

# It's Shocking

## *How Electricity Reacts With Your Body*

Electrical shock kills more than 100 workers each year and injures many more. A heavy electrical shock can stun your muscles and nerves and stop your heart and breathing. A milder shock can cause you to fall, resulting in bruises or broken bones. Knowing how shocks happen can help you protect yourself on the job.

### **How Shock Occurs**

Electricity follows the easiest path to the ground. It will flow through any conductive material, such as water, metal, certain chemical solutions or the human body. If you come in contact with electricity while you are in contact with the ground, you become part of an electrical circuit, and current passes through your body, causing a shock.

### **Effects on the Body**

The effects of an electrical shock depend on the type of circuit, its voltage, the pathway through the body and the duration of contact. Depending on these factors, an electrical shock may cause respiratory or muscular paralysis. Even a small shock can kill you if it passes through your heart and lungs. If a current does not pass through vital organs or nerve centers, severe injuries such as deep internal burns can still occur. Other effects include involuntary muscular reaction, which may cause falls resulting in bruises, bone fractures, or death.

### **Safe Equipment**

Equipment in your workplace is designed to protect you against electrical shock. Insulation, such as the material around tool and equipment cords, provides a barrier to electrical current. To be effective, cord insulation must be appropriate for the voltage and kept undamaged, clean and dry. Guards, which are some type of physical barrier, keep you from contacting energized equipment parts. Fuses, circuit breakers and ground fault circuit interrupters (GFCIs) cut off power if a circuit overload or short circuit occurs.

### **Safe Work Habits**

Because even the best equipment protection is not fail-safe, safe work practices are equally important for preventing electrical shock. Keep a prescribed distance from exposed energized wires or parts, and avoid using electrical equipment when you or the equipment are wet. Lock out or tag equipment that is de-energized for maintenance or repair. Always use grounded tools with circuits that are equipped with proper grounding or other protection. And use protective clothing and devices, such as rubber gloves, safety mats or special tools, when required.

### **Protect Yourself and Others**

Do your part to make sure your workplace has safe equipment—and use that equipment safely—to protect against the hazards of electrical shock. ❏

*Electricity tries to find the easiest path to the ground. Because the bird is not touching the ground while it is sitting on the power line, it receives no shock. But the man is standing on the ground when the metal pole he is holding touches the power line. He has become part of an electrical circuit, and the electricity will flow through him to the ground.*

