



ELECTRICIAN, BUILDING TRADES CHA

CHPRC Craft Specific Safety Hazards Analysis

Version 12

7/13/2017

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1.0 INTRODUCTION

1.1 Purpose

This hazard analysis applies to any Electrician, Building Trades employed by CH2M HILL Plateau Remediation Company (CHPRC) or Other Hanford Contractor (OHC) performing general craft specific work activities for CHPRC. The Craft Specific Hazard Analysis (CHA) covers general work activities performed routinely with limited, or no, work instructions and applies to those hazards that are not normally covered in work instructions, or technical procedures.

1.2 Scope

The CHA lists, by craft discipline, the hazards each craft person may be exposed to while performing work within their positions defined by the Building Trades Contract. Craft members, by discipline, are trained and experienced to recognize and mitigate those hazards consistent within their discipline.

This hazard analysis covers the Electrician, Building Trades performing general craft specific work activities. This hazard analysis is used in conjunction with the General Industrial Hazards Analysis document, and does not cover the environment in which these activities may be performed.

1.3 Applicability

Every CHPRC employee is expected to work safely and to maintain a safe work environment. The GHA and CHA documents identify the control measures for routine industrial hazards common to the core activities of the workers' assigned job position.

This hazard analysis is to be used in conjunction with PRC-WKM-PRO-079, Job Hazard Analysis, and Appendix B. After reviewing the work scope, location, the hazards involved, an evaluation is made to determine if this hazard analysis adequately bounds the work activity and can be considered skill-based.

2.0 RESPONSIBILITIES

The tasks listed are examples of the variety and general nature of duties performed by a Electrician, Building Trades. The list is descriptive only and should be used for no other purpose. It is not intended that any position include every duty listed nor is it intended that related duties cannot be required.

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3.0 HAZARDS

Activity / Hazard	Control
<p>Arc Flash Hazard</p> <p>The Arc Flash Protection Boundary (FPB) is 4 feet unless otherwise specified. This hazard statement does not apply to parts that operate less than 50 volts to ground or Class 2 circuits as defined by the NEC.</p>	<p>Assure an Electrical Hazard Evaluation (EHE) was completed</p> <p>Only persons with the correct PPE, as required for the hazard risk category, shall enter the flash protection boundary</p> <p>The correct PPE is determined by the Electrical Hazard Evaluation Form</p> <p>At least two qualified workers shall be assigned to any work inside the flash protection boundary or the restricted approach boundary of exposed parts operating at more than 300 volts phase-to-phase or phase-to-ground</p>
<p>Blind Penetrations less than 1-½ Inches</p> <p>Walls, floors, ceilings, roofs, or other surfaces</p> <p><i>This analysis does not apply to any work requiring an drilling, cutting or penetrating deeper than 1 ½ inches</i></p>	<p>Check both sides of penetration location for potential hazards whenever possible</p> <p>Cutting or penetrating asbestos, lead, silica, and other hazardous materials is not permitted without proper controls or applicable permits</p> <p>Note: Various piping systems, conduits, and electrical circuits are frequently embedded in concrete, block, piping insulation, and other inaccessible spaces. These hidden obstructions are frequently missing from drawings and may present risk of electrical shock and burns, hazardous chemicals, and other dangers. Thorough planning, hazard analysis, and safety precautions must be used whenever there is a possibility of contacting these hidden utilities.</p>
<p>Cutting or terminating neutral wires</p> <p>Note: Electricians should be aware that historic installations of non-code compliant wiring or the use of multi-wire branch circuits may be present in their facilities. Electricians should</p>	<p>Perform voltage check before and after cutting or de-terminating wires</p>

