

Dangers of Powerline Contact

Each year, workers are killed by electrocution from contact with overhead power lines. Over 90 percent of the contacts involved overhead distribution lines. These are the same lines that run in the alleys behind our houses and through our job sites. Since they are so common to us, they seem harmless. This serious mistake is fueled by two common misconceptions: the belief that some overhead lines don't carry enough power to kill, and the belief that power lines are well-insulated. Both are dead wrong.

The leading category of contact involves heavy equipment--cranes, drilling rigs, concrete pumps, aerial buckets, and backhoes. Of all heavy equipment contacts, cranes--either mobile or boom trucks--account for 57 percent of electrocutions.

The type of crane most likely to kill the operator is the boom-truck. Contact typically occurs with the rig's boom or load line. Boom trucks are designed with the controls located on the side of the truck chassis, or in some cases attached to a tether. With both designs the operator is in direct contact with the ground. When contact occurs between the equipment and the power line, the electricity looks for the shortest distance to ground. The operator is almost always in this path, and is electrocuted. But when a mobile crane contacts a power line, it is usually the rigger or ground worker who is electrocuted. Unlike the operator sitting in the cab, they are not isolated from the ground. If a contact occurs while the rigger is attaching a load, or guiding it with a tag line, electricity passes through the load line to the worker on the ground.

Drilling rigs, aerial buckets, backhoes, concrete pumps, and other high-reaching equipment account for another 29 percent of power line contacts. Fatalities associated with high-reach aerial baskets usually occur when the basket makes direct contact with the power line. Accidents involving drilling rigs, however, usually affect the ground workers. With most equipment, the largest number of contacts happen during machinery movement, and not during the setup or take-down phase. The exception is concrete pumps, when incidents tend to occur during the take-down phase. Apparently, during setup and use of the pump operators are more careful. But when the work is completed, they use less caution retracting and storing the boom.

The use of metal extension ladders around power lines is also a frequent cause of fatalities. One study on ladder electrocutions found that virtually all fatalities involved metal ladders. Ladder contacts usually occur during erection, lowering or relocation of the ladder.

Protect yourself from live power lines; look around your work area and identify the location of all power lines before you move or erect any equipment. Make certain that *no* part of *any* equipment can come within a minimum of 10 feet from the power line. And remember, this distance is greater for voltages above 50kV. Don't operate equipment around overhead lines unless you are authorized and trained to do so. Contrary to what many people think, overhead power lines *do* carry enough voltage to kill and most are *not* insulated.