



Aerial & Scissor Lift Plan

Florida Institute of Technology (Florida Tech)

Environmental Health & Safety (EH&S)

150 W University Blvd, Melbourne, FL 32901

Email: ehs@fit.edu

Website: <https://www.fit.edu/office-of-environmental-health-and-safety/>

REVISION HISTORY

Revision Number	Revision Date	Revised By	Description of Change
00	2019-11-05	Charles Cherrito	Initial plan creation and implementation.
01	2021-02-15	Selvin McLean	Document review; review of the federal register for updates. Wording order and updates.
02	2021-04-08	Selvin McLean	Link updates

Contents

Purpose.....	4
Scope.....	4
Responsibilities.....	4
Definitions	5
Examples of Lifts.....	6
Machine Manuals	7
Hazards Associated with Aerial Lifts	7
Operation/Traveling/Loading.....	7
Overhead Protection	8
Aerial Lift Stability	8
Fall Protection	9
Energized Overhead Lines	10
Standard Safety Practices	11
Pre-start Inspection Checklist.....	15
Training	16
Records Retention	17
References.....	18

PURPOSE

This plan has been established to ensure the safe operation of aerial and scissor lifts. Additionally, this Plan ensures that employees understand and comply with applicable regulations and industrial safety standards related to aerial/scissor lifts.

SCOPE

This Plan applies to all employees on any Florida Tech properties.

RESPONSIBILITIES

Supervisors (Departments)

- Ensure employees are implementing the provisions of this Plan.
- Be thoroughly informed of the contents of this Plan and its application to their areas of responsibility and authority.
- Ensure employees comply with all provisions of this Plan.
- Ensure employees receive training appropriate to their assigned tasks and maintain documentation of such training.
- Ensure employees are provided with and use appropriate protective equipment.
- Take prompt corrective action when unsafe conditions or practices are observed.
- Investigate injuries and incidents within their work unit related to aerial / scissor lift usage.

Environmental Health & Safety Office (EHS)

- Approve aerial/scissor lift trainers.
- Periodically review and update this written Plan.
- Periodically evaluate the overall effectiveness of this Plan.

Employees

- Follow the work practices described in this Plan.
- Attend all training required by this Plan.
- Immediately report any unsafe conditions or concerns to their supervisor.
- Do not operate machinery unless trained to do so.

DEFINITIONS

Aerial Lift vs. Scissor Life:

Per the Occupational Safety and Health Administration (OSHA), an aerial lift is any vehicle-mounted work platform that can move vertically and/or horizontally. A scissor lift is a mobile scaffold for which the platform only moves vertically.

<https://www.osha.gov/laws-regs/standardinterpretations/2000-08-01-0>

Aerial Lift (in-depth):

Is any vehicle-mounted device used to elevate personnel, including:

- Extendable boom platforms,
- Aerial ladders,
- Articulating (jointed) boom platforms,
- Vertical towers, and
- Any combination of the above.

They may be made of metal, fiberglass reinforced plastic, or other materials. They may be powered or manually operated and are still considered to be aerial lifts whether or not they can rotate around a primarily vertical axis.

Anchorage:

A secure point of attachment to be used with personal fall protection equipment.

Outriggers:

Devices that increase the stability of the aerial lift platform and that are capable of lifting and leveling the aerial / scissor lift platform.

Stabilizers:

Devices that increase the stability of the aerial lift platform but are not capable of lifting or leveling the aerial / scissor lift platform.

EXAMPLES OF LIFTS

Below are examples of aerial and scissor lifts. They are a general representation as to common lifts used in construction/industry.



Vehicle Mounted Aerial Lift / Bucket Truck

The lift platform is an integral part of an over the road vehicle.



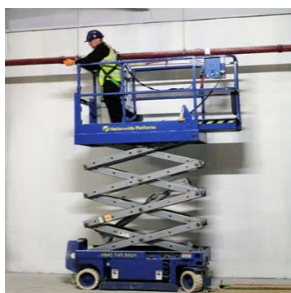
Articulating Boom Aerial Lift

This aerial lift has at least 2 hinged sections which are used to increase mobility.



