

AERIAL LIFTS PART I: **TYPES OF LIFTS AND THEIR HAZARDS**

COURSE OUTLINE

- **When it comes to workplace safety, the Occupational Safety and Health Administration ("OSHA") is the federal agency that writes the regulations and enforces compliance in the U.S.**
 - But if you use an aerial lift there is another group that you should be familiar with.
 - It's the American National Standards Institute, also known as "ANSI".
- **Unlike OSHA, ANSI is not a government agency.**
 - It's an association that establishes safe work practices for different industries, called American National Standards.
- **In 2020, ANSI made a number of revisions to their Standard for mobile work platforms beginning with how they refer to the equipment.**
 - This changed from "Aerial Work Platforms" (AWPs) to "Mobile Elevating Work Platforms" (MEWPs).
 - There were a number of more significant changes as well, affecting the equipment's design standards, job site safety procedures and training requirements.
- **First, ANSI reorganized how they look at MEWPs, dividing them into two groups.**
 - Group A, equipment that moves vertically but only within its "tipping lines" (the wheels or outriggers).
 - Group B, equipment that can move vertically beyond its "tipping lines", such as a "boom lift".
- **Because of the variety of aerial lifts that are available now-a-days, there are lifts that fall into both groups.**
- **The Standard's "job site safety" requirements focus on three things, all of which apply to aerial lifts.**
 - Creating a "Safe Use Program" for aerial lifts wherever they are used.
 - Doing a "Risk Assessment" for each job an aerial lift is used on.
 - Structuring a "Rescue Plan" for each type of ariel lift that is used on a job site.

- **The Standard's "training" requirement now also includes giving "Occupants" as well as "Operators" training about the safe use and rescue operations of an aerial lift that they are using.**
- **The changes to the ANSI design standards for aerial lifts were significant as well.**
 - First, all new aerial lifts must have a "gated entrance" to their platform.
 - Chains are no longer allowed to be used as "entrance guards".
 - The minimum height for platform railings was increased from 39 to 43 ½ inches.
- **Next ANSI addressed where aerial lifts are used.**
 - New aerial lifts that are used outdoors on rough terrain must have "foam-filled" or solid tires.
 - Additionally, manufacturers can produce aerial lifts that are to only be used indoors, and are certified as such.
- **Lastly, all new aerial lifts are required to have alarms and safety devices such as...**
 - A "Safety Load Limit" alarm, as well as a sensor that will stop the lift if the limit is exceeded.
 - A "Wind Speed Sensor" on any aerial lift that is designed to be used outdoors, that will direct operators to reduce their load capacity in windy conditions.
 - While all of these design standards will be incorporated into newly manufactured lifts, older models do not need to be retro-fitted to these standards.
- **In addition to the changes in aerial lifts' design criteria, the ANSI Standard also requires companies that use aerial lifts to create a "Safe Use Program" for all of their lift equipment.**
- **This program must have three major components:**
 - Performing a "risk assessment" for all worksites where aerial lifts will be used, and the tasks that they will perform there.
 - Creating a "rescue plan" in case workers encounter problems when using a lift.
 - Training for both operators and occupants of aerial lifts.

- **Conducting a "risk assessment" is pretty straightforward. Employers must ensure that:**
 - All job sites are inspected.
 - Potential hazards are identified.
 - Control measures and safe work procedures are developed that address the hazards.
- **The resulting Safety Plan is communicated to all employees who could be affected by the use of aerial lifts on the job site. This includes:**
 - Site supervisors.
 - Lift operators.
 - Occupants who perform tasks while they are raised on an aerial lift platform..
 - Other workers who may not be directly involved with the lift equipment but could still be affected by its presence.
- **Risk assessment also plays an important role in the second ANSI Safe Use Program requirement, "rescue planning".**
- **How aerial lifts operate and the locations where they are used can create unique challenges if the workers on a lift get into trouble and need to be rescued, whether they have:**
 - Fallen from a platform and are hanging from their lifeline in midair.
 - The platform has become entangled, leaving them stranded off the ground.
 - The lift has failed in some way.
- **Plans should be made ahead of time regarding how to assist the workers quickly and safely.**
 - What's more, ANSI requires that all Rescue Plans be written down and included in a company's employee training manual.
- **The third "leg" of a "Safe Use Program" is employee training.**
 - Before employees can be authorized to operate an aerial lift, or work on a lift's platform, their employer must first verify that they are both physically and mentally capable of doing so.
- **Aerial lifts come in a number of "shapes and sizes".**
 - So depending on the work that you're doing, there are usually one or more different types you can use.

