



ADVANCED RESOURCE SOLUTIONS
INNOVATIVE SOLUTIONS FOR PROJECT SUCCESS

Scissor Lift Safety for Clients and Employees or ARS

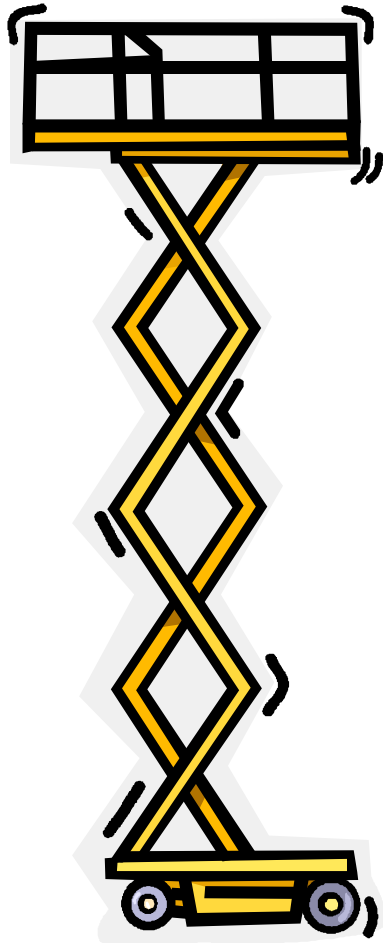
Added 1/20/2017

- **Employees:**

- Guidelines addressed in OSHA §1926.451; §1926.452(w); §1926.454 - Mobile Scaffolds
- Employees must have the above training to operate scissor lifts for clients of ARS.

- **Clients:**

- Guidelines addressed in OSHA §1926.451; §1926.452(w); §1926.454 - Mobile Scaffolds
- ARS employees must have scissor lift training prior to operating lifts. Copies of current certification must be on file.

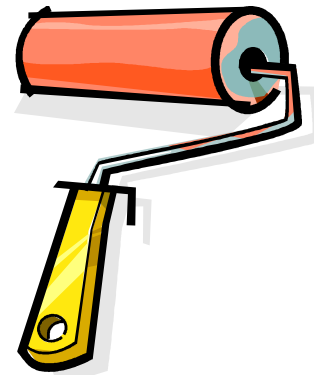


Scissor Lifts

- Aerial Work Platforms
- Classified by OSHA as Scaffolding
- Guidelines addressed in OSHA §1926.452(w) - Mobile Scaffolds
 - Must meet requirements of this section

Statistics

- More construction workers die from falling from a height above 6 feet
 - Annual average 32-35%
- Average of 8 scissor lift fatalities each year
- 10 year study conducted:
 - Showed 40% of accidents occurred due to tip-over
- Many trades involved:
 - Painters
 - Drywallers
 - Electricians
 - Others



Scissor Lifts Accidents

- The most common types of accidents involving a scissor lift:
 - Tip-Over
 - caused by misapplication of the machine, obstacles
 - Misuse of the Equipment
 - Machines marked "Use on level surface only"
 - Used outdoors for the sake of economy or availability, often resulting in tip-overs
 - Lack of Maintenance

