manufacturer's written approval;
4. Maintaining aerial lifts that are operated in their department per manufacture recommendations;
5. Ensuring that aerial lifts that do not pass the required inspection are tagged "out of service" and not used until all necessary repairs have been made;
6. Ensuring annual inspections are conducted;
7. Allowing employees working on a lift to make their own decision as to whether they should come down from the lift in any situation where their safety is threatened;
8. Disciplining employees who do not operate aerial lifts in a safe manner; and
9. Immediately correcting deficiencies found with an aerial lift.

The Employees shall be responsible for:

1. Reviewing and complying with the aerial lift program;
2. Attending aerial lift training;
3. Conducting pre-use inspection prior to operating the lift and ensure that it is safe to operate;
4. Reviewing the operating instructions and safety guidelines for the lift they are using;
5. Notifying the supervisor of any deficiencies noted when conducting the inspection; and
6. Refraining from using an aerial lift that has not completely passed the required inspection or job site inspection.

Contractors or other non-university employees shall be responsible for:

1. Complying with all OSHA regulations that pertain to aerial lifts.

Operating Requirements

Care and Use

Aerial lifts must be used and operated in accordance with Occupational Safety and Health Administration (OSHA) and American National Standard Institute (ANSI) standards. The operator's manual must be available to the operator on the lift itself. Operators must review the operating instructions and safety guidelines.

Aerial lifts must be cared for in accordance to the manufacturer's requirements. Aerial lifts may be "Field modified" for use other than those intended by the manufacturer, provided the modification has been certified in writing by the manufacture. It shall also conform with all applicable provisions of ANSI A92.2-1969 for Vehicle-Mounted Elevating and Rotating Platforms and OSHA 1910.68. Servicing and maintenance should be done in accordance with the manufacture's recommendations and by a qualified person.

Daily Inspections

Aerial lifts must be inspected daily or prior to use for general damage and defects which may affect the integrity or operation of the lift. See the inspection checklist in Appendix A. Report any defect to the Zone Manager and take the lift out of service until repairs have been made. Repairs should only be made by a qualified aerial lift technician.

Traveling/Moving

Lifts are not designed to be moved to another location while the platform or basket is raised. Always lower the platform and, if necessary, exit the lift prior to moving. If the lift is designed to be driven by the operator to the next work location, it should be done so with the platform low to the ground (2-3 feet).

Street Travel

Before traveling on open roadways, operators must secure the booms and buckets to the lowered travel position by the locking devices provided. Locking pins must be in place as directed by the manufacture. If the lift is designed to be driven to the next work location while the operator is still in the bucket or boom, it should be done so with the platform lowered to the travel position.

Fall Protection Requirements

Employees working in an aerial lift must adhere to all manufactures recommendations and this program to ensure safe operation and use. Employees are prohibited from extending their upper body outside of the basket or over any of the guardrails present on the lift they are using.

Employees shall ensure that the lift platform chains are connected or doors are closed before operating the lift.

Employees working in a bucket truck or boom lift are required to wear a full body harness and a lanyard connected to an appropriate attachment point on the bucket or boom. Employees working in a scissor lift or vertical man lift that have guard rails present are not required to wear fall protection. If guard rails are not present on the scissor lift or vertical man lift, then employees are required to wear fall protection equipment.

Employees wearing fall protection equipment shall remain tied-off until the work is finished and the basket or boom has been safely lowered to the ground. Employees may only tie off to the basket or boom of the aerial lift; **tying off to an adjacent pole, structure or other equipment is prohibited.**

Personal fall arrest systems that have been subjected to impact shall be immediately removed from service and disposed of. Replacement fall protection shall be ordered to replace the equipment that was used during the impact.

Outriggers

Outriggers are used as a stabilizing tool for the lift. Setting up the outriggers is extremely important and should be done correctly. Incorrect use of outriggers could cause the aerial lift to tip over.