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expect that a neutral wire may go hot when cut.	
Electrical shock for Electrical Workers	Verify Electrical Hazard Evaluation (EHE) has been completed Automated External Defibrillator (AED) available in the general work area. Remove conductive clothing and accessories Control access to work area Nonconductive portable ladder Visually inspect and ensure all electrical equipment is in good working order. Use ground-fault circuit interrupters (GFCIs) on all 120-volt, single-phase, 15- and 20-ampere receptacles, or have an assured equipment grounding conductor program (AEGCP) Use double insulated tools and equipment, distinctively marked or properly grounded Use only equipment approved to meet NRTL standards Look for overhead power lines and buried power line cables Stay at least 10 feet away from overhead power lines and treat them as if they are energized Avoid standing in wet areas when using portable electric tools
Hoisting and Rigging Operations (Reference DOE/RL 92-36)	Verify a Designated Leader (DL) has been assigned for each H&R activity Only assigned craft will work inside a critical lift fall zone Use a trained spotter/flagman/signalman Erect barricades for crane work areas and rotating superstructures Ensure inspection is current for rigging equipment

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	<p>Inspect all rigging components, prior to use</p> <p>All employees (within the safety boundary “fall zone”) must wear a hard hat</p> <p>Notify supervisor to contact Electrical Utilities or Owner of overhead power lines if there is a potential of operating within 20 feet (6.1 m) of the overhead lines</p> <p>Use a trained spotter/line-watch inside LAB of overhead power lines</p> <p>Determine mobile crane travel routes/paths (e.g., obstades, bumps, changes in elevation, collocated workers, nearby structures)</p> <p>Remain current on OSHA Crane and Derrick Standard Briefing</p> <p>Establish Work Area and Fall Zone boundaries</p>
<p>Hot Work</p> <p>(Includes electric arc, oxy-fuel gas welding/cutting operations, heavy grinding, brazing, light grinding, tig or mig welding, or similar activities)</p> <p>Note: Hexavalent Chromium can be produced when welding, grinding, torch-cutting, metal buffing or metal polishing on stainless steel, chromium-containing alloy steel or chromium-containing non-ferrous alloys. It is formed when chromium-containing materials are vaporized especially when plasma arc</p>	<p>Check the MSDS/SDS for product contents before welding</p> <p>Verify a designated trained fire watch has been assigned</p> <p>Flame/fire retardant personal protective equipment</p> <p>Wear proper PPE for the task (previously IH approved - i.e. leather gloves, protective coveralls, leathers or FR rated clothing, protective goggles, respirator, and hoods)</p> <p>Remove the paint/coating at least 4 inches (10.2 cm) in every direction from the hot work</p> <ul style="list-style-type: none"> • When grinding wear face shield and safety glasses. • Verify paint has been tested for lead prior to removal <p>Inspect all leads, tools and equipment prior to use</p> <p>Physically ensure that the grounding lead has a good connection before you start welding</p> <p>Hot Work Permit - Follow applicable Hot Work Permit issued for work to be performed and have permit available for review</p> <p>All flammables / combustible material shall be kept clear of hot work areas</p>

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<p>cutting or gouging, SMAW “stick” or FCAW “flux core” welding. Chromium can be in the base metal, the welding rod or the wire. Zinc from galvanized materials. Always check the MSDS/SDS for product contents before welding.</p> <p>PRC-PRO-FP-40421, Hot Work</p>	<p>Perform housekeeping regularly to prevent the build-up of flammables / combustibles (cardboard boxes, paper, etc.)</p> <p>Utilize “flash-shields” when other employees or visitors may be exposed to grinding activities or ultra-violet rays (from welding arc)</p> <p>Verify adequate ventilation/local exhaust is in use for welding, cutting, and burning operations, as specified by Industrial Hygiene. Verify cross ventilation does not interfere with capture of local exhaust</p> <p>When possible, position work so that worker is upwind of welding fumes</p>
<p>New installation, modification or temporary wiring</p> <p>Rudy Cart and Mini Power centers</p>	<p>Perform continuity checks if installation is 240 VAC or greater</p>
<p>Testing and Troubleshooting</p> <p>Voltage and current measurements are the most common examples of electrical testing or troubleshooting. However, many troubleshooting tasks can be performed with circuits de-energized, which is the preferred method.</p>	<p>Verify Electrical Hazard Evaluation (EHE) has been completed</p> <p>Visually inspect test equipment to ensure it is adequately rated for the voltage being tested</p> <p>Wear proper PPE based on the Electrical Hazard Evaluation (EHE)</p> <p>Use nonconductive portable ladder</p> <p>Remove conductive clothing and accessories</p>