Preventing Worker Injuries and Deaths from Mobile Crane Tip-Over, Boom Collapse, and Uncontrolled Hoisted Loads

CRANE OPERATORS should take the following steps to protect themselves and other workers when operating mobile cranes:

- Always use the crane manufacturer’s load chart provided for each crane.
- Be sure you know or can calculate the weight of each load.
- Never use visual signs of tipping as an indicator of lift capacity.
- Before beginning a lift, 
  — follow the manufacturer’s procedures for proper outrigger deployment to ensure that cranes are properly set up and level, and
  — make sure outrigger pads are supported on firm, stable surfaces before beginning a lift.
- When multiple lifts are made from one location, such as during duty cycle operations, check the condition of the ground and blocking materials regularly and as often as possible to ensure the crane remains on firm, stable ground.
- Avoid holding or moving suspended loads over workers and others within the crane’s swing radius.
- Barricade the swing radius to keep unauthor- ized persons from entering areas of pinch points.
- Follow a written engineered lift plan for all critical lifts.
- If you are under age 18, do not operate a crane or assist in tasks being performed on cranes such as repairing, servicing, assembling, and disassembling the machine. For more information about Federal child labor laws, visit www.dol.gov/whd/ childlabor/index.htm; or call 1-866-4-USADOL.

EMPLOYERS should take the following steps to protect workers who work on or around mobile cranes:

- Make sure your work sites comply with safety requirements found in pertinent regulations including OSHA 29 CFR 1910.180 (general industry); OSHA 29 CFR 1917.45 (marine terminals); 29 CFR 1918.66 (maritime, cranes, and derriks other than vessel’s gear); 29 CFR 1926.550 (construction industry cranes and derriks); and ASME B30.5–2004, mobile and locomotive cranes.
- Conduct training to ensure crane operators understand safe crane operation as well as the principles of set-up, rigging, hoisting, ex- tending the boom, swinging a load, pinching and crushing points, swing radius warning barriers, power line safety, etc.
- Conduct training to ensure riggers and ground workers understand the hazards of working around mobile cranes and that they watch for signs of problems at all times, especially if power lines are nearby.
- Develop and implement standard operating procedures (SOPs) for safely lifting loads.
- Develop and follow a written engineered lift plan for all critical lifts.
- When multiple lifts are made from one location (such as during duty cycle operations) check the condition of the ground and blocking materials regularly and as often as possible to ensure the crane remains on firm, stable ground.
- Ensure that mobile cranes located on float- ing barges are positively secured and barge list (bearing or list) is accounted for.
- Follow the manufacturer’s recommended as- sembly, disassembly, and maintenance pro- cedures when working on cranes.
- Comply with child labor laws that prohibit construction and manufacturing work by per- sons under age 16 and that prohibits work- ers under age 18 from operating or assisting in the operation, repair, servicing, assembly, disassembly, and similar activities associ- ated with mobile cranes. For more infor- mation about Federal child labor laws, visit www.dol.gov/whd/ childlabor/index.htm; or call 1-866-4-USADOL.

WARNING!

Construction and industrial workers are frequently injured or killed when working on or around mobile cranes because of crane tip-over, boom collapse, and uncontrolled hoisted loads. For more information about Federal child labor laws, visit www.dol.gov/whd/ childlabor/index.htm; or call 1-866-4-USADOL.

Mobile crane tip-over attempting to hoist water tank
(Photo courtesy of Iowa FACE Program)

Please tear out and post. Distribute copies to workers.

For additional information, see NIOSH Alert: Preventing Worker Injuries and Deaths from Mobile Crane Tip-Over, Boom Collapse, and Uncontrolled Hoisted Loads

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Mobile crane tip-over at library expansion project. (Photo courtesy of The Blade/Toledo Ohio)

Barricade the swing radius to keep unauthenticated persons from entering areas of pinch points.

Always check for overhead power lines and other obstructions. Comply with OSHA reg- ulations for safe working distances around power lines; 29 CFR 1910.336(c)(3)(ix); and 29 CFR 1926.550(a)(1)(iv), (v), and (vi).


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- When multiple lifts are made from one location, such as during duty cycle operations, check the condition of the ground and blocking materials regularly and as often as possible to ensure the crane remains on firm, stable ground.

Avoid holding or moving suspended loads over workers and others within the crane’s swing radius.

Barricade the swing radius to keep unauthorized persons from entering areas of pinch points.

Follow a written engineered lift plan for all critical lifts.

If you are under age 18, do not operate a crane or assist in tasks being performed on cranes such as repairing, servicing, assembling, and disassembling the machine. For more information about Federal child labor laws, visit www.dol.gov/odep/topic/youthlabor/index.htm, or call 1-866-4-USADOL.

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Conduct training to ensure crane operators understand safe crane operation as well as the principles of set-up, rigging, hoisting, extending the boom, swinging a load, pinching and crushing points, swing radius warning barriers, power line safety, etc.

Conduct training to ensure riggers and ground workers understand the hazards of working around mobile cranes and that they watch for signs of problems at all times, especially if power lines are nearby.

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Develop and follow a written engineered lift plan for all critical lifts.

When multiple lifts are made from one location (such as during duty cycle operations) check the condition of the ground and blocking materials regularly and as often as possible to ensure the crane remains on firm, stable ground.

Ensure that mobile cranes located on floating barges are positively secured and barge lift (bearing or tilt) is accounted for.

Follow the manufacturer’s recommended assembly, disassembly, and maintenance procedures when operating on cranes.

Comply with child labor laws that prohibit construction and manufacturing work by persons under age 16 and that prohibits workers under age 18 from operating or assisting in the operation, repair, servicing, assembly, disassembly, and similar activities associated with mobile cranes. For more information about Federal child labor laws, visit www.dol.gov/odep/topic/youthlabor/index.htm; or call 1-866-4-USADOL.

WARNING!

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Mobile tower crane tip-over attempting to hoist water tank. (Photo courtesy of Iowa FACE Program)

Mobile crane tip-over at library expansion project. (Photo courtesy of The Boiler/Toledo Ohio)
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