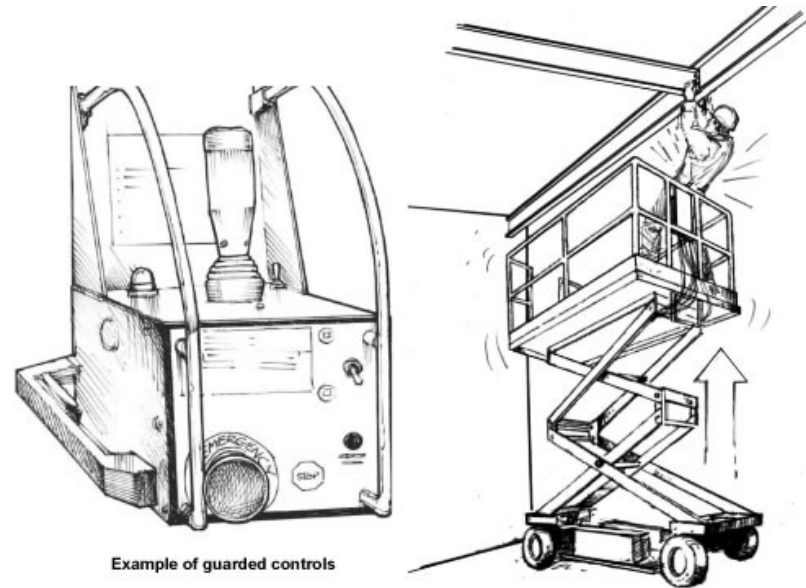
Mobile Scaffolding Accidents

A worker on a self-propelled scissor lift was installing bolts to connect two large overhead steel beams. The platform controls were not protected against inadvertent operation.

The worker inadvertently activated the lever for controlling elevation.

The platform elevated. The worker was pushed firmly onto the control lever when he was caught between an overhead beam and the elevating platform's guard rail.

The platform continued to rise, fatally crushing the worker.



What should be done to prevent a similar incident?

- **Use only elevating work platforms with controls that are protected against inadvertent operation!**

Mobile Scaffolding Accidents

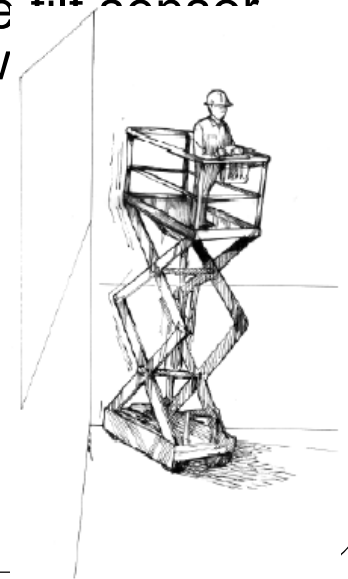
A window washer was killed when the elevated scissor lift he was operating flopped sideways, throwing him to the pavement below. He died shortly afterward from massive head and back injuries.

At the time of the accident, the window washer was repositioning the self-propelled scissor lift. The lift was equipped with an operational tilt sensor that automatically lowers the operator's lift platform when the tilt exceeds three degrees to any side.

He was operating the lift on an eight-degree slope, exceeding the slope capacity by five degrees. However, the wires leading to the tilt sensor had been intentionally disconnected, leaving the window washer without any tilt protection.

What should be done to prevent a similar incident?

- **Conduct routine equipment inspections**
- **Verify functionality of all safety devices**
- **Do not override safety devices**



UNSAFE CONDITIONS

Workplace Inspection

Before the aerial/scissor platform is used and during use, the operator ***shall check the area in which the lift is to be used for possible hazards*** such as, but not limited to:

1. Drop offs or holes.
2. Slopes., Bumps or floor obstructions.
3. Debris.
4. Overhead obstructions and electrical conductors.
5. Hazardous locations.
6. Inadequate surface and support to withstand all load forces imposed by the aerial platform in all operating configurations.
7. Wind and weather conditions.
8. Contact with ceiling and overhead objects.
9. **Close proximately of workers.**

Fall Hazards

- Leaning or climbing over scaffold guardrails could result in a fall off the scaffolding
- Horseplay on a scaffold could have serious consequences
- Ice, snow, rain and liquids on platform can cause slips/possible fall....keep as clear/dry as possible
- Slips or trips on equipment, tools, etc., used on the scaffold platform. Keep it tidy!
- Proper use of scaffold ladder – Always maintain 3 points of contact on ladder (both hands and one foot, or both feet and one hand, at all times while climbing/descending
- **Lack of Fall Protection puts workers in great danger!**

Fall Hazards

Fall Protection is normally not required for scissor lifts

1. Guardrails remain up.
2. Do not lower or stand on guardrails weight, only applied force,
3. Do not use ladder or any other object to gain height.