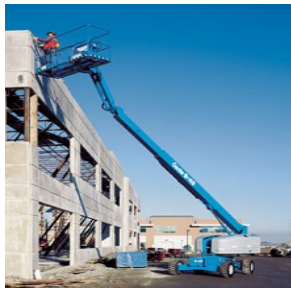
Man Lift / Cherry Picker

This piece of equipment lifts personnel vertically, but not horizontally.



Scissor Lift

This piece of equipment lifts personnel vertically, but not horizontally.



Extendable / Telescoping Aerial Lift

This aerial lift has a boom that extends horizontally and vertically.

MACHINE MANUALS

The operator shall ensure the operating and maintenance manuals are stored in the weather resistant storage compartment on the aerial platform. The manual(s) is considered an integral part of the aerial platform and is vital to communicate necessary safety information to the operator. The operator shall be familiar with the manuals prior to operating an aerial or scissor lift and reference them as required.

HAZARDS ASSOCIATED WITH AERIAL LIFTS

Although not exclusive, the following hazards can lead to personal injury or death:

- Fall from elevated level,
- Objects falling from lifts,
- Tip-overs,
- Ejections from the lift platform,
- Structural failures (collapses),
- Electric shock (electrocutions),
- Entanglement hazards,
- Contact with objects, and
- Contact with ceilings and other overhead objects.

OPERATION/TRAVELING/LOADING

The below practices must be implemented in order to mitigate safety incidents.

- Do not exceed the load-capacity limits. Take the combined weight of the worker(s), tools and materials into account when calculating the load.
- Do not use the aerial lift as a crane.
- Do not carry objects larger than the platform.
- Do not drive with the lift platform raised (unless the manufacturer's instructions allow this).
- Do not operate lower level controls unless permission is obtained from the worker(s) in the lift (except in emergencies).
- Do not exceed vertical or horizontal reach limits.
- Do not operate an aerial lift in high winds above those recommended by the manufacturer.
- Do not override hydraulic, mechanical, or electrical safety devices.

OVERHEAD PROTECTION

- Be aware of overhead clearance and overhead objects, including ceilings.
- Do not position aerial lifts between overhead hazards if possible.
- Treat all overhead power lines and communication cables as energized and stay at least 10 feet (3 meters) away.
- Ensure that the power utility or power line workers de-energize power lines in the vicinity of the work.

AERIAL LIFT STABILITY

- Set outriggers on pads or on a level, solid surface.
- Set brakes when outriggers are used.
- Use wheel chocks on sloped surfaces when it is safe to do so.
- Set up work zone warnings, such as cones and signs, when necessary to warn others.

FALL PROTECTION

Departments must ensure their employees are protected from falls in accordance with OSHA 29CFR1926.502. Methods to prevent falls are as follows:

- Ensure that access gates or openings are closed.
- Stand firmly on the floor of the bucket or lift platform.
- Do not climb on or lean over guardrails or handrails.
- Do not use planks, ladders, or other devices as a working position.
- Use a body harness with a lanyard attached to anchor point provided by the manufacturer.
- Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service.
- Do not belt-off to adjacent structures or poles while in the bucket.

Aerial Lifts:

Operators shall be secured to the anchor point provided by the equipment manufacturer utilizing either a self-retracting lanyard or a lanyard short enough to prevent the employee from being ejected. Operators must follow manufacturer's recommendations as to which fall protection system to use.

Scissor Lifts:

The guardrail system typically provides enough fall protection. However, if the manufacturer has installed an anchorage point, a fall protection system (restraint, positioning, personal fall arrest system) as designated by the manufacturer's instructions must be utilized.

SPECIAL NOTE:

Tying a lanyard off to an adjacent pole, structure, or equipment while working from an aerial lift shall not be permitted.

