

## Los Rios Community College District – Job Safety Analysis

<b>Job Category: Electrician (For Specifics See Below*)</b>		
Required and/or recommended personal protective equipment: Gloves, non - skid rubber soled shoes, goggles, respirator, ear protection, protective clothing		
<b>Sequence of Basic Job Steps</b>	<b>Potential Hazards</b>	<b>Recommended Action or Procedure</b>
Ballast replacement: Obtain work order and proper replacement parts. Determine need and obtain special equipment required for task. Proceed to site. Clear area of all unnecessary personnel	Possible back injury or other physical injury, traffic accident causing bodily injury, heavy foot traffic at work site, falling objects	Use proper body mechanics in lifting and moving objects to avoid injury. Ask for assistance when needed. Observe all traffic rules and regulations when traveling to or from a work site. Wear seat/shoulder belts at all times. Do not exceed posted speed limits or beyond normal flow of traffic. Be aware of people in and around work site and proceed with caution. Rope off area with caution tape. Use second person to keep work area clear of people.
Shut off power to affected fixtures.	Electrical shock	Use approved lockout tag out procedure to electrical supply.
Use ladder to complete ballast replacement  Examine fixture for evidence of dripping tar. If so, PCB precautions must be taken unless ballast specifies “No PCB’s”.	Ladder slipping, lift tipping, falling hazard  Possible PCB contact or inhalation	Never use a metal ladder near electrical conduits or power lines. Never use stepladder leaned against a wall. Extension ladders must extend at least 3 feet above a roof or landing. Never use extension ladders to reach heights greater than 44 feet. Use scaffolds. Set ladders at 75 degree with the floor or ground. The horizontal distance from the wall to the foot of the ladder should never be more than ¼ the ladder’s length. Never go up or down a ladder with tools in your hand. It is best to raise them using a bucket and rope. Always face the ladder and grasp the side rails or rungs with both hands when going up or down, taking one-step at a time--do not hurry. One person at a time on a ladder. Check ladder for cracked or split side rails, for missing, broken, or otherwise defective steps (cleats, rungs, treads or U-shapes). Check for sharp edges and splinters on cleats, rungs, and side rails. Check for general weakened conditions. Keep ladder clean. If found to be unsafe, withdraw it from use and fix it at once, if possible. If irreparable, destroy it immediately to make sure it will never be used

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<p>Use ladder to complete ballast replacement (continued)</p> <p>Examine fixture for evidence of dripping tar. If so, PCB precautions must be taken unless ballast specifies “No PCB’s” (continued)</p>	<p>Ladder slipping, lift tipping, falling hazard (continued)</p> <p>Possible PCB contact or inhalation (continued)</p>	<p>again. Never stand on the top or next to the top rung of ladder that does not have a guardrail. Select the right type of ladder for the job to be done. Do not use two ladders spliced together. Do not use light household ladder for a heavy construction job. Make sure the ladder is not placed on a loose object or on uneven footing. To prevent slipping, equip the ladder with non-slip points or safety shoes, if practical. If not, secure the ladder firmly by lashing it with rope or by other means. Do not lean a ladder against a moveable object or against window sashes. Fasten a board securely across the top of the ladder to give a bearing on each side of the window. See that a helper stands guard in dangerous circumstances, as when a ladder is in front of a door. If there is a danger of a person or vehicle bumping into the ladder, have a helper stand guard or rope off the space with caution tape around the ladder. Remove any oil or grease from the soles of your shoes before using the ladder. Never work above the second rung from the top of a straight ladder. Hold on with one hand when working from a ladder. Do not over reach and do not push or pull if it will cause the ladder to move. If you are far away from something, you have to reach, take time to move the ladder closer. Do not straddle the space between the ladder and another object. Do not work on a ladder in high winds.</p>
Removal of lamps	Cuts from broken lamp, inhalation of toxic fumes	Use care when removing lamp, wear safety glasses. Do not breathe in gas from broken lamp.
Open fixture and examine interior for presence of tar and/or asbestos insulated wires.	Possible PCB and/or asbestos contact	Wear proper gloves, respirator, and other personal safety equipment. Prevent the spread of PCB’s and/or the release of asbestos fibers. Use approved non-petrochemical solvents to clean.

