

WESTERN MICHIGAN UNIVERSITY

TITLE: Medium Voltage Electrician – Licensed

GRADE: ST3

FUNCTIONS:

Maintain and repair 2.4kv (2400 volts), 4.8 kv (4800 volts), 13.8 kv (13800 volts), and other medium voltage distribution systems, including primary switches, unit substations, subway switches, and vaults. Maintain, perform, and repair work on energized medium voltage circuits, including the removal of fuses, links and buss connections.

Fabricate and install medium voltage controls, meter relays and circuit breakers. Test medium voltage electrical circuits in installed or repaired equipment, using electrical measuring instruments, such as DC high pots, mega ohmmeters and fault locators. Analyze malfunctions of primary medium voltage electrical equipment, using ammeter, voltmeter, ohmmeter drawings, visual inspection, meggers(megaohmmeters) and high potting equipment. Perform preventive maintenance activities, including periodic visual inspections and the testing of shunts, switches, series tripping devices, disconnects, and air circuit breakers. Assist with inspection of new medium voltage primary electrical installations for compliance with applicable state and local codes. Evaluate complex functions and malfunctions in electrical and/or electronic systems, develop solutions, and take corrective action. Able to implement innovative methods to meet specialized needs. Provide technical information, advice, operating instructions, and similar information to supporting skilled trades employees. Prepare records, detailed reports, recommendations, and similar information for supervisory and managerial use. Interpret blueprints, diagrams, sketches, circuit diagrams, onelines, computer diagrams, and job specifications. Identify and mitigate health hazards associated within the working environment. This position maintains, tests, and documents required certifications of Medium Voltage tools, testing equipment and personal protection equipment. The incumbent must be able to perform all of the duties and responsibilities of the ST2 Electrician classification.

This position provides highly skilled craft labor, working with tools to maintain the University's electrical distribution center and system, carrying up to 600 volts, of both single and three-phase electrical power. In maintaining the campus power distribution center and system, the incumbent maintains underground vaults and pole-mounted subsystems up to 120 feet above ground level. The incumbent pumps water out of vaults; inspects connections between spliced wires; removes deteriorated or damaged insulation from splices/cables; tightens splice connectors; and replaces insulation and retapes connections. This position inspects pole mounted transformers for loose connections, leaking fluid silicon coolant and bum marks or corrosion on or near connections in cut-outs. The incumbent tightens loose connections, replaces damaged or deteriorated insulation and taping. This position maintains exterior lighting, replacing bulbs, ballast, LED drivers, and fixtures, rewiring connections and rewiring or replacing sun (day/night) switches on light poles and exterior building lights.

This position installs repairs and replaces electrical components carrying up to 600 volts in building electrical systems; runs conduit and metal raceways from components to building power panels; and maintains and installs internal lighting. This position provides assistance with preventative maintenance of de-energized distributions systems up to 15Kv. The incumbent maintains and repairs conduit and wiring; pulls out damaged or deteriorated conduit and wiring; and installs new conduit and wiring. This position identifies operating problems in building/motor control panels and corrects problems.

The incumbent utilizes manual and power wrenches and screwdrivers, pliers, wire cutters, wire snippers, adjustable wrenches, hammers and levels to tighten connections and repair or replace damaged conduit, insulating material and

wires. The incumbent employs voltmeters, ampmeters, circuit testers and phase meters to evaluate the operating condition of control panels and identify problems. This position traces circuits using toners, checks the insulation value of wires with meggers and evaluates high voltage lines with tic tracers. Locate and repair underground wires using underground wire tracers and thumpers. The incumbent employs steel and/or fiberglass fish tape to pull new wires through conduits. This position uses a pump weighing 100 lbs to evacuate water from vaults. The incumbent uses mechanical lift devices to access pole mounted transformers and subsystems up to 120' above ground level, and accesses internal electrical systems and components as high as 50' above floor level with mechanical platforms. The incumbent may gain access to internal building electrical system components from catwalks or step or extension ladders. The incumbent must be able to work in restricted and confined spaces in order to access electrical components in confined spaces, crawl spaces, and steam tunnels.

