

HAZARD ALERT

Mobile Crane and Boom Lift Safety

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Industries: All industries that use cranes or boom lifts including:

- Construction;
- Industrial, Manufacturing worksites;
- Mining;
- Forestry; and
- Marine

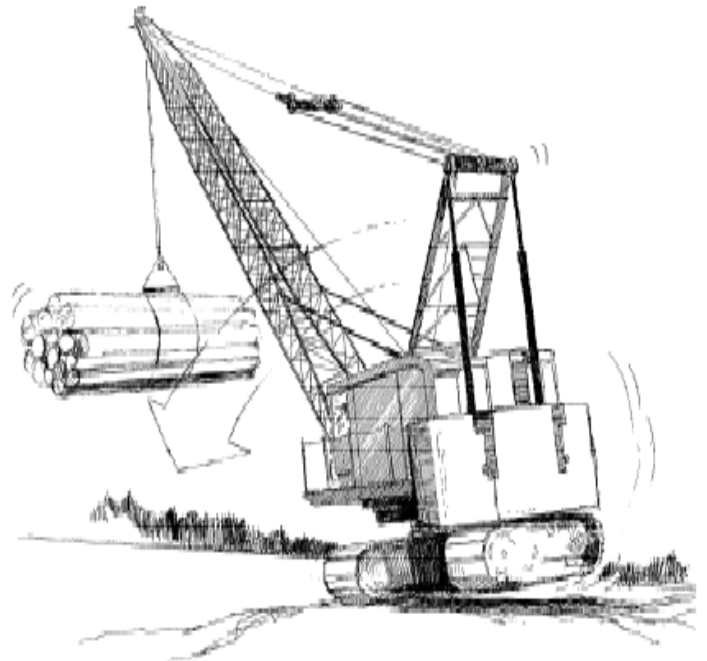
Hazard Summary: Mobile cranes and boom lifts can pose a serious safety risk on the worksite if not operated properly and safely.

Risk of injury: HIGH

Risk of damage to property: HIGH

Typical Causes:

- Human error related:
 - Rigging;
 - Over-loading;
 - Inattention;
 - Lack of communication; and
 - Lack of, or poor, site/ground assessment
- Equipment failure due to:
 - Lack of proper maintenance; and
 - Inadequate safety checks



Crane tipped no load chart. Illustration from WorkSafe [BC Alert](#)

Examples of Potential Incidents:

- Crane tipped over when lifting a forklift truck off a boat due to overloading or operator exceeding safe radius for the crane.
- Crane's back wheels and rear outriggers pulled into the air attempting to lift a load beyond capacity rating.

Preventive Measures:

(following is an excerpt from “10 Steps to Prevent Crane Accidents” by Robert Ingraham, HSE Director Eagle West Cranes Inc.)

Complete an Inspection: Verify the crane has had its required inspections (see OSGR). Not just its annual inspection but also check its operating functions daily to ensure all components are working properly.

Complete Field Level Hazard Assessment: identify and evaluate site and job specific hazards (are power lines nearby, is ground soft, uneven); eliminate and control hazards before and during the work.

Complete a Plan: Review all factors for each lift – load weight capacities, effect of wind, integrity of equipment etc.

Communicate the Plan: Communicate the completed plan at “Tool Box” meetings. Communicate the hazards and controls; safe work practice and procedures if any, roles and responsibilities of ground crew if any.

Follow the Plan: Once the plan is agreed to, don’t deviate from it without informing everyone of the change.

Know your Ground Conditions: The most carefully rigged crane is only as stable as the surface it is on. Simply extending the outriggers (if so equipped) on a crane does not mean you have a stable surface. The crane’s load chart and manufacturer’s specifications may help determine whether it is a safe lift.

Know your Radius: Establish a ‘control zone’ for those authorized to work in the immediate area – the ‘swing radius’. The swing radius is the travel path for the boom and counterweight and it should be checked regularly to ensure no objects have encroached in the area.

Use the Crane properly: Cranes are engineered for vertical lifting, not to side load or drag something across the ground.

Communication: There has to be clear communication between the operator and signalers or other workers. Whatever communication system – radio, hand signals, etc., make sure everyone understands and follows it.

Stay focused: Everyone associated with a lift needs to stay alert and focused on the job.

Related Regulations and Legislation:

Part 7 of the [Occupational Safety General Regulations](#) has various requirements for Hoists and Mobile Equipment including, but not limited to:

Section 55-57: operated by a designated competent person, gears and moving parts guarded, load adequately secured, and signaler requirements.

Section 58-61: back-up alarm, braking system, stabilizers and outriggers, adequate precautions to ensure no tips or roll overs.

Section 69-71: requirements for leaving equipment unattended, daily and weekly inspections.

Section 72-76: obtain rated load for hoists, post where operator can see it, not to exceed rated load, annual inspection by competent person, annual engineer certificate where required

Section 77-80: equip mobile cranes with boom angle indicator, ensure barriers to prevent people entering swing radius, boom not to swing in an uncontrolled manner, rigging.