- **Extensible boom platforms use a single arm to lift their work platform to the desired height.**
- **Aerial ladders consist of a single or multiple-section extendable ladder, such as the powered ladders on fire trucks.**
- **Articulating boom platforms contain two or more hinged boom sections, which allow the arm to maneuver into difficult to reach places.**
- **Vertical towers are designed to elevate a platform straight into the air, using a mechanism such as a telescoping mast.**
- **Most aerial lifts are made up of four components.**
 - A "base", with supports for the lift's platform or bucket.
 - A "lifting mechanism".
 - The platform or bucket itself.
 - Controls, which are often located on both the base and the platform.
- **Another main difference between various types of aerial lifts lies in the method that is used to lift the platform. It can be...**
 - Hydraulics.
 - Pneumatics.
 - Electricity.
- **OSHA requires that anyone who works with or near aerial lifts be trained on both how to operate a lift as well as the various hazards that can be involved when using a lift.**
 - Hazards can include fall and falling object situations as well as equipment tipovers and even electrocution.
- **To help you reduce or eliminate hazards like these, aerial lift training covers:**
 - How to perform a safety inspection on an aerial lift.
 - How to "drive" it safely indoors and out.
 - How to recognize and avoid unsafe conditions in the areas where you will be using a lift.
 - How to avoid exceeding a lift's maximum load capacity.
 - How to raise and lower a lift platform correctly.
- **Details on how to use an aerial lift safely are also discussed in the operator's manual that is provided by its manufacturer.**

- **In addition to your initial aerial lift training, you could also be required to undergo "retraining" if...**
 - Hazards are discovered in your workplace that affect how lifts should be operated.
 - You need to use a type of aerial lift that you haven't been trained on.
- **Retraining will also be required for anyone who has an accident while operating a lift, or is seen using the equipment in an unsafe or improper way.**
- **In many cases, the operator of an aerial lift will also be the only person on the platform, called an "occupant".**
- **But when other employees will be occupants, ANSI requires an operator to make sure that they also have a basic knowledge of the safe work practices that are required... before beginning to work on the lift.**
- **Occupants not only need to understand how their activity on the platform can affect the stability of the equipment.**
 - They should also have a good general knowledge of the purpose and function of the aerial lift's controls, as well as the lowering and shut down procedures.
- **The operator must also inform occupants about the hazards that are associated with the worksite and the tasks that they will be performing, as well as how to avoid the hazards.**
- **At least one platform occupant besides the operator should be trained to use the aerial lift's controls in an emergency in case the operator is unable to.**
 - However, occupants are not authorized to operate the controls of an aerial lift in other than an emergency situation.
- **Another thing that both operators and occupants need to be trained on is the different types of fall protection that can be used to avoid or mitigate any potential fall hazards. They need to know that...**
 - Guard rails should always be in the proper position and undamaged.
 - All access gates should be closed and latched.
 - Any other openings must be guarded before the platform is raised.
- **In some cases, operators and occupants will need to wear personal fall restraints fall arrest devices as well... and will need to be trained on its use as well.**

- **One of the primary hazards related to working with aerial lifts is falling from the platform or bucket.**
 - So when you work on a lift, you must use an appropriate fall protection system.
 - This typically consists of an anchorage, a connecting device such as a lanyard, and a harness.
- **You should always inspect your fall protection equipment before using it.**
 - Make sure that there are no cuts, frayed edges or other damage.
 - If you do find any damage, the equipment needs to be removed from service and replaced.
- **Another serious hazard that is associated with aerial lifts is "tipping".**
 - This can occur if a lift is overloaded or isn't properly stabilized.
- **To minimize the possibility of a tipover, you should never exceed the load limit of the lift you're working with.**
- **Proper placement of the lift will help in avoiding a tipover as well.**
 - If your lift is equipped with outriggers, use them.
 - Make sure they are set up on stable ground.
- **"Falling objects" can be a hazard when you're using an aerial lift as well.**
 - Even if you're careful, tools or materials can sometimes "leave" the platform and head earthward.
 - Protect people who are working around the lift by marking off the area with safety cones or warning tape.
- **Your surroundings can also be hazardous when you are operating an aerial lift.**
 - Overhead hazards can be especially troublesome.
- **If you're working indoors, you need to be aware of beams, rafters and ceiling heights.**
 - Keep your eye out for HVAC ducts, piping and cable raceways as well.
- **If you're outdoors, you want to pay attention to trees, light poles and power lines.**

*** * * SUMMARY * * ***

- **Aerial lifts can help you reach places that you would never be able to get to without them.**
 - But they can be dangerous if you don't know how to use and work around them properly.
- **Aerial lifts are covered in the ANSI 'Mobile-Elevated Work Platforms' Standard. The Standard focuses on three things:**
 - Creating a "Safe Use Program".
 - Performing a "Risk Assessment".
 - Structuring a "Rescue Plan".
- **Job sites where aerial lifts are used must be inspected to identify potential hazards.**
- **There are a number of types of aerial lifts, including:**
 - Extensible Boom Platforms.
 - Aerial Ladders.
 - Articulating Boom Platforms.
 - Vertical Towers.
- **You must be trained on all of the types of aerial lifts that you work with.**
- **The three main hazards associated with working with aerial lifts are:**
 - Falling from the platform.
 - The lift tipping over.
 - Objects falling from the lift.
- **If you have to work 'up in the air', an aerial lift can be a big help. And with the right training you can always end up safely back on the ground at the end of the day.**