(17) Overhead and Aerial Lifts

(17.1) Introduction and General Requirements

- **Introduction**
  Aerial lifts and overhead lifts are integral components of many industries, enabling work at elevated heights and improving productivity. These lifts, however, present potential hazards that can lead to serious injury or even death if not properly addressed. This manual provides safety procedures to help ensure the proper operation and maintenance of aerial and overhead lifts.
- **General Requirements**
  Scope
  These procedures apply to all employees operating or working near overhead and aerial lifts, including but not limited to, scissor lifts, boom lifts, and bucket trucks.
  Regulations and Standards
  All operations involving aerial and overhead lifts shall comply with applicable Occupational Safety and Health Administration (OSHA) standards, American National Standards Institute (ANSI) standards, and manufacturer's instructions.
- **Roles and Responsibilities**
  Management: Management is responsible for the overall safety of operations, including procuring safe and efficient equipment, providing adequate training, enforcing safety standards, and overseeing regular inspections and maintenance.
  Supervisors: Supervisors must ensure that their team members are properly trained, have the necessary personal protective equipment (PPE), and are adhering to the safety procedures.
  Employees: Employees operating the lifts must be competent and properly trained, use provided PPE, conduct pre-use inspections, and report any equipment defects or hazards promptly.
- **Training and Authorization**
  Only employees who have completed the required safety training and are authorized by the employer may operate aerial and overhead lifts. The training should cover topics such as lift controls, emergency procedures, inspection and maintenance, and hazard identification.
- **Inspections**
  Regular inspections are critical to maintaining the safety and operational efficiency of aerial and overhead lifts. These include pre-use inspections, periodic scheduled inspections, and inspections after any incident involving the lift.
- **Maintenance and Repairs**

Proper maintenance and timely repairs are crucial for the safe operation of aerial and overhead lifts. All maintenance and repair work should be performed in accordance with the manufacturer's instructions by qualified personnel.

- **Personal Protective Equipment (PPE)**

  Depending on the type of lift and the nature of the work, various PPE may be required, such as hard hats, safety glasses, work boots, and fall protection equipment.

Conclusion

Adhering to these safety procedures will help to minimize risks associated with aerial and overhead lifts. It is each employee's responsibility to understand and apply these safety procedures and to contribute to a safe and healthy workplace.

(17.2) Training

- **Training Requirements**

All operators must complete a comprehensive training program before they are authorized to operate an aerial lift. This training must be conducted by a qualified person and should include a combination of formal instruction, practical training, and a workplace performance evaluation.

- **Training Topics**

The training program must cover the following topics:

Understanding the equipment: This includes the nature and limitations of the lift, proper operating procedures, and knowledge of the control systems.

Inspection and maintenance: Training should include pre-operation inspection, routine maintenance procedures, and the proper reporting process for defective equipment.

Site and job-specific considerations: Operators need to understand the operational hazards presented by environmental conditions, nearby power lines, ground conditions, weather issues, and pedestrian traffic.

Safe operation procedures: Operators should be trained in height and weight limits, handling and load capacities, lift speed, and use of outriggers and stabilizers, if applicable.

Emergency procedures: This includes emergency shutdown procedures and proper use of emergency controls.

Fall protection: The training must cover the correct use of personal fall arrest systems, including how to wear and adjust the

harness and lanyard, understanding the tie-off points, and the consequences of not using fall protection equipment.

- **Refresher Training and Retraining**

Refresher training must be conducted periodically or under the following conditions:

The operator has been observed operating the lift in an unsafe manner.

The operator has been involved in an accident or near-miss incident.

The operator has received an evaluation that reveals unsafe operation.

The operator is assigned to a different type of aerial lift.

Conditions in the workplace change in a manner that could affect safety while operating the lift.

- **Operator Evaluation**

An evaluation of each operator's performance must be conducted at least once every three years. The evaluation must be performed by a person with adequate knowledge, training, and experience to assess the operator's competency.

- **Training Documentation**

Upon successful completion of training, the operator should receive a certificate or license, and the training details should be documented. The documentation should include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation. This documentation should be kept on file and made available upon request.

(17.3) Inspections

Pre-Operation Inspection

Before every shift or use, a comprehensive pre-operation inspection must be performed. This inspection is crucial to ensure the safe operation of the aerial lift. The inspection must include but is not limited to:

- **Visual Inspection:**

  Overall Appearance: Check for visible damage such as dents, cracks, or any signs of collision or misuse.
  Structural Components: Inspect for any damage or loose parts in the base, tower assembly, platform, and guardrails.
  Hydraulic System: Look for any leaks, cracks, or damage in the hydraulic lines and components. Any abnormality in hydraulic pressure can lead to unexpected and rapid movement.
  Tires and Wheels: Check tires for proper inflation, cuts, or any other visible damage. Ensure that all wheel lug nuts are tight.
  Safety Devices: Make sure that the safety alarms, lights, and warning signals are all functioning correctly.