ENERGIZED OVERHEAD LINES

The clearance between scaffolds and power lines shall be as follows: Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows:

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

STANDARD SAFETY PRACTICES

The below line items are designated practices to be followed every time aerial or scissor lift machinery is being utilized. They can be treated like a “Code of Safety Practices” and will assist in eliminating accidents if the code’s integrity is upheld. If any employee sees any of the below not being honored, they are to report the unsafe conditions immediately to their supervisor.

1. When working from a boom lift, employees are required to wear a fall restraint or positioning device system. The employee shall comply with instructions provided by the aerial platform manufacturer regarding anchorage points.
2. The aerial platform shall not be operated at any time on grades, side slopes, or ramps, exceeding those for which the aerial platform is rated by the manufacturer.
3. Outriggers, stabilizers, extendible axles, oscillating axles, or other stability enhancing means shall be deployed and locked into place as required by the manufacturer.
4. Guardrails shall be installed and positioned, and access gates or openings shall be closed per the manufacturer’s instructions.
5. The load and its distribution on the platform and any platform extension shall be in accordance with the manufacturer’s rated capacity for that specific configuration.
6. The operator shall ensure adequate clearance is maintained from overhead obstructions and energized electrical conductors and parts.
7. The operator shall maintain the minimum safe approach distance from energized power lines and other power sources. Electrical equipment and lines shall be considered energized until determined to be de-energized by tests or other appropriate methods or means, and properly grounded. If energized power lines or pans are within the area in which the aerial platform is to be used, the operator shall maintain the minimum safe approach distance required.
8. The operator shall ensure all occupants of the platform wear personal protective equipment as required.
9. Employees shall maintain firm footing on the platform floor while working thereon. Climbing by occupants on the midrail or toprail of the aerial platform is prohibited. The use of planks, ladders, or any other devices on the platform for achieving additional height or reach is prohibited.

10. When other moving equipment and vehicles are present, special precautions shall be taken to comply with local ordinances or safety standards established for the workplace. Warnings such as, but not limited to, flags, roped off areas, flashing lights, and barricades shall be used as appropriate.
11. The operator shall immediately report to a supervisor any damage or malfunctions that become evident during operation. The operator shall ensure all damage or malfunctions that affect the safety of operations are repaired prior to continued use.
12. The operator shall immediately report to a supervisor any potentially hazardous locations; one having potentially flammable or explosive gases or particles that become evident during operation.
13. Operation of aerial platforms not approved and marked for operation in a hazardous location (one having potentially flammable or explosive gasses or particles) shall be prohibited.
14. Care shall be taken to prevent rope, electric cords, and hoses, etc., from becoming entangled in the aerial platform.
15. Rated capacities shall not be exceeded when loads are transferred to the platform at any height.
16. The operator shall ensure the area surrounding the aerial platform is clear of personnel and equipment before lowering the platform.
17. The engine (if applicable) shall be shut down while fuel tanks are being filled. Fueling shall be done in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.
18. Batteries shall only be charged in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.
19. The aerial platform shall not be positioned against another object to steady the platform.
20. The aerial platform shall not be used as a crane for hoisting.
21. The aerial platform shall not be operated from a position on trucks, trailers, railway cars-floating vessels, scaffolds, or similar equipment unless the application is approved in writing by the manufacturer or a qualified person.

