Basic Electrical

This document RMI provides is for Basic Electrical knowledge. The bottom of this document contains an electrical safety checklist. This checklist does **NOT** act as a lockout tagout (LOTO) permit nor energized electrical permit. It is only for general safety checks.

Extension cords/Power Strips

- Extension cords should not be used in place of permanent wiring.
- Ensure that cords are in proper working condition (the outer insulation should not be cracked/broken, the ground pin needs to be intact).
- Discard unsafe extension cords.
- Only licensed electricians are authorized to replace plugs, or splice cords
- Extension cords need to be protected from motor vehicles, fork lifts, pallet jacks, heavy pedestrian traffic, etc.
- Power strips should not be permanently mounted to a wall or any other structure, even if the power strip has specific mounting fittings
- Power strips or extension cords should not be connected to each other. Doing this can overload the circuit creating a potential fire hazard.

Circuit Overload Protection Devices:

These devices are designed to protect the wiring in a house/building and to prevent potential fire.

- Fuses- Break the circuit when too much current is flowing through the circuit. A small conductor inside the fuse heats up and melts when it reaches a specific temperature.
- Circuit Breakers- As current increases in the circuit, an electromagnet inside the breaker generates increased magnetic force, eventually being great enough to pull the switch on the breaker from the “on” to the “off” position.

By: Nick McInnis
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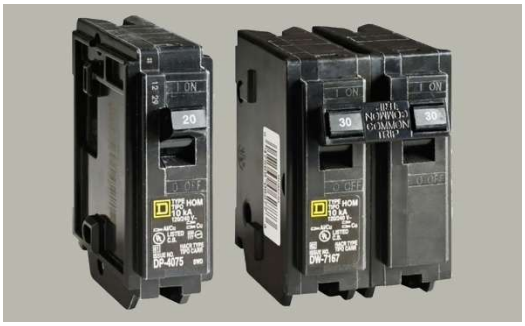

Ground Fault Circuit Interrupters

- GFCIs are designed to protect people from electric shock.
- A GFCI works by detecting a current drop from the heat to the neutral wiring in a circuit. The GFCI detects energy that is escaping the circuit.
- GFCIs should be installed wherever a water hazard is present.
- You will commonly find GFCI plugs on dryers, wet vacs, etc.
- GFCIs can be at the breaker, the outlet, incorporated with the plug of the appliance/piece of equipment, or part of a short extension cord.

Other common Electrical Safety Issues

- Discard any piece of equipment that gives you even the slightest shock. If the resistance through your body is lowered i.e. standing in water or touching metal, even the slightest shock can be deadly.
- Never use electrical equipment in or around water.
- Junction boxes and electrical panels need to have proper covers in place to conceal all wiring.
- Hard wiring should not be exposed/accessible to non-electrical employees.

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Electrical Safety Checklist

Electrical Questions	Yes	No
Are electricians trained on electrical safety (Electrical codes; NFPA70E; NFPA 70B)?	☐	☐
Are contracted electricians trained on same expectations?	☐	☐
When work on electrical equipment is being performed, are all disconnects and devices locked out and tagged out?	☐	☐
Before lockout tagout, do you perform a lockout tagout permit?	☐	☐
Are portable handheld electrical devices and equipment grounded or double insulated?	☐	☐
Does all electrical wiring at the facility have proper grounds?	☐	☐
Are all extension cords & equipment cords run so as to prevent damage to the cord insulation?	☐	☐
If extension cords are being used, are they placed where a tripping hazard does not occur?	☐	☐
Are extension cords only being used for temporary measures (anything less than 30 days)?	☐	☐
Are all extension cords in good condition?	☐	☐
Have all damaged extension cords been placed out of service?	☐	☐
Are electricians/contractors wearing the appropriate PPE for the job (Arc Flash Suits; FR Clothing)?	☐	☐
Are employees forbidden from working closer than 10 feet from high-voltage (over 750 volts) lines?	☐	☐
Are employees prohibited from working alone on energized lines or equipment over 600 volts?	☐	☐
Is the use of metal ladders prohibited in areas where the ladder or the person using the ladder could come into contact with energized parts of equipment, fixtures, or circuit conductors?	☐	☐
Are ground fault circuit interrupters (GFCI) placed in locations where moisture will be?	☐	☐
Are all cords, cable, and raceway connections intact and secure?	☐	☐
Is the location of electrical power lines and cables (overhead, underground, underfloor, other side of walls) determined before digging, drilling, or similar work is started?	☐	☐

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