

OSHA Safety Training Cranes, Derricks & Other Hoists



The main four causes of crane accidents are **contact with power lines, overturns, falls, and mechanical failure.**

Improper maintenance and failure to conduct regular inspections can also be harbingers of trouble, and dropped loads, boom collapse, rigging failures, workers being struck by the chassis as it rotates, lack of training, lack of communication, and other mishaps cause accidents as well. Following safe work practice and complying with OSHA's standards for crane safety can help minimize these risks.

There are a number of different types of cranes for both general and more specific uses, including

- Mobile
- Hydraulic
- Overhead
- Gantry
- Tower

Preparation Before Startup – The Seven Sisters of Safety

Before beginning to use any crane, all the steps on the checklist below need to have been completed.

1. Level the crane and ensure the support surface is firm and able to support the load.
2. Contact power utility owners and determine precautions, including whether lines will need to be deenergized for safety's sake. Know the location and voltage of the overhead power lines!
3. Know the capacities of your crane and its limitations, as well as any restrictions particular to your job site such as unstable soil, the location of underground power lines, utilities, or a predisposition for high-winds.



4. Make sure other personnel on the site are aware of hoisting activities and the operational range of the boom (swing radius).
5. Barricade areas within the swing radius of the boom.
6. Ensure cranes have been properly maintained and inspected. Remember that the competent person must inspect all machinery and equipment prior to and during each use to make sure it is in safe operating condition. If it needs fixing, take it out of service and don't use it until it is fixed!
7. Determine safe areas to store materials and place machinery.

Mobile Cranes – The Four Lifting Principles You Must Know

- Center of Gravity
- Leverage
- Stability
- Structural Integrity

In general, clearance of at least 10 feet should be maintained between power lines and any part of the crane or load.

Proper training of crane operators in the mandatory use of load charts is important for safe hoisting operations. Crane operators need to know and understand how to use load charts provided by the crane manufacturer. LMI devices are an important safety feature on modern cranes. However, these devices cannot replace the judgment of a trained and qualified operator who has knowledge of safe practices regarding hoisted loads, swing radius, and load chart information. LMI devices should be checked per the manufacturer's recommendations and if not working properly, tagged out-of-service until repairs are made.

Crane operators and workers must follow the manufacturer's recommendations for crane set-up and rigging.

Workers must use caution so that they do not place themselves in dangerous areas where they can be struck by falling loads or by falling or collapsing crane components.

Managers and safety professionals need to consider safe work practices for workers who are required to work on or near operating cranes. All workers should use and follow established hand signals such as the standard hand signals listed in ANSI B30.5–2004.

Personnel Platforms

A qualified engineer, or another competent specialist qualified in structural design, should design all lifting platforms. The platforms should meet the following requirements:

- Support platform weight and at least five times the maximum intended load.
- Minimize tipping caused by personnel movement on platforms by having an appropriate suspension system.
- Keep tools, materials, and equipment from falling on employees below by having a standard guardrail system that is enclosed from the toeboard to the mid-rail.

Platform loading standards require that:

- Personnel platforms must not be loaded in excess of their rated load capacity or maximum intended load as indicated on permanent markings.
- Only personnel instructed in the requirements of the standard and the task to be performed—along with their tools, equipment, and materials needed for the job—are allowed on the platform.
- All materials and tools must be secured and evenly distributed to balance the load while the platform is in motion.

Material Hoists

As with personnel hoists, employees and contractors should always be aware of the manufacturer's specifications as well as any limitations applicable to the operation of all hoists and elevators. Safe work practice requires the rated load capacities, recommended operating speeds, and any warnings or instructions about special hazards to be posted on hoist cars and platforms.