The incumbent provides information required to update building and systems drawings to accurately reflect current status. This position determines inventory requirements for supplies, construction materials and replacement parts, and notifies supervisory personnel when (re)ordering is necessary. This position operates a motor vehicle to transport tools, supplies and materials to work sites. The incumbent organizes assigned work to minimize materials and man-hours required for proper completion of work, and instructs others in the operation of and preventive maintenance for all related tools and equipment.

This position maintains the work area, all tools, all equipment, all supplies and any assigned vehicle(s) in a neat, clean and orderly condition and performs all work in accordance with established safety practices. The incumbent must wear MIOSHA approved safety shoes as required by MIOSHA rules. Other protective gear must be worn when appropriate, including fire rated (FR) clothing as required and provided by the University. When working in vaults and tunnels, the incumbent uses confined space air quality monitoring meters to monitor for the presence of toxic gases. The incumbent must wear no loose-fitting clothing which might become entangled in equipment or machinery, posing a hazard to incumbent's safety. This position performs additional duties as requested by supervisory personnel.

QUALIFICATIONS:

The incumbent must be able to read and comprehend written instructions and safety regulations regarding the performance of job duties, and must have sufficient writing and mathematical skills to prepare estimates and supply requisitions. The incumbent must have, or be able to familiarize themselves with electronic communication devices for work orders and other communication. The incumbent must be able to interpret complex blueprints, diagrams, written specifications and operating instructions. Completion of a registered apprenticeship program, or an established, certified training program recognized by the University and written verification of a minimum of five (5) years' experience at the journeyperson level in the trade is required. The incumbent must possess, a State of Michigan Electrician's license. Possession of a valid Michigan driver's license is required for operation of any assigned vehicle used to transport tools, supplies, materials, and equipment between work sites.

In order to perform the essential functions of the job, the incumbent must be able to wear a tool belt weighing 20 lbs at all times while performing all functions. The incumbent must be able to ascend a six-foot (6') step ladder at least 15 times per day to repair, install and/or maintain ceiling lights and fixtures and to install and replace overhead conduit and wiring. The incumbent may be required to ascend ship's ladders and/or maintenance stairs to heights up to sixty feet (60') once per day in order to access exterior building lights and other electrical components. The incumbent must be able to work at heights ranging from six feet to one-hundred-and-twenty-feet (6' to 120') for two hours at a time for the entire length of shift. The incumbent must be able to operate a bucket truck and aerial lift to maintain site lighting. The incumbent must be able to enter and maneuver in, and work for two hours at a time in, restricted and confined spaces in order to repair and maintain electrical distribution subsystems in underground vaults. The incumbent may be required to transport materials weighing up to 50 lbs distances of 200 yards on occasion in order to access work sites.

The incumbent must be able to lift and manipulate and maneuver tools, conduit, wiring and other electrical components. The incumbent must be able to pull existing damaged or deteriorated wiring and conduit and to manipulate steel and/or fiberglass fish tape to run new wiring. The incumbent must be able to work for two hours at a time at shoulder level or any intermediate level up to and including directly overhead. The incumbent must be able to tighten/loosen connectors and make fine adjustments in connectors. The incumbent must be able to use screwdrivers, pliers, wire cutters, wrenches, and other tools of the trade to install, remove, dismantle, adjust, reassemble and re-install conduit, raceways, wiring, fixtures and other electrical components. The incumbent must be able to work at floor/ground level and/or in restricted spaces and confined spaces up to two hours a time for the entire length of shift in order to access electrical components.

In order to obtain a valid Michigan driver's license, the incumbent must possess 20/40 vision with or without corrective lenses. The incumbent must possess 20/20 vision with or without corrective lenses and be able to properly place and align conduit, raceways, wiring and other components. The incumbent must be able to accurately distinguish colors in order to accurately identify, trace and match electrical wires.

The incumbent must be able to tolerate exposure to extreme temperatures ranging from - 25 F to 130 F, depending on seasonal weather conditions and location of interior/exterior work assignments. The incumbent must be able to tolerate noise levels up to 95 decibels when working in mechanical rooms and other areas and must be able to tolerate exposure to dirt, dust, pollen and other airborne debris. The incumbent must be able to work in proximity with 120 - 13,800 volt power sources up to eight hours per day. The incumbent must be able to tolerate exposure to dampness in underground vaults.

A physical examination administered by the employer's designated physician is required to determine the incumbent's ability to perform the essential functions of the job and/or identify the need for a reasonable job accommodation.