



# Crane Safety: Stability and Tipping

Cranes are used to lift and move heavy materials on construction sites. When a crane lifts and moves a load, the distance from the load's center of gravity to the crane's tipping axis changes. If the crane's lift capacity is exceeded, the distance exceeds the safe operating range listed in the crane's load chart, or the crane is not set up properly, it can tip over, resulting in injuries, many fatal, to the operator and workers nearby.

## Ed's Story

Ed was in charge of receiving materials and having them safely unloaded at the construction site. The outriggers on the delivery truck's crane were not fully extended. As a result, the weight of the load caused the crane to tip over. The falling materials nearly crushed two other workers, and Ed was injured when the crane tipped. He was hospitalized for 3 days and missed 2 weeks of work while recovering.

- ✘ What caused this incident?
- ✘ How could this have been prevented?
- ✘ Have you ever been injured by a crane collapsing or tipping, or do you know someone who has? If so, what happened?

## Remember This

- Know or calculate the weight of each load.
- **Always** use the manufacturer's load chart provided for each crane. **Do not** exceed the safe operating range listed on the chart.
- **Always** observe information provided by installed load sensors in newer cranes.
- Check the manufacturer's maximum wind speed for the crane to make sure that it can lift the load in windy weather.
- **Before beginning** a lift, follow the manufacturer's procedures for outrigger deployment. Make sure the outrigger pads are supported on a firm, stable surface so the crane is properly set up and level. Use crane mats or pads if necessary.
- Check the hoist brakes when multiple heavy lifts are made from one location, such as during duty cycle operations.
- **Always** warn others of moving and approaching overhead loads; avoid moving loads over people or letting people pass under them.
- **Never** use visual signs of tipping as an indicator of lift capacity.

## How can we stay safe today?

What will we do at the worksite to prevent injuries while working with cranes?

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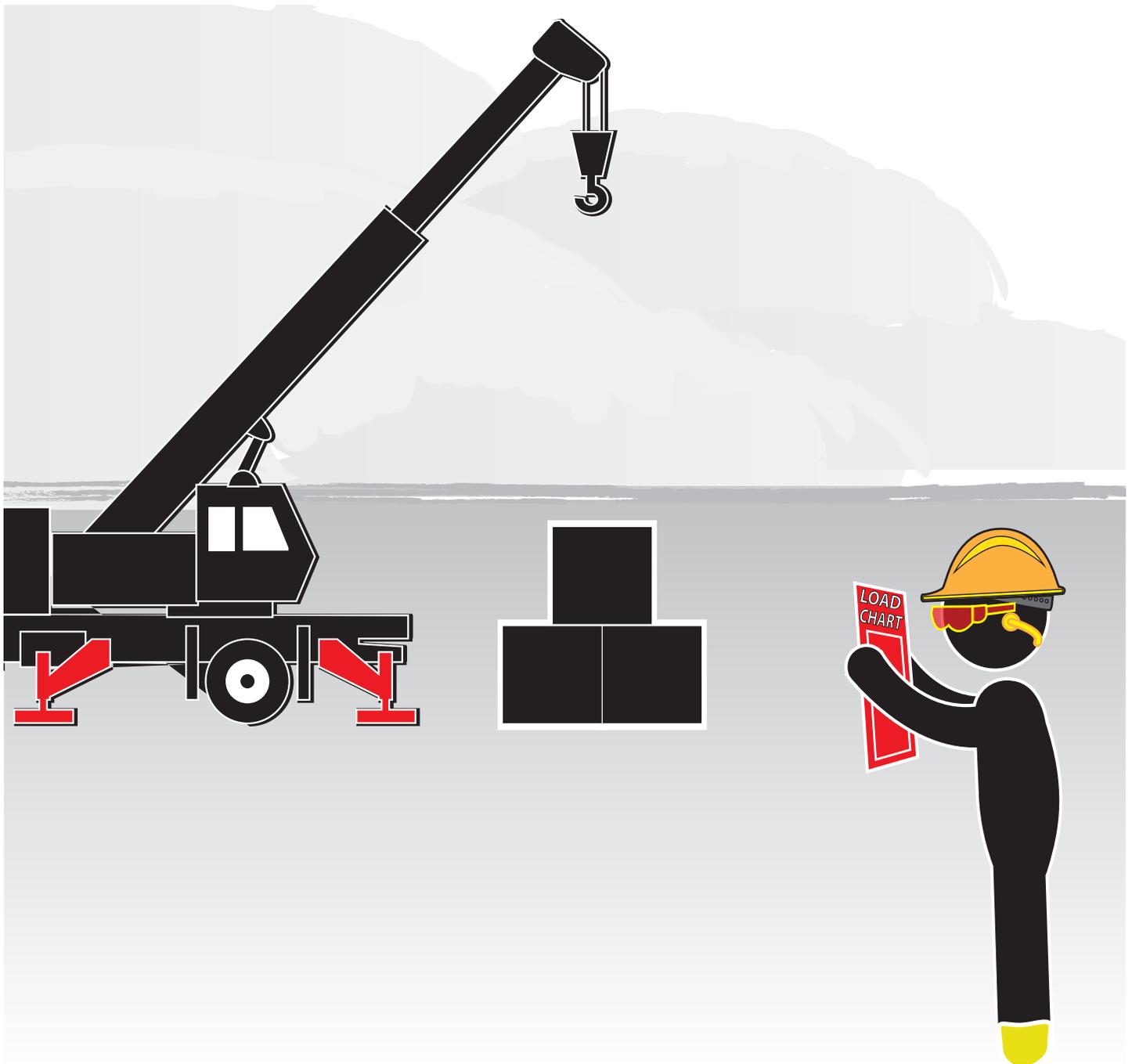
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OSHA Standards: 1926.1402 and 1926.1417





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- ✓ **Always** warn others of moving and approaching overhead loads.

## GET INFORMATION

CDC/NIOSH INFO: 1-800-CDC-INFO (1-800-232-4636) | TTY: 1-800-232-6348 | [cdc.gov/info](https://www.cdc.gov/info) | [cdc.gov/niosh](https://www.cdc.gov/niosh)  
CPWR: Contact 301-578-8500 | [cpwr-r2p@cpwr.com](mailto:cpwr-r2p@cpwr.com) | [www.cpwr.com/toolbox-talks](https://www.cpwr.com/toolbox-talks)  
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