- **Functional Test:**

  Operating Controls: Test the operating controls to ensure they are working properly. This includes lift and lower controls, drive controls, emergency stop button, etc.
  Safety Devices: Check the operation of safety devices such as tilt sensors, outriggers, safety bars, emergency descent controls, etc.
  Brakes: Verify the proper operation of the brakes, including service brakes and parking brakes.

- **Worksite Inspection:**

  Check the area where the lift will be used for any potential hazards. Look for overhead obstructions, high voltage lines, uneven surfaces, holes, drop-offs, etc.

  Remember, if any problems are detected during the inspection, the lift should be taken out of service immediately, and maintenance should be notified. The aerial lift should not be used until it has been inspected and repaired by a qualified person.

  This inspection process should be completed according to the manufacturer's guidelines, and any issues found should be documented and addressed promptly to ensure the safety of all workers.

(17.4) Operations

- **Operations**

  Pre-start preparations:
  Before beginning operations, it's important to ensure that the operator is trained and authorized to operate the equipment. They should also

be equipped with the necessary personal protective equipment (PPE) such as hard hats, safety glasses, and harnesses.

Starting up the lift:
Operators should follow the manufacturer's instructions for starting and operating the lift. This usually includes engaging the necessary safety devices, checking the controls, and ensuring the path of travel is clear.

Operating the lift:
- Operators should always be aware of their surroundings, particularly overhead obstructions, and electrical power lines.
- The lift should be operated at a safe speed, taking into consideration the ground conditions, load, and visibility.
- The operator should never exceed the rated load capacity of the lift.
- The lift should not be moved when the platform is elevated unless it is designed for that purpose.
- Fall protection equipment must be used when working at height.
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Emergency procedures:

Operators should be trained in how to handle emergencies such as power failures, machine malfunctions, or fires. They should know how to use the emergency stop function and the manual descent controls.

Shutting down the lift:

The lift should be lowered, turned off, and secured according to the manufacturer's instructions at the end of operations. The keys should be removed and stored in a secure location.

Post-operation procedures:

Operators should inspect the lift for any visible damage or maintenance needs. Any issues found should be reported to the supervisor.
Remember, these are general operational guidelines and may not cover every specific model or type of aerial lift. Always consult and follow the manufacturer's guidelines for operation.

(17.5) Maintenance

- **Regular Inspection:**

Regular inspections should be scheduled as per the manufacturer's recommendations. These inspections should involve a complete examination of the lift, looking for any damaged or worn parts that need replacement.

- **Preventive Maintenance:**

Preventive maintenance is the cornerstone of any maintenance strategy. This includes tasks like lubricating moving parts, checking and adjusting fluid levels, checking tire pressure, and replacing worn-out parts before they fail.

- **Record Keeping:**

Accurate and up-to-date records of all maintenance and inspection activities should be kept. Records should include the date of maintenance, tasks performed, parts replaced, and any problems noted. This can help identify recurring issues or trends in equipment failure.

- **Repairs:**

Repairs should only be conducted by trained and qualified personnel. Never attempt to repair the lift while it's in use. Always follow the manufacturer's guidelines for making repairs.

- **Parts Replacement:**

Only use replacement parts that are designed for your specific lift model. Using the wrong parts could lead to equipment failure or safety hazards.

- **Battery Maintenance:**

If your lift uses batteries, they should be properly maintained to ensure a long lifespan. This includes keeping them clean, keeping them at the proper water level, and charging them correctly.

- **Out-of-Service Procedures:**

If an aerial lift is found to be in unsafe operating condition during an inspection, it should be taken out of service immediately until it can be repaired. Procedures should be in place to tag and isolate the faulty equipment.

(17.6) Emergency

Emergency Procedures

- **Emergency Descent:**

Every operator should be trained on how to lower the lift platform in case of an emergency. This could include power failures or a medical emergency

involving the lift operator. The lift's instruction manual will provide the specific procedure for emergency descent.

- **Emergency Rescue:**

In the event of a malfunction or operator incapacity, there should be a rescue plan in place. This plan may involve the use of additional lift equipment, ladders, or other rescue equipment. All personnel should be aware of this plan and trained in its implementation.

- **First Aid and CPR:**

It's crucial that staff are trained in first aid and CPR procedures. In the event of an emergency involving injury or a medical condition, immediate action can make a significant difference.

- **Emergency Stop:**

Every aerial lift is equipped with an emergency stop button. This button immediately halts all lift functions and should be used in situations when the operation of the lift poses an immediate danger.

- **Fall Arrest System:**

In case of a fall, the fall arrest system will engage. Operators must know how to safely extricate themselves from the harness or await rescue.

- **Fire:**

In case of fire, follow the company's emergency evacuation procedures. Remember that aerial lifts, depending on their type, can contain hydraulic fluids and fuels that are highly flammable.

- **Equipment Failure:**

Operators must know how to respond in the event of equipment failure, such as a malfunctioning control panel or loss of power. Emergency protocols must outline the steps to secure the lift, protect nearby personnel, and report the issue for repair.

Remember, the aim of these procedures is to ensure the safety of the operator and surrounding personnel in the event of an emergency. Training and regular drills are vital in ensuring that everyone knows how to respond under pressure.