22. The operator shall limit travel speed according to conditions, including the condition of the support surface, congestion, visibility, slope, location of personnel, and other factors leading to hazards which may cause collisions or result in potential injuries.
23. Before and during driving while the platform is elevated, the operator shall:
 - a) Maintain a clear view of the support surface and route of travel,
 - b) Ensure personnel in the worksite area that may be affected are aware of the movement, communicating and maneuvering the aerial platform as required to protect against personal injury.
 - c) Maintain a safe distance from obstacles, debris, drop-offs. Holes, depressions, ramps, and other hazards to ensure safe travel.
 - d) Maintain a safe distance from overhead obstacles.
24. “Stunt-driving” and “horseplay” are prohibited.
25. The operator shall implement means provided protection against use by an unauthorized person.
26. Interlocks or other safety devices shall not be altered or disabled.
27. If the platform/basket or supporting assembly’ becomes caught, snagged, or otherwise prevented from normal motion by adjacent structures or other obstacles, such that control reversal does not free the platform, all personnel shall be removed from the platform/basket before attempts are made to free the platform using lower controls.
28. If permitted by the manufacturer, personnel shall only exit or enter a raised aerial platform by following the guidelines and instructions provided by the manufacturer.
29. Modification or alteration of an aerial platform or the fabrication and attaching of frameworks, or the mounting of attachments for holding tools or materials onto the platform or the guardrail system, shall only be accomplished with the prior written permission of the manufacturer.
30. If an operator encounters any suspected malfunction of the aerial platform, or any hazard or potentially unsafe condition relating to capacity, intended use or safe operation of the aerial platform, the operator shall cease operation of the aerial platform and request further information from a supervisor.
31. Any problems or malfunctions that affect the safety of operations shall be repaired prior to the use of the aerial platform.

32. The operator shall ensure only tools and materials, which are evenly distributed and can be safely handled by an employee working from the platform, shall be transported.
33. The operator shall not permit personnel on the platform to exceed the manufacturer's horizontal force.
34. When an aerial platform is to operate within the area of travel of a bridge crane or similar equipment, steps shall be taken to prevent a collision with the aerial platform.
35. The operator shall insure the support surface is adequate for the aerial platform and the load carried.
36. Outriggers and leveling devices supplied by the manufacturer shall be utilized to level the aerial platform when provided.

PRE-START INSPECTION CHECKLIST

Prior to each work shift, there shall be a pre-start inspection to verify that the equipment and all its components are in safe operating condition. Employees may use the attachment “*Appendix A: Aerial-Scissor Lift Inspection Checklist*” as guidance.

The checklist contains *minimum* items that should be inspected daily. Do not operate any aerial lift if any of these components are defective. Upon discovery a concern, notify your supervisor immediately.

TRAINING

Initial Training

Only trained and authorized persons are permitted to operate an aerial lift. All training is to be documented and retained by each department. Training should include:

- Explanations of electrical, fall, and falling object hazards;
- Procedures for dealing with hazards;
- Recognizing and avoiding unsafe conditions in the work setting;
- Instructions for correct operation of the lift (including maximum intended load and load capacity);
- Demonstrations of the skills and knowledge needed to operate an aerial lift before operating it on the job;
- When and how to perform inspections; and
- Manufacturer's requirements.

Re-Training

Workers should be retrained annually, at minimum, and if any of the following conditions occur:

- An accident occurs during aerial lift use,
- Workplace hazards involving an aerial lift are discovered, or
- A different type of aerial lift is used.
- Workers who are observed operating an aerial lift improperly.

AUTHORIZED TRAINERS & TRAINING

Employees can utilize Florida Tech's online training and this Plan regarding "general" training, however, each department that utilizes such equipment shall have an "Authorized Trainer or Individual" who will train employees on specific lifts that the employees will be expected to operate.

An Authorized Trainer is expected to be an individual of in-depth knowledge to how to operate the specific lift/unit being utilized. If there are concerns or questions as to who is considered authorized, the EHS Office will conduct an evaluation to determine the proper individual. Each evaluation will be taken on a case-by-case basis.

The department of the employee (trainee) will be responsible for retaining all training material.

RECORDS RETENTION

All pre-inspection checklists and training records shall be retained by each department for a minimum of 3 years.

REFERENCES

OSHA Fact Sheet

<https://www.osha.gov/Publications/aerial-lifts-factsheet.html>

29 CFR 1926.453 OSHA Aerial Lifts

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.453>

OSHA's general industry aerial lift standard at 29 CFR 1910.67(c)(2)(v)

OSHA Standards:

29 CFR 1910.67, 29 CFR 1910.269(p), 29 CFR 1926.21, 29 CFR 1926.453, 29 CFR 1926.502.

American National Standards Institutes standards:

ANSI/SIA A92.2-1969, ANSI/SIA A92.3, ANSI/SIA A92.5, ANSI/SIA A92.6.