



Tool Box Safety Talk No. 10

September 2002

Electrical Safety

Familiarity can create a false sense of security, as electricity is always a potential source of danger. Consider all electrical equipment and cords dangerous until tested and proven otherwise. In roofing the three (3) sources for electrical hazards are tools, cords and portable generators. The best way to minimize electrical risks is to use rechargeable cordless power tools. If your not using cordless tools, roofers shall use the following safe work practices.

Tools

When roofing use only double insulated or grounded power tools. Properly grounded means that a power tool operates from a three (3) pole receptacle unless double insulated. Never cut off or bend back the ground pin on any three pronged plug to make it fit a two (2) pole receptacle. Double insulated tools are marked on their exterior casings with a D or a D inside a square. Check that the casing of double insulated tools is not cracked or broken, as a damaged casing may be the source of electrical shock or electrocution. Any electrical shock or tingle experienced while operating power tools indicates that the tool is defective and must be taken out of service, tagged, and be sent out for repair or replacement. Power tools shall be plugged into a ground fault circuit interrupter (GFCI) that detects current leaks and shuts off the power before injury can occur.

Do not use electrical tools that you are not familiar with. Always read the operation instructions prior to use. When operating electrical power tools never tamper with safety devices or bypass broken switches by plugging in and unplugging extension cords. Always disconnect the tool before making adjustments or changing attachments. Hold the power tool firmly, under control and have material well secured before operating the tool. Wear safety glasses whenever operating electrical power tools.

Always check for hidden electrical wires and other obstacles that may damage the tool or injure the operator before drilling, sawing or fastening in to walls or roof decks. Check the underside of steel decks for attached electrical conduits that may be punctured when mechanically fastening roofing system components to the deck surface. If electrical conduits are attached to the underside of the roof decking have the circuit breaker(s) turned off prior to work in that area.

Cords

Protect cords and plugs from traffic and damage. Inspect tool and extension cords for damage daily. Do not disconnect electrical cords by jerking or yanking on the cord, disconnect them by pulling on the plug. Check cords for kinks, cuts and cracks, broken insulation or exposed wires. Test for electrical continuity with an electrical circuit tester if damage is suspected. Do not make makeshift repairs to electrical cords, take them out of service and have them repaired or replaced. Check plugs for damage and replace open front plugs with dead front plugs. Dead front plugs are sealed and present less danger of shock or short circuit.

Whenever possible use only one (1) extension cord per power tool. When using power tools periodically feel the cord with your hand to determine whether it is warm, as cords may become warm when overloaded. Should the cord become warm, replace it with a cord made with the next size larger wire, replace a #14 with a #12 wire size cord. Do not mix extension cords of different wire guages and do not use more extension cord length than required to perform a task.

Electrical Generators

Electrical generators are required at locations where standard utility service is not provided or available. Electrical generators are often undersized for the job they are required to perform or are in such a state of disrepair that they cannot supply the required amperage. Generators like air compressors have design capacities. To determine the required generator size, one must determine the total wattage of power required to operate all tools at their maximum capacity. The wattage can be found on the tool nameplates. Study the manufacturer's operating instructions before attempting to operate a portable electrical generator. Portable electrical generators shall be serviced and inspected regularly to ensure their safe operation. Ground fault interrupters shall be checked prior to each use.

Hoist generators to roof level using the hoist or crane. Place electrical generators on a level surface. Generators shall be placed close to the work area to eliminate the need for excessively long extension cords. Place generators away from traffic areas, away from any standing water, the roof edge and roof openings. Shut the generator off whenever fueling or servicing it. If fuel is spilled wipe it up and always allow sufficient time for it to evaporate prior to restarting the engine. Use generators in well-ventilated areas or out of doors to prevent the risk of carbon monoxide poisoning. Ensure the muffler is in place to avoid noise discomfort and hearing loss.