Electrical Hazards in Construction – Machinery Meeting Kit



WHAT'S AT STAKE

In construction, heavy machinery is everywhere, and so is electricity. When the two mix, the results can be deadly. Whether you're operating a crane, excavator, scissor lift, or concrete pump, contact with overhead or buried power lines can result in electrocution, serious burns, arc flashes, or fatal falls. The danger doesn't stop with the operator; anyone nearby is at risk. One wrong move near a live wire or energized part can take out a whole crew. Electricity is silent, fast, and unforgiving, and the only thing standing between you and disaster is preparation.

WHAT'S THE DANGER

Machinery and electricity are a deadly combination when safety protocols aren't followed. The most common and most fatal incidents happen when heavy equipment contacts energized power lines or electrical sources.

Overhead Power Line Contact – Instant Electrocution

Cranes, lifts, dump trucks, and boom arms can easily touch overhead lines if operators aren't careful. Electricity can arc without direct contact and travel through the machine, instantly shocking the operator and anyone nearby.

- Most overhead lines are uninsulated and carry high voltage – enough to kill on contact.
- Ground personnel are also at risk if they touch the equipment or stand too close when contact occurs.

Buried and Hidden Cables – Striking What You Can't See

Excavators and augers can hit underground lines during trenching or drilling. Even a minor strike can cause an explosion or shock that injures multiple workers.

- Digging without locates or relying on old maps is a recipe for disaster.
- Unmarked temporary power setups on construction sites are especially risky.

Faulty Lockout and Grounding – False Sense of Safety

Improper lockout/tagout during maintenance or failure to ground equipment can expose workers to unexpected live voltage.

- Workers may assume machinery is de-energized when it’s still live.
- Re-energizing without warning puts everyone at risk.

These incidents aren’t just dangerous — they’re often fatal. And the scariest part? You don’t always see the hazard until it’s too late.

HOW TO PROTECT YOURSELF

Working around powered machinery and live electricity means you’ve got to think ahead because electricity won’t give you a second chance. It moves fast, doesn’t make noise, and won’t wait for you to spot the danger.

Start with a Walkaround — Know What’s Hot

Before you even power up, do a full scan of your surroundings. Look up, down, and around.
Overhead lines? Mark them. Underground cables? Get them first. Don’t assume they’re insulated; most overhead lines aren’t. Electricity can arc, meaning it doesn’t have to touch your machine to kill you.

Remember: If it’s overhead, it’s dangerous — always.

Keep Your Distance — and Use Spotters if You Can’t

The standard minimum safe distance from overhead lines is 10 feet (3 meters), and that’s just the starting point. The higher the voltage, the greater the clearance required. If you’re operating tall equipment like cranes, lifts, or concrete pumps, and you’re near power lines:

- Use a trained spotter with a clear line of sight
- Set up physical barriers or visual markers to keep you out of danger
- Lower booms or arms when driving through tight spaces

Never rely on your mirrors or memory. One slip and you’re in the danger zone — or someone else is.

De-energize Before Maintenance — Always Lock It Out

If you’re working on or near electrical machinery, it’s not enough to just flip a switch and hope it’s off. Follow full lockout/tagout (LOTO) procedures:

- Disconnect power and verify with a tester before touching anything
- Apply lockout devices and tags that clearly say the equipment is out of service
- Make sure all energy is discharged — even capacitors can hold a lethal charge
- Never let anyone restart a machine unless every tag and lock is cleared

Don’t Ignore the Equipment Itself

Sometimes the danger isn’t in the lines, it’s right in the machinery. Damaged cords, exposed wires, and broken controls can make any piece of equipment a hazard.

- Inspect all power cords, plugs, and outlets for wear, cracks, or exposed wires
- Don’t operate anything with missing guards or damaged components
- If it doesn’t look right or function right — tag it out and report it
- Never tape up damaged cords or “fix” it yourself unless you’re qualified

Keep Communication Flowing — Before, During, and After the Job — Before starting any task near electrical sources, make sure everyone is on the same page, operators,

spotters, and ground crew alike. Talk through where the power is, what machinery will be used, and what to do if something goes wrong. Clear communication helps prevent assumptions, missed hazards, and life-threatening mistakes.

FINAL WORD

Electrical hazards around construction machinery don’t always look dangerous — until it’s too late. One shortcut can change a life. Don’t let it be yours.