When setting the outriggers, remember:

- When possible, position outriggers on solid surfaces such as concrete or asphalt;
- Position outriggers on level ground;
- Always use cribbing plates or outrigger pads when positioning outriggers on soil;
 - Check the soil density to ensure that the surface is stable and not recently backfilled;
- Always bring the outriggers straight down, never at an angle; and
- Never stand behind the outrigger or between an outrigger and another fixed object when it is being lowered or retracted.

Brakes

Prior to operating the lift, the operator should ensure that the brakes are set. The brakes must be set anytime outriggers are used. Wheel chocks must be installed before the lift is used when working on an incline.

Working Surfaces

Employees shall always stand firmly on the floor of the basket or boom, and shall not sit, stand or climb on the edge of the basket or guardrails present. Employees should never attempt to climb outside of the basket or over extend their upper body beyond the railing of the basket.

Aerial lifts may not be used in combination with other devices such as ladders, planks or scaffolding.

Electrical Hazards

Aerial lifts shall not be operated within 10 feet of overhead power lines unless the operator is a qualified electrician and has completed the necessary electrical safety training, has proper knowledge, protective equipment and tools necessary to work on the equipment safely. The 10-foot clearance applies to any part of the lift, the operator, tools, materials and equipment in use. When qualified electricians are operating within the 10-foot clearance area, personnel on the ground must not be in contact with any part of the aerial lift.

Adverse Weather Conditions

Aerial lifts operated outdoors shall not be used in adverse weather conditions, such as approaching thunderstorms, high or gusty winds, or the presence of lightning. Outdoor use of lifts in winds exceeding 20 miles per hour is prohibited unless prior approval is obtained from IUPUI EHS. If you are working on an aerial lift outside when adverse weather conditions occur, stop all work activities, lower the lift to ground level and exit the lift to find refuge in a safe environment.

Mechanical Failures

All aerial lifts should have auxiliary (ground) controls so the platform or basket can be safely lowered to the ground in the event that the operator platform controls fail or the operator can not operate the basket controls. Operators shall never attempt to climb out of the basket or climb down the boom in the event of mechanical failure. Ground controls can be used by another certified operator in the stranded operator grants permission. Permission is implied if the operator is unconscious.

Load Limits

Operators must be familiar with the maximum capacity of their lift. The load limit should be indicated on the lift and posted in a visible location. Load limits for the boom or basket shall not be exceeded. The load limit total includes the weight of the operator and any equipment or tools that may be present in the boom or basket. The load limits must be specified by the manufacture. There should only be as many people in the lift basket as the lift was designed for.

Tip-Over

Tip-over can occur when aerial lifts are operated on soft or uneven ground, if the rated load limit is exceeded or if the lift is struck by a large object or vehicle. To avoid a tip-over:

- Do not exceed the manufacture's rated load capacity limits;
- Avoid unnecessary travel with the lift in an elevated position;
- Establish a work area perimeter;
- Do not drive near leading edges or holes;
- Do not raise the platform on a slope or drive onto a slope when elevated;
- Do not drive on uneven or soft surfaces when elevated;
- Do not exceed the vertical and horizontal reach limits of the lift;
- Do not use the lift in windy conditions exceeding 20 miles per hour; and
- Avoid excessive horizontal forces when working from an elevated lift.

Pedestrian Traffic

Operators must be constantly aware of their surroundings. Operators are responsible for the safety of pedestrians that may be in the vicinity of the lift equipment. When lift work is conducted in the vicinity of pedestrian traffic, operators must take special precaution to ensure that the work is isolated from the pedestrian traffic.

Signs, Caution Tape and Barriers

The aerial lift boom and basket should never be positioned above pedestrians or other workers. If an aerial lift is going to be used in an area near pedestrian traffic, operators are required to isolate the work area by establishing a perimeter and safely diverting the pedestrian traffic. Danger signs, caution tape and/or barriers should be used to create the perimeter of the work area.