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Remove/replace ballast	Possible electric shock. Area and personal contamination with PCB's and asbestos, gaseous substances. Cuts, bruises, eye injury. Tripping, back injuries. Puncture through sole of shoe.	Place ballast in double bag and dispose of in proper container. Ensure lockout/tag out is still in place. Be cautious of sharp edges of sheet metal. Use proper tools, testing techniques, and proper test equipment. Utilize proper body mechanics for lifting and reaching to avoid injury. Clean area of trash, tools, spare parts and any other debris. Wear protective footwear.
Installation of electrical conduit, switches, receptacles and other electrical current devices  Energizing new circuit	Falls, muscle pulls, cuts  Electric shock, burns	Wear proper footwear and gloves. Do not extend from ladder to ground with weight in hand. Use proper body mechanics and get assistance in lifting and securing heavy or awkward items. Pull wire through conduit from comfortable position with secure footing. Make connection at load center last. Use appropriate ladder and stripping tool. De-energize load center while making final connection. Check continuity of wires for shorts before energizing. Check for proper voltage and amp draw. Energize under no load situation.
Attaching covers	Shocks and cuts	De-energize load center if possible. Use appropriate ladder. Wear gloves.
Clean up	Tripping, cuts and strains	Remove all pieces of conduit, wire and hardware not used. Wear gloves and utilize proper lifting techniques. Avoid over exertion. Sweep area if needed.
Using power saws, radian arm and table saws, portable power drills	Cuts and amputation, eye and ear injuries, puncture wounds, twisted limbs	Operate only following training on power equipment of any kind. Be sure safety guards are in place on all moving parts. Keep limbs clear of exposed blade surfaces at all times. Do not operate power tools while standing on a wet surface. Do not leave power tools connected to power source when not in use. Do not alter the ground plug to accommodate outlets not having safety features. Wear protective clothing, goggles, gloves, shoes when needed. Wear earplugs when noise level demands protection.

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Using pneumatic nail/staple gun	Puncture wounds, eye injury	Employees must have factory training and certification. Wear protective eye and ear equipment.
Hydraulic benders	Crushed limbs and amputation	Use only if trained in proper use and bender safety.
Power ditch digger, jackhammer and power compactor	Cuts and amputation, back injuries, eye and ear injuries	Use only if trained in proper use and operation safety. Wear eye/ear protection when needed.
Electrical equipment	Electrical shocks and burns, eye injury	Always work in pairs. Turn power off whenever possible. Wear eye protection where necessary. Perform work only if trained in proper electrical safety.
Cherry picker	Falls, electrical shocks, back injury	Use only if trained in proper operation, maintenance and safety equipment. Work in pairs. Use proper body mechanics to avoid back injury.
Using ladders and scaffolding	Falls, back injuries, electrocution	Never use a metal ladder near electrical conduits or power lines. Keep wood ladders free of splinters and metal ladders free of burrs. Never use stepladder leaned against a wall. Extension ladders must extend at least 3 feet above a roof or landing. Extension ladders should never be set so the distance from the wall to the base is greater than ¼ the ladder's length. Never go up or down a ladder with tools in your hand. It is best to raise them using a bucket and rope. Scaffolds should be equipped with side rails. Moveable or rolling scaffolds should not be moved while people are on top of them. Inspect all scaffolds prior to use. Never go up or down a ladder with your back to it. Keep ladder clean. Never stand on the top or next to the top rung of any ladder. Get help when raising or lowering large ladders. Secure ladders to walls with rope whenever possible. Ladders should make contact with floor--not tarp or drop cloth.

