

Cranes

Construction crane operators have much to learn

Workplace stress, mental health focus of new OSHA webpage

Monkeypox fact sheet highlights training and PPE

OSHA failed to protect workers from COVID-19

Information and resources to help your employees work safely



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MESSAGE FROM THE EDITOR

Proper work practices minimize crane risks

Cranes lift and lower loads and move them horizontally. While a crane's actions may sound simple, using this equipment safely and effectively requires in-depth knowledge and training in the hazards involved.

The Census of Fatal Occupational Injuries reported 297 total crane-related deaths from 2011 to 2017. More than half of all these fatal crane injuries involved the worker being struck by an object or equipment. Hazards from cranes affect workers nationwide. The top five states with the most fatal injuries due to cranes were Texas, Florida, New York, California, and Illinois. Workers can minimize crane-related fall hazards with proper safety practices.

This month's Training Blueprint has an outline you can use to provide employees training on operating cranes and safe work practices they can follow. The Employee Handout and Quiz can be used to reinforce learning. ♦



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Jessica joined J. J. Keller & Associates, Inc. in 2021. As an Associate Editor on the Environmental, Health & Safety (EHS) Publishing Team, Jessica's editorial responsibilities include developing and updating content for various publications including the *Safety Training Awareness Program* and the *Environmental Regulatory Alert* newsletter. Jessica has over five years' experience as a writer and editor in environmental publishing.



TRAINING BLUEPRINT — CRANES

Construction crane operators have much to learn

Overview

This training outline focuses on only a small part of what a construction crane operator needs to know. The outline describes some of OSHA's requirements for equipment operation at 1926.1417. You can use this training outline to reinforce operating requirements for your crane operators or to provide some background information on crane operation for employees who may work in an area where cranes are used.

Specific training elements

1. Introduce some terms crane operators should know.

Crane operators need to know some terms related to the operation of the equipment. The standard includes definitions at 1926.1401.

“Competent person” means one who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

“Qualified person” means a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.

“Locomotive crane” means a crane mounted on a base or car equipped for travel on a railroad track.

“Crawler crane” means equipment that has a type of base mounting which incorporates a continuous belt of sprocket driven track.

“Tower crane” is a type of lifting structure which uses a vertical mast or tower to support a working boom (jib) in an elevated position. Loads are suspended from the working boom. Mobile cranes that are configured with luffing jib and/or tower attachments are not considered to be tower cranes.

“Mobile crane” means a lifting device incorporating a cable suspended latticed boom or hydraulic telescopic boom designed to be moved between operating locations by transport over the road.

“Rated capacity” means the maximum working load permitted by the manufacturer under specified working



conditions. Such working conditions typically include a specific combination of factors such as equipment configuration, radii, boom length, and other parameters of use.

2. Discuss the need for accessible operating procedures.

Crane operators must always comply with all the crane manufacturer's procedures that apply to the operation of the equipment.

Load charts, recommended operating speeds, special hazard warnings, instructions, and the operator's manual must be readily available in the crane's cab at all times. If the rated capacities are available only in electronic form, the operator must cease operations if a power failure makes the load charts unavailable.

TRAINER'S NOTE: Display some of the operating procedures for your equipment.

3. Explain other basic operating considerations.

Crane operators must remain focused on the crane's operation. They must not engage in any other activities that could divert their attention. This means that, in general, operators must not use a cellphone. Operators can, however, use a cellphone for signal communications.

If a storm warning is issued for the area, a competent person must determine whether it's necessary to implement the manufacturer's recommendations for securing the equipment.

Before starting the engine, the operator must verify that all controls are in the proper starting position and that all personnel are in the clear. The brakes must be adjusted in accordance with the manufacturer's procedures. The operator must test the brakes each time a load that is 90 percent or more of the maximum line pull is handled. This is done by lifting the load a few inches and applying the brakes.

If a locomotive crane is in an area where railway cars on an adjacent track could strike it, the crane must not be swung into position until it's determined that the railway cars are not being moved and that proper flag protection is in place.

4. Discuss the requirements for operational aids.

The operational aids outlined in OSHA's standard are required on all equipment, as applicable. If an operational aid stops working properly, the operator must safely stop operations until temporary alternative measures are implemented, or the device is again working properly. Safety devices and operational aids must not be used as a substitute for the operator's exercise of professional judgment.

Category I operational aids include boom hoist limiting device, luffing jib limiting device, and anti-two-blocking device. Category II operational aids include boom angle or radius indicator, jib angle indicator, boom length indicator, and load weighing devices.

Cranes manufactured after Nov. 8, 2011, are required to have an outrigger/stabilizer position sensor/monitor if the equipment has outriggers or stabilizers, and they must have a hoist drum rotation indicator if the equipment has a hoist drum not visible from the operator's station.