The perimeter must be delineated in a way so that the boom and basket remain in the work area during all work positions. If the work area is limited, operators may only position the boom as far as the established perimeter.

General Safety

Employees working on a lift are allowed to make their own decision as to whether they should come down from the lift in any situation where they feel their safety is threatened.

Inspections

Work Area Inspection

Prior to operating an aerial lift, the work area shall be inspected to ensure that conditions are safe enough to operate the lift. See Appendix A. Operators must ensure that pedestrian traffic has been diverted appropriately.

Aerial Lift Inspection

Prior to operating an aerial lift, the operator must perform an inspection of the lift utilizing the Aerial Lift Inspection Checklist from Appendix A. Completed forms should be kept with the lift in a binder.

Battery Inspection

Protective acid resistant gloves, goggles and long sleeves shall be worn when checking the battery fluid levels and/or replacing battery electrolyte. Batteries should be inspected for:

- Proper electrolyte fluid levels;
- Cracks and holes;
- Unsecured or leading cells;
- Frayed electrical cables;
- Broken or cracked insulation material;
- Ensuring all connections are tight; and
- Confirming that the vent cap is not clogged.

Personal Fall Arrest System

Personal fall arrest systems shall be inspected prior to each use. The inspection shall consist of a visual inspection checking for mildew, wear, damage or other deterioration. Defective equipment shall be taken out of service if they will not provide adequate protection and reported to the operator's supervisor.

Training

All aerial lift operators are required to successfully complete an aerial lift operating training program along with hands-on training prior to operating an aerial lift. All operators must be retrained every three years through successful completion of the hands-on training. If operators cannot demonstrate proficiency or are involved in an accident using the lift training must be repeated.

The operator training program includes classroom instructions, a written test and proficiency demonstration of hands-on operation.

Classroom Training

The classroom training shall consist of:

- Responsibility;
- Pre-operation inspection;
- Function tests;
- Safety Operation; and
- Hands-on.

Hands-on Training

The Hands-on operation shall consist of:

- Location of the operators manual inside the storage box on the lift;
- Understanding the information in regards the pre-operation inspection;
- Understanding all control functions, decals and warning;
- How to operate the lift correctly. The user must show that they know how to use the lift properly and safely; and
- Is aware and understands all safety devices specific to the aerial lift they will be using.

**Appendix A
Aerial Lift Inspection Checklist**

Operator's Name:			Date of Inspection:		
Job Site Inspection	OK	N/A	Pre-use Inspection	OK	Repairs Needed
Check Ground Condition – Uneven, holes, soft soil			Ensure that operators manual are on the lift		
Check Slope			Check lift for visible damage		
Look for overhead obstructions			Check for hydraulic leaks		
Observe environmental conditions windy or unsafe weather (wind should not exceed 20 mph)			Inspect belts and hoses		
Check surroundings for hazardous areas			Inspect pins, banjo bolts and connections		
Look for pedestrian or vehicular traffic			Inspect tires		
When necessary, define the work zone with barriers and restrict access			Inspect limit switches		
Walk the path of travel the lift is going to move on			Inspect platform and guard rails		
Electrical hazards present			Read the placard and decals and ensure that they are present and legible		
			Verify platform load is within the rated capacity		
			Inspect the lift pothole mechanism		
Vehicle Components	OK	Repairs Needed	Function Test	OK	Repairs Needed
Oil Level			Position machine on a firm surface		
Fuel Level / Battery Charge			Deploy or position the outriggers		
Coolant Level (Do not check while engine is hot)			Check the interlock display light and confirm they are all on		
Tire Pressure / Condition			Confirm the machine is level by using the bubble level		
Horn			Push the e-stop button to the off position		
Gauges			Use the drive function control – It should not function		
Brakes			Use the lift function control – It should not function		
Lights			Pull the e-stop button to the on position		
Steering			Test the tilt alarm		
Back-up Alarm			Check the drive function: forward and reverse		
Warning Lights			Check the lift function: up and down		
Battery Fluid Level					