Fall Arrest Systems

- Fall arrest systems include:
 - Full-body harness
 - Lanyards
 - Rope grabs
 - Lifelines
 - Lifeline anchorage points
 - Riggings



Fall Arrest Systems

- Know the application limits of the system being used (see manufacturer recommendations)
- Proper anchoring and tie-off techniques
 - Never attach yourself to unstable anchors
- Deceleration distance and elongation of lanyards
 - Make sure that the lanyard is not too long (include stretch distance)



Falling Object Hazards

- Tools, equipment, materials, ice, etc. can fall from work activities on platform, potentially injuring personnel below
- Hardhat required for all users on, and persons working below, scaffold
- Place tools and other equipment or materials away from edge of platform
- Protective zones below scaffold also protect workers from falling objects

Electrical Hazards

- Electricity has the power to shock, burn, and kill; not to mention cause fires or explosions
- Electrical hazards encountered on a scaffold can be from power tools and equipment
- Misused or damaged extension cords
- Contacting overhead power lines
 - Always stay at least 10 feet away!



Electrical Safety

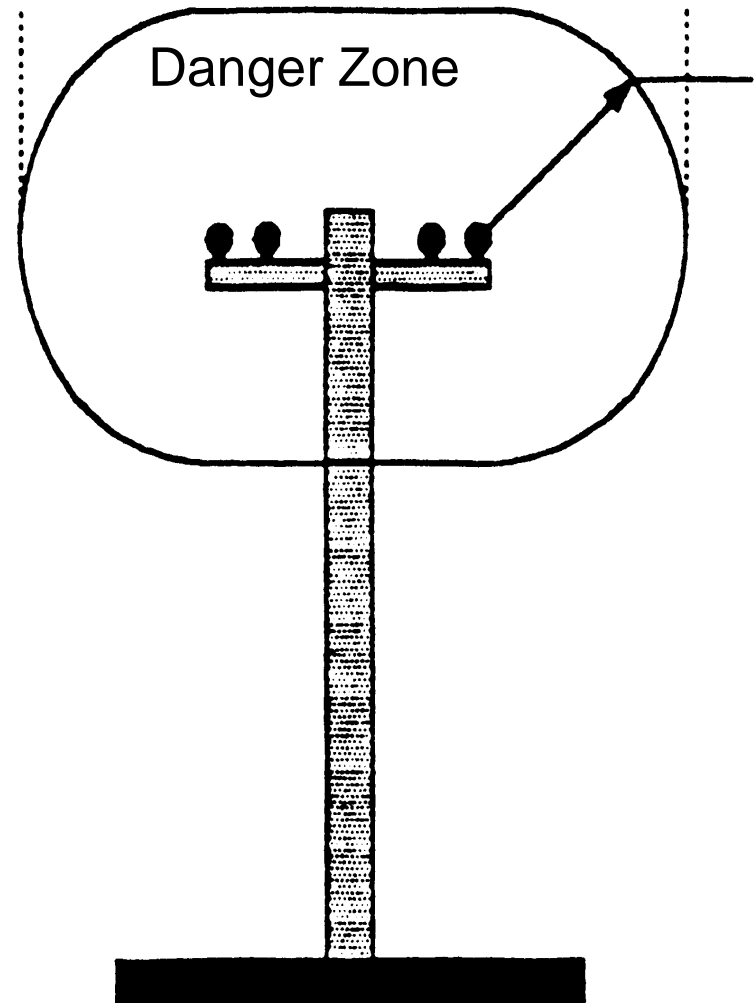
- Because metal frame scaffolds are conductive, power tools, cords, etc., that suffer insulation failure can electrify the entire scaffold. This poses a risk of electrocution not just to the worker holding the tool, but also to everyone who contacts the scaffold.
- GFCI (ground-fault circuit interrupters) are required for any outdoor or wet condition work using electrically powered equipment

Power Cords

- All power cords used on scaffolding will be properly grounded and inspected prior to and during work, and will be approved for outdoor or wet conditions when applicable
- Do not hang equipment on power cords/lines
- Never mix/match 2 prong power/extension cords with 3 prong tools/equipment
- Do not set equipment on power cords where they could cut/abrade them
- Do not place cords where they could become a tripping hazard

Electrical Hazards

- If a fellow worker does come in contact with an energized power source, do not rush to assist them. Immediately call 911, try to shut off the main power source, and follow the directions of the emergency rescue medical personnel



Wind Hazards

Wind is an additional concern of any aerial/scissor lift operator who operates outdoors. How does wind effect the lift?