5. Discuss provisions for rated capacity and load weight.

The equipment must not be operated more than its rated capacity. The operator must verify that the load is within the rated capacity of the equipment by at least one of the following methods:

- The weight of the load must be determined from a source recognized by the industry (such as the load's manufacturer), or by a calculation method recognized by the industry (such as calculating the weight from measured dimensions and a known per foot weight), or by other equally reliable means. In addition, when requested by the operator, this information must be provided to the operator prior to the lift; or
- The operator must begin hoisting the load to determine, using a load weighing device, load movement indicator, rated capacity indicator, or rated capacity limiter, if the load exceeds 75 percent of the maximum rated capacity at the longest radius

that will be used during the lift operation. If it does exceed this parameter, the operator must not proceed with the lift until he or she verifies the weight of the load using the calculations or other reliable means.

- For equipment other than tower cranes, the equipment must not be operated without the counterweight or ballast in place as specified by the manufacturer. The maximum counterweight or ballast specified by the manufacturer for the equipment must not be exceeded. Counterweight/ballast requirements for tower cranes are specified in 1926.1435(b)(8).

TRAINER'S NOTE: Provide examples of the rated capabilities of your equipment.

6. Outline precautions for traveling with a load.

The boom or other parts of the equipment must not



contact any obstruction. The equipment must not be used to drag or pull loads sideways. On wheel-mounted equipment, no loads must be lifted over the front area, except as permitted by the manufacturer.

Neither the load nor the boom must be lowered below the point where less than two full wraps of rope remain on their respective drums.

Traveling with a load is prohibited if the practice is prohibited by the manufacturer. Where traveling with a load, the employer must ensure that:

- A competent person supervises the operation; determines if it is necessary to reduce the rated capacity; and makes determinations regarding load position, boom location, ground support, travel route, overhead obstructions, and speed of movement necessary to ensure safety;
- The determinations of the competent person are implemented; and
- Tire pressure specified by the manufacturer is maintained (for equipment with tires).

Rotational speed of the equipment must be such that the load does not swing out beyond the radius at which it can be controlled. If the rotation of the load would be hazardous, a tag or restraint line must be used.

The operator must obey a stop (or emergency stop) signal, irrespective of who gives it. ♦



Key to remember: Construction crane operators must understand requirements for operational aids and precautions for traveling with a load.



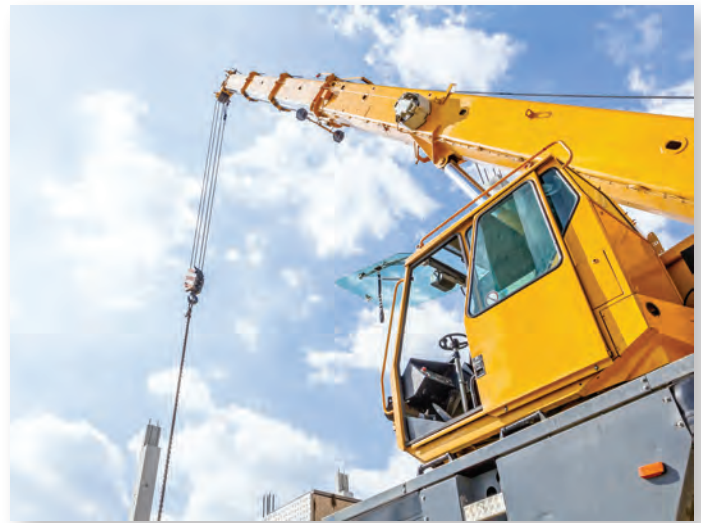
Employee Handout — Learn about construction crane operation

If you operate a construction crane, you know how demanding it is. If you work in an area where cranes are in use, you can be assured that the crane operators have gone through a training program.

General rules for safe equipment operation

Here's a quick summary of some of the general operating requirements for construction cranes under 1926.1417:

- ✓ Crane operators must always comply with all the applicable operating procedures provided by the crane's manufacturer.
- ✓ Load charts, recommended operating speeds, special hazard warnings, instructions, and the operator's manual must be readily available in the crane's cab.
- ✓ Crane operators must not do any activities that could distract them. This includes using cellphones for anything other than signal communication.
- ✓ If there's a storm warning, a competent person must decide if the crane needs to stop operating.
- ✓ When loads are 90 percent or more of the maximum line pull, the operator must test the brakes by lifting the load a few inches and applying the brakes.
- ✓ If a locomotive crane is being used near railway cars on adjacent tracks, flag protection and other precautions must be taken so the railway cars will not hit the crane.
- ✓ Cranes must be equipped with certain operational aids such as boom hoist limiting devices, boom angle or radius indicators, boom length indicators, and load weighing devices (as applicable). However, these operational aids aren't substitutes for the operator's use of professional judgment.
- ✓ Cranes must not handle loads that are more than the crane's rated capacity, and the operator must verify that the load is within the crane's rated capacity.
- ✓ When moving, the crane may not come into contact with any obstruction.
- ✓ Cranes must not drag or pull loads sideways.
- ✓ When traveling with a load, a competent person must supervise the operation.
- ✓ When a load is rotated, a tag or restraint line must sometimes be used to control the load's movement.
- ✓ The crane operator must obey a stop or emergency stop signal. ♦



Quiz — Learn about construction crane operation

For each question, circle the letter of the correct answer.

