Toolbox Talk # 9.04 – GFCI's

Ground Fault Circuit Interrupters (GFCI) are devices designed to prevent accidental electric shock and electrocution by preventing ground faults. They also protect against electrical fires, tool/appliance overheating, and destruction of wire insulation. GFCI's are required by building code in "wet" locations like kitchens and bathrooms and by CalOSHA at construction sites.

The most common electric shock hazard, ground faults can cause severe electrical shock or electrocution. In normal conditions, electricity runs in a closed circuit; electricity flows out on the "hot" wire and returns on the "neutral" wire, completing the circuit. A ground fault occurs when the electrical current does not complete its circuit and unintentionally flows to the ground. Ground faults can cause fires and are dangerous when they flow through a person to the ground.

Ground fault shocks can happen when a person comes into contact with the "hot" side of an electrical circuit with wet hands or while standing in water or on a wet floor. GFCI's protect against ground faults by measuring the current on the electrical circuit; current in the hot and neutral wires should be equal or close to equal. If a ground fault occurs, the GFCI outlet or GFCI circuit breaker senses the change in current and trips, breaking the circuit and stopping the flow of electricity. The GFCI does **not** protect workers from line contact hazards (i.e. a person holding two "hot" wires, a hot and a neutral wire in each hand, or contacting an overhead power line).

Different GFCI types are available for a variety of situations. GFCI circuit breakers snap into the main electrical panel and provide ground fault protection on all outlets on that branch circuit. GFCI wall receptacle outlets provide ground fault protection at that outlet and downstream. Portable GFCI units such as receptacles, extension cords, and cord-connected devices contain GFCI circuitry. Portable GFCI devices should only be used on a temporary basis and should be tested prior to every use.

GFCI's have test and reset buttons for a reason; they must be tested regularly. For general use, GFCI's should be tested and inspected monthly. For construction site GFCI's, a written inspection plan should be in place and a competent person should conduct periodic tests and visual inspections before each day's use. Records of the testing must be kept.

GFCI Inspections should look for external defects such as deformed or missing pins, insulation damage, and indications of internal damage. Damaged or defective equipment should not be used until repaired. Additional inspections are required if an outlet is returned to service following repairs and after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over).

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Project: _____ Date: _____

Supervisor: _____ Company: _____

Other safety issues covered or comments from crew members:

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Attendees:

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