TARGET ON SAFETY

Electrical Safety

Why Should We Be Concerned?

Electricity is essential to almost every aspect of our lives today – at home and on the job. Since electricity is such a familiar part of our daily life, we don't always give much thought to the hazards electricity poses and often fail to recognise that even small amounts of electricity can hurt or kill us.

The Effects of Electricity on the Body

An electric shock can result in anything from a slight tingling sensation to immediate cardiac arrest. The severity depends on the following:

- Amount of current flowing through the body
- Current's path through the body
- Length of time the body remains in the circuit

This table shows the general relationship between the amount of current received and the reaction when current flows from the hand to the foot for just one second. Measurements are listed in milliamps – 1/1000th of an amp.

Current Level (in milliamperes)	Effect on the Human Body
1 mA	Perception level. Slight tingling sensation. Still dangerous under certain conditions.
5 mA	Slight shock felt; not painful but disturbing. Average individual can let go. However, strong involuntary reactions to shocks in this range may lead to injuries.
6 – 30 mA	Painful shock, muscular control is lost. This is called the freezing current or "let-go" range.
50 – 150 mA	Extreme pain, respiratory arrest, severe muscular contractions. Individual cannot let go. Death is possible.
1000 – 4300 mA	Ventricular fibrillation (the rhythmic pumping action of the heart ceases.) Muscular contraction and nerve damage occur. Death is most likely.

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Question: Can the current found in the average residence kill you? Yes. At any given time, there are as much as 10-15 amps available at any socket. Your circuit breakers are probably 10-amp or 15-amp breakers. The numbers in this chart are 1/1000th of an amp; far less than what flows through the sockets in a home.

Qualified or Unqualified?

Working with electricity requires specialised training. Electricians and electrical engineers are people who, because of their training, are qualified to work on electrical systems. Those without proper training are unqualified and cannot work or adjust electrical components. Re-wiring your basement or installing new sockets does not make you a qualified electrician.

Some Basic Reminders

Here are some basic reminders about electrical issues we face every day.

Electrical Panels: All electrical panels must have a clear space of 1 metre in front of the access panel and that clear space has to be maintained continuously. Nothing can be stored in front of the panels, even temporarily.

Extension Cables: Extension cables are to be used on a temporary basis only and never as a substitute for permanent wiring. Extension cables can become damaged and bare wires can be exposed. The plugs on extension cables need to be three-prong plugs so equipment is properly earthed. Always inspect an extension cable before use to make sure there are no breaks in the insulation. Look to see how and where extension cables are placed so they do not become a trip hazard and so they won't be driven over by motorised vehicles.

Trip Switches: Sockets in wet (or potentially wet) locations should be protected with a residual current device. It measures how much electricity goes out and how much comes back through the socket. When there is a deviation greater than 15 milliamps, it switches off within 1/10th of a second.

Conduit: Conduit (metal tubing) that has come loose from a junction box is a potential problem and should be reported.

Housekeeping

Excessive dirt, grease, oil and debris can create a potential hazard particularly when electricity is involved. When dust begins to accumulate on conduit or on wires, there is a potential hazard forming.

Final Thought

Electricity is used in just about everything. It is all around us and it is very helpful; it is also very dangerous when used incorrectly. When it comes to working with electricity, it is particularly important to remember: Think Safe. Work Safe.

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