ELECTRICAL SAFETY

Electricity can be thought of as an energy that flows much the same as water. Water under pressure moves in a current at a rate that depends on resistance. Electricity (voltage) moves in an electrical current (amperage) that depends on the resistance (ohms) that it encounters. Today almost every worker depends on electricity in the workplace from lighting to energy for machines and tools, electricity has become an intricate part of our lives.

HOW CAN ELECTRICITY HARM YOU?

Did you know that there is enough electricity in an ordinary Christmas tree light bulb to kill you? Electricity harms and can kill you by giving you an electric shock. Electric shock is the passage of electric current through the body. Electric shock can happen without warning and even if the shock doesn't harm you, reflex action by your muscles may cause falls or sudden moves into other hazards. The degree of injury from shock depends on three things.

- Amount of current (amperage) that passes through your body
- Length of time you are in contact with the power source
- Path of the current (amperage) as it passes through the body

Remember that current (amperage) is directly related to the amount of resistance (ohms) that is encountered. We all know that water doesn't have much resistance to electricity, and even if you aren't wet, the human body is made up of mostly water. Even low current (amperage) passing through your body can disrupt the tiny electrical signals in your nerves and cause your heartbeat or breathing to stop.

HOW CAN YOU WORK SAFELY WITH ELECTRICITY?

QUALIFIED PERSONS

Only qualified persons can work on or near energized electrical equipment. A qualified person is one who by formal training is well acquainted with and knowledgeable about electrical equipment and electrical hazards involved with the work being performed. Training of qualified persons is regulated under OSHA 1910.331-335.

PORTABLE ELECTRIC TOOLS

Portable electric tools should be checked for the following:

- Broken insulation
- Improper or poorly made connections to terminals
- Broken or damaged plugs (three prong plug required unless your tool is double insulated)
- Loose or broken switches
- Sparking brushes

If any of these conditions exist, the tool must be repaired before use.

CORD AND PLUG CONNECTED EQUIPMENT INCLUDING EXTENSION CORDS

Extension cords and flexible cable must not be used as a substitute for fixed wiring of a structure. Cords cannot be attached to building surfaces, run through holes in the wall, ceilings, floors, or run through doorways, windows, or similar openings. Never remove the grounding post from a three-prong plug to make it fit a two prong wall opening. Make sure extension cords are the right size or rating for the tool you're using. Always unplug a cord by pulling on the plug, not by yanking the cord. Always handle cords and plugs in a manner that will not cause damage.

PORTABLE LADDERS

Ensure the ladders have non-conductive side rails where there is a potential for you or the ladder to contact energized parts.

MARKING

Marking on electrical equipment shall provide voltage, wattage, etc., with the manufacturers identification. Each disconnect shall be legibly marked to indicate its purpose unless located and arranged so the purpose is evident. Entrance to locations containing exposed live parts shall be marked with warning signs.

GUARDING

Live parts of 50 volts or more shall be guarded against accidental contact by means of approved cabinets or other forms of approved enclosures. Electrical cabinets must always remain closed, unless a qualified person is accessing the cabinet. If electrical cabinets must be left open for repair, a barricade or other form of guarding must be in place to prevent access by passersby or unqualified individuals.

MOISTURE

Do not use electrical equipment if your hands are wet or you are standing on a wet surface. Keep a towel or rag handy to dry your hands prior to using electrical equipment. As discussed previously, water does not offer much resistance to electricity. Portable electric tools, equipment and installations used around water must be manufactured and approved for wet or damp locations.

SUMMARY

Electricity is a silent, invisible force that can kill without warning if its dangers are ignored. Treat electricity with caution and respect you need not fear it. Treat it carelessly and you may be shocked by the result.

OSHA 29 CFR 1910.331-335