

UC SAFETY SPOTLIGHT

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Working at Height Safety

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UC EH&S Professional
Education Partnership

POSTER OF THE MONTH



An Introduction to Aerial Lifts

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Aerial lifts, also known as *aerial work platforms (AWPs)*, *elevating work platforms (EWPs)*, or *mobile elevating work platforms (MEWPs)*, are mechanical devices used to provide temporary access for people to inaccessible areas at height. They are generally used for temporary, flexible access purposes such as maintenance and construction work, and at athletic events. They are designed to lift limited weights, usually less than one ton, and are usually capable of being set-up and operated by a single person. Aerial lifts save time and make working at height more efficient, effective, and safer than traditional methods of access such as ladders.

In California, the Department of Occupational Safety & Health (DOSH), more commonly known as Cal/OSHA, has regulatory authority over specialized equipment such as aerial lifts and their operation under the California Code of Regulations (CCR) Title 8. These regulations outline the requirements for their design and construction; maintenance and repair; inspections; operating rules; safety equipment (including PPE); and operator training.

There are seven types/classifications of aerial lifts ranging from small, lightweight lifts up to larger, drivable lifts capable of reaching heights exceeding 100 feet and carrying multiple personnel. All lifts can be controlled from the operator basket or via controls that can be operated from ground level. This includes an emergency lowering control switch that ensures the lift can be lowered in the event of a power loss. Lift types/classifications include:

- 1. Manually-Propelled Single Mast lifts:** these lifts are lightweight, portable and easily fit in most elevators. They have a maximum weight capacity of 250-350 pounds, including a single operator, tools and equipment. They are typically used for interior maintenance tasks and require the use of outriggers for stability.
- 2. Self-Propelled Single Mast lifts:** these lifts are virtually identical to manually-propelled single mast lifts with one important difference – they can be driven by the operator (at slow speeds)

DOS AND DON'TS OF WORKING AT HEIGHT

DO

- as much work as possible from the ground
- ensure workers can get safely to and from where they work at height
- ensure equipment is suitable, stable and strong enough for the job
- ensure the equipment is maintained and checked regularly
- take precautions when working on or near fragile surfaces
- provide protection from falling objects
- consider emergency evacuation and rescue procedures

DON'T

- overload ladders - consider the equipment or materials workers are carrying before working at height.
- overreach on ladders or stepladders
- rest a ladder against weak surfaces
- use ladders or stepladders for strenuous or heavy tasks, only use them for light work of short duration
- let anyone who does not have the skills, knowledge or experience work at height

Source: Health and Safety Executive



while elevated and do not require outriggers for stability.

3. **Scissor Lifts:** these lifts are usually designed with a weight limit of 500 pounds and/or up to two occupants. They are great for maintenance and construction applications requiring more than one crew member. Some are equipped with extendable platforms that afford greater horizontal reach.
4. **Telescoping Boom lifts:** have a weight capacity of 500 pounds and are able to carry up to two occupants. They are self-propelled, and have greater horizontal outreach with minimal tail swing for increased maneuverability. These lifts are ideal for use in construction and maintenance applications in areas with limited accessibility.
5. **Articulating Boom lifts:** These lifts are ideal for most large maintenance and construction applications due to their ability to turn, extended reach, and maneuverability. They are self-propelled, and their reach can range from as low as 25 feet up to over 120 feet. They are designed to carry up to two occupants and a maximum weight of 500 pounds.
6. **Trailer-Mounted Articulating Boom lifts:** are highly mobile and capable of operating on uneven interior and exterior surfaces with a reach capability of up to 50 feet. Their low weight allows them to be operated on interior specialty floors such as spring-loaded dance, or heated floors.
7. **Bucket Trucks/"Cherry Pickers":** are most commonly used in tree trimming, traffic signal maintenance, lighting/electrical, and utilities maintenance types of applications. They typically have a 250-350 pound weight capacity and use a combination of pneumatic tires and outriggers for stability.

There are six common hazards related to aerial lift operations resulting in serious injury and fatalities. They are electrocution, ejections from lifts/falls from heights, tip-overs/collapses, trapping/crushing, and objects falling from elevated lifts. Factors that can contribute to these types of incidents include wind and weather, ground/surface conditions, proximity to power lines, lack of proper PPE, and improper placement and operation of a lift. To prevent these avoidable incidents from occurring, operators are required to conduct a work-zone hazard analysis prior to beginning any aerial lift operations. These assessments *must be task, site, and equipment specific* in nature. They must also be documented in writing.

Operator training is the key to safe operation of aerial lifts. Operators must be trained and authorized by their employer *prior to* operation of any aerial lift. Training must include classroom/lecture, a written examination, hands-on practice, and an operator skills evaluation conducted by a qualified evaluator. All training must be documented in writing and available for review by regulatory agencies. After initial training has been completed, refresher training must be attended every three years. Refresher training should be conducted if an operator is involved in an accident, collision, or is observed operating a

