

Hazards at construction sites can change quickly, putting employees who operate or work around cranes at risk for serious injuries. In fact, crane accidents kill over 70 workers annually. The main causes of injury are electrocution, falls, being crushed by parts of the equipment, and being struck by the equipment or load. Employers who use power-operated equipment to hoist, lower or horizontally move a suspended load in construction work must comply with Occupational Safety and Health Administration's standard on Cranes & Derricks in Construction (1926 Subpart CC).



Operators

Crane operators are responsible for operations under their direct control. If job safety is questionable, the operator must be authorized to stop all hoisting activities and refuse to handle loads until safety concerns are addressed. Crane operators must be certified by one of the following:

- Accredited testing organization
- Employer qualification program
- U.S. military
- State/Local government license

Riggers and signal persons must also meet training and qualification requirements.

Assembly/Disassembly

Follow manufacturer's procedures on assembling or disassembling cranes, including while using synthetic slings. Position employees to minimize exposure to the crane's unintended movement or collapse. A competent, qualified assembly/disassembly director should review the procedures prior to beginning work and make sure each member of the crew understands each task and potential hazards.

Tower cranes are subject to additional requirements for erecting, climbing and dismantling, including a pre-erection inspection.

Work Site Inspection

Visually inspect cranes before they are used in construction activities. Inspectors should evaluate the following:

- Proper function of all control mechanisms
- Excessive wear of control and drive mechanism, including contamination by lubricants, water or foreign material
- Safety devices, including but not limited to boom-angle indicators, boom stops, boom kickout devices and any load moment indicators
- Deterioration or leakage of air, hydraulic and other pressurized lines, especially those that flex during operation
- Deformation, chemical damage, cracks or wear of hooks and latches
- Proper hydraulic system fluid levels
- Proper tire condition and inflation

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- Ground conditions around the hoisting equipment for proper support (using manufacturer's specifications), ground settling under and around outriggers, and groundwater accumulation or similar conditions
- Level positioning of hoisting equipment
- Rigging (by a qualified rigger)
- Qualifications of the worker elected to signal the crane
- Proximity of power lines—conduct a power line hazard assessment if the crane is within 20 ft

If the inspection reveals any hazard, remove the hoisting equipment from service until the hazards are corrected

Working Under Loads

- Preplan routes for suspended loads to prevent employees from working directly below a suspended load, except for those who handle the load.
- Clear the travel path for the loads, including inside of a building if the crane is hoisting to the roof, to prevent picking over people.
- Rig hoisted materials to prevent unintentional displacement.
- Use hooks with self-closing safety latches or the equivalent to prevent components from slipping out of the hook.

Employee Training

Train employees on safe crane operations and potential hazards in construction activities that apply to their respective roles. Topics to include:

- Power line safety
- Crush/Pinch point hazards
- Tagout for repair

For Additional Information

EMC Insurance Companies:

www.emcins.com/losscontrol

- Safety by Topic – Contractors

Occupational Safety & Health Administration:

www.osha.gov

- Steel Erection eTool-Cranes
- Crane, Derrick and Hoist Safety