1. Creates additional force on the platform.
2. Does not actually add any additional weight, only applied force, however your machine does not know the difference.
3. Wind can be different above roof levels.
4. Additional force caused by the wind can cause tip over.
5. ***Follow the manufacturer's rules for operating in wind.***



Other Scaffold Hazards

Getting Crushed/Pinched

- Perhaps the most dangerous aspect of working with a scissor lift is the potential for having a limb or other body part pinched or crushed in the scissor arms or between the top rail and overhead structure



- These arms collapse down upon each other at multiple joint locations when the platform is lowered, all of which serve as entryways for potential injury

- Ensure command of platform controls at all times to avoid “over-lifting”

- **NEVER** put your hands or feet under the platform of the scissor lift unless you need to perform maintenance. In which case, you will need to disconnect the power and insert safety bars, which prevent the platform from collapsing.

Accident Prevention

- Responsibility of the employee-designated competent person to evaluate the condition of the equipment.
- OSHA 1926.451(f)(3):
 - “Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift and after any occurrence which could (potentially) structural integrity.”



Aerial/Scissor Lift Operator Safety Training

Before Operation

Before operation *the operator shall:*

1. Read and ***understand the manufacturer's operating instructions and user's safety rules.***
2. ***Understand all labels, warnings and instructions.***
3. Ensure all occupants of the aerial platform ***wear appropriate personal safety equipment.***



Aerial/Scissor Lift Operator Safety Training

Full Functional Test

Prior to the beginning of each shift the operator ***shall perform a full functional test on all machine controls*** starting with the lower controls first.

Problems or Malfunctions

Any problems or malfunctions noted that affect safety and/or operation ***shall be repaired prior to use*** of the lift platform



Pre-Inspection

Pre-Start Inspection

Before each day or at the beginning of each shift, the aerial and/or scissor lift shall be given a **visual inspection** including but not limited to the following:

1. Operating and emergency controls
2. Safety devices
3. Personal protective devices
4. Air, hydraulic, and fuel systems leaks
5. Cables and wiring harnesses
6. Loose or missing parts
7. Tires and wheels
8. Placards, warnings, control markings, and operating manuals (**must be legible**)
9. Outriggers, stabilizers and other structures
10. Guardrail system
11. Other items specified by the manufacturer

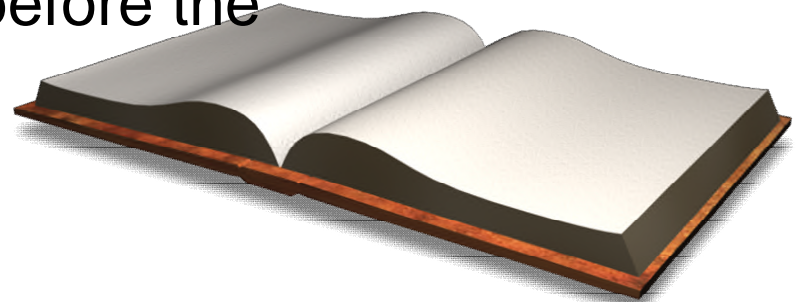
OSHA Accident Prevention

- The surface of the scissor lift being moved shall be within 3 degrees of level.
- Speed of scissor lift shall not exceed 1 foot per second.



Accident Investigation

- Perform an investigation as soon as an accident occurs
- Do not return the equipment (if rented) without documenting the incident first
 - Rental contractor contacted, sends out a replacement unit, immediately removing and repairing the unit involved in the accident.
 - Destroys the evidence "trail" before the investigation even begins.



Battery Changing and Charging

- Keep flames and sparks away. DO NOT smoke near batteries
- Wear protective apron, gloves, and goggles when working with batteries
- Make sure that a properly functioning eyewash and safety shower are positioned near the charging area. Immediately flush eyes with cold water if electrolytic acid is splattered into them
- Turn Emergency Power Disconnect Switch to “OFF”
- Connect charger AC plug to proper voltage source
- Charge batteries. DO NOT leave charger unattended for more than two consecutive days. Severe overcharging and battery damage may result if charger fails to turn off
- Disconnect charger from power source
- Normal charging will take 10 -14 hours