

## **:: Electrical Safety ::**

There are four main types of electrical injuries that occur in U.S. workplaces: electrocution (fatal), electric shock, burns and falls caused as a result of contact with electrical energy. Occupational electrocutions are a serious problem. The Bureau of Labor Statistics Annual Survey indicates that approximately 10 percent of all occupational fatalities are due to electrocutions. This fact, coupled with the type and number of electrical hazards that can be found on job sites, makes it appropriate to provide employees with “refresher” information regarding electrical safety. All employees should make sure that electrical hazards within their workplace are reported immediately, machines are de-energized if being cleaned or serviced and electrical equipment is safe to use.

Electricity is an inherently dangerous but versatile source of energy. When it is used according to sound safety principles, personal injury and property damage can be effectively prevented. This section contains general information for the safe use of electricity. The national electrical code, as amended, OSHA (1910.301-308) and local electrical codes contain specific instructions for electrical circuitry and appliances.

### **Circuit Overload Protection**

Overloading electrical circuits is extremely dangerous and should not be permitted at any time. All systems shall be installed as intended by the manufacturer and in accordance with the national electrical code and local electrical codes.

Each electrical circuit breaker or fuse should be clearly marked with the name of the electrical appliance served by that circuit. Breaker or fuse identification allows for interruption of the electrical current to the circuit in the event of an emergency due to electrical shock or faulty appliances and assists in identification of circuit overloading. Breaker boxes should be accessible at all times.

### **Use of Extension Cords**

Extension cords used with portable tools should be of the three-wire type with three prong plugs, except when using double insulated tools. Plugs should be nonconductive. The user should ensure that the wire sizes of extension cords are capable of handling the load without

heating. Multiple plug-on attachments on extension cords shall not be used. Ensure that all extension cords are serviceable and free of exposed wiring and splices, frayed areas and/or deteriorated insulations. Extension cords must only be used for temporary purposes, not for permanent installation. Where there is a permanent need for an electrical outlet, one should be installed. While in use, the extension cord must not be placed in such a manner as to present a tripping hazard or under rugs, carpets or chair mats. Extension cords must not be placed where foot or vehicular traffic may damage them. Extension cords must not be run through holes in walls or ceilings or through doorways or windows.

### **Electrical Grounding**

All electrically-operated appliances shall be effectively grounded. Electrically-operated appliances may be grounded in the following ways:

- By an approved grounding type attachment plug, provided the ground wire is attached to the metal enclosure of the electrical conductors and to the plug connected to the equipment cord. The ground wire must be attached at all times while the equipment is connected to the power supply.
- By means of a grounding conductor run with the power conductors in the flexible cord connected to the appliance. The ground connection must always make contact with the electrical outlet ground while the appliance is connected to the power supply conductors.

Tools or appliances protected by an approved system of double insulation, or its equivalent, need not be grounded.

### **Inspection and Testing of Equipment**

All electrical equipment should bear the label of a nationally recognized testing laboratory such as the Underwriter's Laboratory (UL) or the Factory Mutual Engineering Corp. (FM).

Employees should conduct periodic inspections of all equipment to ensure that all cords are free of wear and splices and that the casing or insulating covering is free of