1. Who provides the crane's operating procedures?
 - a. The crane operator
 - b. The general contractor
 - c. The crane's manufacturer
2. A boom length indicator is an example of:
 - a. An operational aid
 - b. An operating procedure
 - c. A load limit capacity
3. To test the brakes, the crane operator applies the brakes after:
 - a. Driving in reverse
 - b. Turning quickly
 - c. Lifting the load a few inches
4. Flag protection is sometimes used when a crane operates:
 - a. On railroad tracks
 - b. Inside an excavation
 - c. Over water
5. Who verifies that the load is within the crane's rated capacity?
 - a. The general contractor
 - b. The crane operator
 - c. The crane's manufacturer

NAME: _____

DATE: _____








Monkeypox fact sheet emphasizes training, PPE for healthcare workers

OSHA’s recently released monkeypox fact sheet emphasizes training and personal protective equipment (PPE) for healthcare workers. While the risk for monkeypox is extremely low in most work settings, it’s higher for healthcare workers and first responders.



These workers should be trained on the following work practices (and how to use PPE):

-  Be alert for people who have rashes or symptoms consistent with monkeypox.
-  Isolate people with monkeypox infection from others and cover skin lesions.
-  Avoid skin-to-skin contact with people who are ill or have visible lesions.
-  Avoid unprotected contact with any potentially contaminated materials.
-  Practice good hand hygiene. ♦

Report says OSHA failed to sufficiently protect workers from COVID-19

OSHA’s job is to ensure the safe and healthful working conditions of 130M workers at 8M worksites in the U.S. by setting and enforcing standards and providing compliance assistance. However, a DOL Office of Inspector General (OIG) report concludes that OSHA did not sufficiently protect workers from COVID-19 health hazards from Feb. 1, 2020, to Jan. 31, 2021. The OIG explains that OSHA:

- Did not issue citations to enforce its injury/illness recordkeeping and reporting standards at 29 CFR 1904 in 15 percent of sampled fatality inspections;
- Lacks complete information on COVID-19 infection rates at worksites; and
- Closed inspections without ensuring it received and reviewed all documents requested from employers to demonstrate alleged hazards had been mitigated.

OIG made recommendations to OSHA regarding improving its enforcement actions, standards,

guidance, and training to better protect workers in the future. However, OSHA disagreed with OIG’s recommendation to revise the upcoming Infectious Diseases rulemaking to require all employers to notify all employees of known positive cases of infectious diseases at the site. OSHA explains that the rulemaking is currently focused on healthcare and social assistance sectors, not all industries. ♦



Workplace stress, mental health focus of new OSHA webpage

Workplace stress and mental health are the focus of a new OSHA webpage. Statistics show that workplace stress has been reported to cause 120,000 deaths in the U.S. each year and that 83 percent of U.S. workers suffer from work-related stress. OSHA notes that despite these statistics, the workplace can be a key place for resources, solutions, and activities designed to improve workers' mental health and well-being.

In addition to providing an overview of stress and mental health challenges, the page offers guidance and tips for employers, training resources, real-world solutions, and outreach materials. Resources also include Getting Started guides for employers, mental health checklists, workplace stress sample survey questions, and a myth buster fact sheet. ♦



Answers to quiz on page 5:

1. c; 2. a; 3. c; 4. a; 5. b



Next Month's Topic: Ergonomics

Ergonomics is the science of arranging the work environment to fit the person. There is no OSHA standard on ergonomics, but OSHA does cite employers using the General Duty Clause (section 5(a) (1) of the OSH Act) when employers do not address serious ergonomics-related hazards.

Expert Help: Questions of the Month

Question: What types of tests need to be done on mobile cranes?

Answer: In addition to prototype tests and quality-control measures, each new production crane must be tested by the manufacturer to ensure the following are functional: load hoisting and lowering mechanisms, boom hoisting and lowering mechanisms, swinging mechanism, travel mechanism, and safety devices.

Where the complete production crane is not supplied by one manufacturer such tests shall be conducted at final assembly. Ensure certified production-crane test results are available.

Question: Are overhead cranes required to have a brake that stops the motion of the load in the event of a power failure?

Answer: Yes, the crane must be equipped with holding brakes which are designed to be applied automatically. If the crane is equipped with holding brakes which are designed to be applied automatically when the power is removed and they do not do so and the crane is continued in service without adjustment or repairs, the employer would be in violation of 1910.179(l)(3). ♦



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