AERIAL LIFTS SAFE WORK PRACTICES

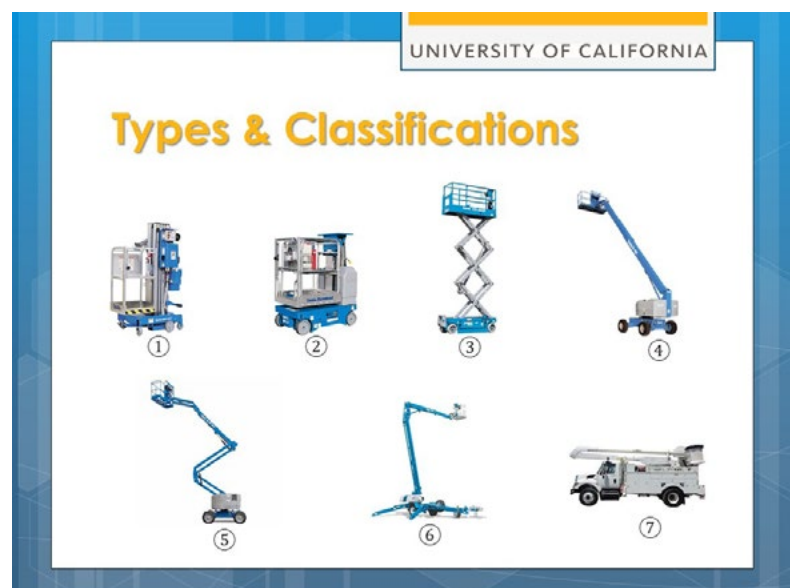
- Make sure that workers who operate aerial lifts are properly trained in the safe use of the equipment.
- Maintain and operate elevating work platforms according to the manufacturer's instructions.
- Never override hydraulic, mechanical, or electrical safety devices.
- Never move the equipment with workers in an elevated platform unless this is permitted by the manufacturer.
- Do not allow workers to position themselves between overhead hazards, such as joists and beams, and the rails of the basket. Movement of the lift could crush the worker(s).
- Maintain a minimum clearance of at least 10 feet, or 3 meters, away from the nearest energized overhead lines.
- Always treat power lines, wires and other conductors as energized, even if they are down or appear to be insulated.
- Use a body harness or restraining belt with a lanyard attached to the boom or basket to prevent the worker(s) from being ejected or pulled from the basket.
- Set the brakes and use wheel chocks when on an incline.
- Use outriggers, if provided.
- Do not exceed the load limits of the equipment. Allow for the combined weight of the worker, tools and materials.

Source: OSHA

lift in an unsafe manner. Operators must be 18 years of age. Operators must receive fall protection training prior to using personal fall arrest systems while operating aerial lifts.

Proper inspections and maintenance are another key factor in preventing unnecessary accidents. Aerial lifts are required to be inspected by operators prior to the first use/operation of the day and/or at the beginning of each shift. They must be documented in writing and maintained for review by regulatory agencies upon request. These can be documented using the **UC Inspect** App after developing and uploading the appropriate checklist for the different types of lifts your campus or medical center have on site. All lifts are required to have an Operator's Manual for that specific lift on-board at all times. Warning labels and decals must be legible. A data plate with weight limits must be on the lift and legible. Warning alarms and/or lights must be functional and never be disabled. Any safety or operational defects must be reported to a supervisor immediately. The lift should be locked-out and tagged out-of-service until repairs have been completed. Annual inspections must be conducted by a qualified aerial lift mechanic or technician. These annual inspections must be documented. At the completion of the inspection the mechanic/technician should place an annual inspection sticker on the lift. It is highly recommended to establish a quarterly or biannual maintenance contract with a local vendor. This will ensure your aerial lifts will remain in peak operating condition.

As you can see, aerial lifts and their safe operation can be challenging. With proper operator training and a thorough inspection and maintenance program aerial lifts can be used to increase productivity, and provide greater safety while working at height.





University of California EH&S Professional Education Partnership

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[UC Berkeley Center for Occupational & Environmental Health](#)

- [The Buzz on Cannabis: Health & Safety in the Workplace](#) (Wednesday, December 6, 2017, 10:30am - 11:30am Online)
- [Smoke is Smoke: The Effects of Marijuana Legalization in the Workplace. Free Webinar with Merrill Lavezzo and Mayra Miranda](#) (Wednesday, February 7, 2018, 10:30am – 11:30am, Online)
- [Cannabis and Public Health: Questions and Opportunities. Free Webinar with Amanda Reiman, PhD, MSW](#) (Wednesday, March 7, 2018, 10:30am - 11:30am, Online)

[UCLA/UC Irvine Southern California Education & Research Center](#)

- [Ergo Online Webinar Series 2018](#) (Enroll in 1 or More, 2nd Tuesday of each Month, 11:00am - 12:00pm, Online)
- [Ethics for Health & Safety Professionals Webinar: Making the Right Choices](#) (2 Meetings, Monday, April 16, 2018 & Thursday, April 19, 2018, 10:00am – 12:00pm)
- [Comprehensive Industrial Hygiene \(CIH\) Exam Review](#) (Monday, March 19, 2018 – Friday, March 23, 2018, 8:30am – 5:00pm, Anaheim, CA)

[UC San Diego Extension](#)

- [OSHA 511 - Occupational Safety and Health Standards for General Industry](#) (4 Meetings, Monday, February 12, 2018 – Thursday, February 15, 2018, 8:00am – 4:30pm, Anaheim, CA)
- [OSHA 511 - Occupational Safety and Health Standards for General Industry](#) (4 Meetings, Monday, February 20, 2018 – Thursday, February 23, 2018, 8:00am – 4:30pm, Santa Barbara, CA)
- [OSHA 5109 – Cal/OSHA Standards for the Construction Industry](#) (4 Meetings, Monday, February 20, 2018 – Thursday, February 23, 2018, 8:00am – 4:30pm, Bakersfield, CA)

[UC Risk & Safety Training](#)

- [EH&S Professional Education](#) (Online)
- UC Berkeley Workshop (Monday, February 5, 2018, 9:00am – 5:00pm, UCB)
- UC Riverside Workshop (Wednesday, March 28, 2018, 9:00am – 5:00pm, UCR)
- UC Davis Workshop (Tuesday, April 17, 2018, 9:00am – 5:00pm, UCD)



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