



Section 20: Electrical Safety

1. General Information

- 1.1 This procedure applies to the installation of temporary and permanent electrical work and the use of electrical power to operate equipment and electrical power tools.
- 1.2 Approved, site-specific procedures must be followed for work on electrically charged components.

2. Electrical Safety Procedures

- 2.1 Temporary and permanent electrical work, installation, and wire capacities must conform to the National Electrical Code, applicable federal, state, and local codes and the EQ electrical guidelines or requirements provided by project managers.
- 2.2 Only qualified electricians familiar with code requirements are allowed to perform electrical work.
- 2.3 Employees are not permitted to work near an unprotected electrical power circuit unless they are protected against electrical shock by de-energizing the circuit and grounding it, or are protected by effective insulation or other means, and are wearing required personal protective equipment. Work around energized systems must be done in accordance with the site-specific procedure. If no site-specific procedure exists, the EQ EHS manager must approve the process.
- 2.4 Do not operate electrical tools or equipment in wet areas or areas where potentially flammable dusts, vapors, or liquids are present, unless specifically approved for the location.
- 2.5 Switches must be enclosed and grounded. Panel boards must have provisions for closing and locking the main switch and fuse box compartment.
- 2.6 Avoid wearing rings, necklaces, or other conductive apparel.
- 2.7 Extension cords:
 - A. Limit the use of extension cords as much as possible.
 - B. Extension cords used with portable electric tools and appliances must be extra hard usage as defined in ANSI/NFPA 70 Article 400 (Table 400-4), heavy duty (no less than 12 gauge conductors for construction work) and of the 3-wire grounding type conforming to the type and configuration required by OSHA standards. Acceptable types of flexible cords include hard service cord (types S, ST, SO, and STO) and junior hard service cord (types SJ, SJO, SJT, and SJTO).
 - C. Flat electrical extension cords are prohibited.
 - D. Where possible, elevate (at least 7 feet) or otherwise protect from damage, electrical cords and trailing cables that could create a trip hazard to people in the area. Repair electrical cords with heat shrink tape only. Do not splice damaged electrical cords.

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- E. Protect portable electric tools and cords by a ground fault circuit interrupter (GFCI) throughout each phase of the work. GFCI protection for temporary wiring is mandated on construction sites at all times.
 - F. Plugs must be of the dead front type.
- 2.8 In areas where water or moisture is present or likely to be present, always use GFCIs on power circuits. If permanent power circuits are not GFCI, use a portable GFCI box with electrical tools and equipment. Test GFCIs on a regular basis.
- 2.9 Should a circuit breaker or other protective device “trip,” ensure that a qualified electrician checks the circuit and equipment and corrects problems before resetting the breaker.
- 2.10 Provide suitable means for identifying electrical equipment and circuits, especially when two or more voltages are used on the same job. Mark circuits for the voltage and the area of service they provide.
- 2.11 OSHA regulations governing the operation of heavy equipment in proximity to high-voltage power lines are very specific. Wide loads over 10 feet require a specified escort. An outage approval must be obtained from the EQ EHS manager before heavy equipment, which can reach within arcing distance and is to be located within 50 feet of high-voltage lines or equipment, may be brought on site.
- 2.12 Do not leave electrical boxes, switch gear, cabinets, and electrical rooms open when not directly attended. Insulate energized parts when covers have been removed or doors are ajar. Do not use cardboard, plywood, or other flammable material to cover energized circuits.
- 2.13 The contractor should perform monthly inspections on drop cords, GFCIs, electrical tools and equipment.
- 2.14 A contractor may not use assured grounding conductor programs as a substitute for GFCI control. An assured grounding conductor program may be implemented in *addition* to GFCI control.