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Determining parts for job, acquiring parts, determine load source	Tripping, falling, muscle pulls, cuts, smashing toes or fingers, shocks, burns and electrocution	Use caution when troubleshooting area. Use proper ladder following ladder safety listed above. Wear gloves. Get help for lifting heavy items and use proper body mechanics. Keep area in front of load center clear to safe distance. Get help in removing large panel covers. De-energize buss if practical. Keep one hand in pocket when measuring voltages in an energized panel. Lock out disconnect when possible.
Drilling in concrete for anchors to support, conduit and equipment	Falls, sprains, muscle pulls and cuts	Use appropriate tool for drilling. Do not extend from ladder or platform. Make sure of level secure footing and wear protective equipment.
Oxy-acetylene welding	Eye injury, burns, fires and explosions	Train employee in proper care, use and operation of welding equipment. Maintain a fire extinguisher at welding sites and be trained in use of fire extinguisher. Do not attempt to weld in an enclosed area, provide proper ventilation. Do not attempt to weld on a system that is not vented. Wear proper eye, hand and body protection.
Using refrigeration gas charging equipment	Eye injuries, burns, frostbite, suffocation, poisoning	Train employees in proper care, use and operation of refrigeration gas charging equipment. Read Material Safety Data Sheet (MSDS) on each type of refrigerant that is being used. Instruct employee on the proper use of the reclaim and recycle equipment. Do not breathe the vapors. Avoid contact with eyes, skin and clothing. Store and use with adequate ventilation. Never use in a closed or confined space. In the event of a spill or leak, keep up wind; ventilate enclosed spaces until gas has dispersed. Do not smoke or operate internal combustion engines in immediate vicinity. Wear eye and hand protection when necessary.
Electric (arc) welding	Burns, eye injuries, fires, poisoning	Train employees in proper care, use and operation of welding equipment. Maintain a fire extinguisher at welding site and train in use of extinguisher. Wear eye, hand and body protection (leathers).

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Roof-top HVAC equipment	Burns, electrical shock, cuts, amputation, eye injuries, falls	Perform rooftop work in pairs. Disconnect power equipment whenever possible. Wear protective clothing, goggles, and gloves.
Boiler maintenance and repair	Burns, fires, explosions, suffocation	Only qualified, trained employees can do maintenance and repairs to boilers.
Maintenance/Inspections	Slipping and falling Strains and sprains	Exercise care in walking, climbing or otherwise assessing equipment. Check condition of ladders and safety belts that are to be used and required for high-level work. Check for proper lighting in area being worked in and report it to the supervisor if lighting needs attention. Do not indulge in horseplay on the job as it is extremely dangerous and will not be tolerated. Do not use alcohol or other intoxicating substances prior to or during work. Check floor conditions. Keep floors and platforms free from oil, grease and water. Be sure you have firm dry footing and a good grip before attempting any lifting. Get help if you are unsure of the weight of the object to be lifted.
Paints, paint thinners	Harmful materials/fumes causing skin problems or internal injuries	Follow safety instructions on the container if handling potentially dangerous substances. Otherwise, refer to the MSDS binder for instructions on handling, storing and disposing of hazardous materials being used. Wear protective clothing to prevent contact with skin. Use proper mechanical ventilation systems to prevent internal injuries. Make sure area is fully ventilated to disperse caustic fumes.
Lifting and carrying	Strains and sprains, back injuries	Use proper body mechanics to prevent injury. Keep back straight, bend knees and use leg muscles to lift heavy items. Get help for heavy items. Use handcart or dolly for heavy loads.

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Chemically, emotionally and psychologically imbalanced students	Physical harm	Contact college police for assistance and protection if student appears to be out of control. Use non-aggressive communication skills.
Office work (after hours, evenings/weekends)	Physical harm	Lock office door if working late at night and alert college police of your presence on campus.

Date: July 1, 1991 / Analysis By: Clarice Bettencourt / Reviewed By: Pete Sorrell

\*Note: This Job Safety Analysis form includes the following positions in the Los Rios Community College District: Building Automation and Systems Integration Analyst; Energy Management Controls Specialist; Environmental Systems Technician; Facilities Maintenance - Heating/Ventilation/Air Conditioning (HVAC)/Plumbing Supervisor; HVAC Mechanic; Lead HVAC Mechanic; Lead Maintenance Electrician; Maintenance Electrician; Maintenance Roofer/Carpenter; and Welder/Sheet Metal Worker.