



# Equipment operators: Look out for powerlines

Contact with overhead powerlines is a common hazard for operators of heavy equipment such as concrete pumps, boom trucks, dump trucks, backhoes, and cranes. Often these incidents are the result of a lack of awareness of powerline hazards and improper work procedures.

Overhead powerlines can carry thousands of volts of electricity to our homes and businesses. But coming into contact with them, even being close to them, can be fatal. On average, each year in Ontario, three people die and five are critically injured due to contact with overhead powerlines.\* They are a high-risk hazard that must be treated with respect.

To protect equipment operators and workers on foot around the equipment from this hazard, employers must follow sections 181 to 195 of the Construction Regulation (213/91). These sections contain specific rules that must be followed when working near powerlines.†

## Limits of approach

When equipment operates within reach of live overhead powerlines, written measures and procedures must be in place to ensure the equipment does not get closer than the minimum allowable distance (Table 1).

**Table 1: Proximity to Energized Overhead Electrical Conductors**

Nominal phase-to-phase voltage rating	Minimum distance
750 or more volts, but no more than 150,000 volts	3 metres
more than 150,000 volts, but no more than 250,000 volts	4.5 metres
more than 250,000 volts	6 metres

Source: O. Reg. 213/91, s.188



The wind can blow powerlines, hoist lines, or your load. This can cause them to come closer to a powerline than the minimum allowable distance.

Copies of these written procedures must be given to every employer on the project. Written notification of the electrical hazard must also be given to equipment operators before work begins.

## Signallers

A competent worker must be designated as a signaller to warn the operator when any part of the equipment, load, or hoist line approaches the minimum allowable distance from an overhead powerline. Signallers must be in full view of the operator and must have a clear view of the equipment, the powerline, and the equipment's intended path of travel. They must be dedicated only to

this task so they are not distracted by other duties. (See section 106 of the Construction Regulation for additional requirements of a signaller.)

## Warning signs and devices

Warning signs or devices must be placed in the area of the hazard so that at least one is always visible to equipment operators in any conditions that they may be working in (such as at night or in rain or fog). This warning can be a DANGER sign that meets the requirements of section 44 of the Construction Regulation. It's a good idea to include the voltage of the powerlines on the sign. There should also be a warning sign at the operator's station. This may be a sticker that comes with the equipment. Always check to make sure the sticker is legible.

## Equipment manuals

The operating manual issued by the manufacturer of the equipment may contain instructions that are different from the legislation. If the manufacturer's instructions are more stringent, they should be followed instead of the regulation (O. Reg. 213/91, s. 93).

## Site set-up

If a jobsite is planned properly, powerline hazards can be reduced or eliminated. Proper planning can include

- moving or de-energizing powerlines while work is being done
- ordering the proper-sized equipment for the site
- designating safe staging areas for the equipment to set up
- storing material far away from powerlines.



**Never extend a boom over electrical wires, even if you can maintain a safe minimum distance.**

The most powerful tool for preventing contact with powerlines is education. By making workers and employers more aware of the hazards associated with powerline contact and the ways to avoid it, both employers and workers can continue to make progress in reducing electrical contact injuries and fatalities. Visit the **Electrical Hazards** topic page at [ihsa.ca](http://ihsa.ca) for more information and products, including warning posters and stickers.

\*Information provided by the Electrical Safety Authority.

†These sections do not apply to electrical workers who must work on or near electrical transmission or distribution systems. They must work in accordance with the *Electrical Utilities Safety Rules* (RB-ELEC).

# What to do if you hit an overhead powerline

- **Stay on the equipment.** Never touch the equipment and the ground at the same time. In fact, touching anything that is in contact with the ground can be fatal.
- **Keep others away.** No one else should touch the equipment or its load—including buckets, outriggers, load lines, and any other part of the machine. Beware of time-delayed relays. Even after breakers are tripped by line damage, relays may be triggered to restore power.
- **Break contact.** The operator can try to break contact by moving the equipment clear of the wires while remaining inside the machine. However that may not be possible if the contact has welded a conductor to the equipment.
- **Call the local utility.** Get someone to call the local electrical utility for help. Stay on the equipment until the utility shuts down the line and confirms that the power is off. Report every incident of powerline contact to the utility—they'll check for damage that could cause the line to fail later.
- **Report the contact.** If the powerline is rated at 750 volts or more:
  - Report the contact to the inspection department of the Electrical Safety Authority within 48 hours.
  - Provide notice in writing to the Ministry of Labour and to the Joint Health and Safety Committee, health and safety representative, and trade union.