# WESTERN MICHIGAN UNIVERSITY

**TITLE:** **Building Automation Specialist**

**GRADE:** **ST-2.5**

**FUNCTIONS:**

This position provides journey level craft labor, working with tools to install, repair, replace and perform preventive maintenance for environmental control systems in all campus facilities. The incumbent installs, repairs and maintains valves up to ¾ inch in diameter, thermostats, sensors, dampers, and other components of pneumatic, electric and electronic systems controlling the delivery of heat/hot water and/or air conditioning/chilled water to University facilities in order to maintain proper environmental temperatures. This position installs control valves in building heating and cooling systems; rebuilds valves operated by hydraulic, electric or pneumatic controllers; removes and replaces damaged or deteriorated packing in valves; and changes and adjusts diaphragms in valve activators. The incumbent repairs, replaces, adjusts and calibrates thermostats and sensors controlling individual rooms and large air handlers. This position adjusts valves controlling the flow of liquid to coils. This position inspects and adjusts dampers to ensure proper opening and closing as specified by manufacturers and maintains damper motors and activators to maintain damper function. The incumbent visually inspects and observes pressure and vacuum gauges, and adjusts controls to insure proper operation. This position tests joints and connections for leaks, and installs replacement pipe/tubing and joints/couplers. The incumbent inspects, repairs and replaces variable air volume (VAV) boxes located in ductwork. The incumbent follows and changes computer software programs as necessary to troubleshoot and correct DDC control routines.

The incumbent uses computers as a diagnostic tool when working on digital controls. The incumbent installs pneumatic and electronic control systems, including sensors, thermostats, receiver controllers, valve and damper actuators, electric and pneumatic relays, and DDC controllers. Installs wire for control systems. The incumbent utilizes small, specialized wrenches to adjust thermostats, and may manually adjust small screws when calibrating thermostats. This position employs pipewrenches, wrenches, screwdrivers, hammers, chisels, drills, grinders, pliers, threaders and portable band-saws to remove defective or damaged and install replacement piping, valves, joints and other components of control systems. The incumbent uses welding/brazing torches to join pipes and valves up to ¾ inch in diameter. The incumbent employs a multimeter and other meters and gauges to measure voltage, temperature, humidity and other conditions. This position maintains and repairs valves up to ¾ inch in diameter, controls, ductwork concealed in walls and ceilings, and control systems located in mechanical rooms, steam tunnels, confined spaces, and on rooftops. This position works from floor/ground level to a height of four feet (48") without scaffolding or ladders and above four feet with the use of ladders and scaffolding. The incumbent accesses roof top control systems with the use of ladders, ship's ladders, maintenance stairs or mechanical lift devices.

The incumbent provides information required to update building and systems drawings to accurately

reflect current status and, as assigned, may assist in the technical training of an apprentice. 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 so as to minimize materials and manhours 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 at all times and must wear a hard hat, gloves and safety glasses when appropriate. When working in vaults and tunnels, and confined spaces, the incumbent uses confined space air quality monitoring meters to monitor for the presence of toxic gases. A face shield, leather apron and MIOSHA approved leather gloves are required when using welding equipment. Other protective gear must be worn as required by MIOSHA Rules. 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 experience with Windows programs. Must have a basic understanding of various communication protocols such as Lon, ASD, ModBus, BackNet, BackNet over IP. Must have a basic understanding of Building Automation System (BAS) software such as Tridium Niagra N4, AX, and/or R2. Must have experience with troubleshooting, operation, programming and maintenance of variable frequency drives. The incumbent must be able to interpret complex blueprints, diagrams, written specifications and operating instructions. Must have the ability to familiarize themselves with electronic communication devices for work orders and other communication. Completion of a registered apprenticeship program, or an established, certified training program recognized by the University and/or written verification of a minimum of five (5) years experience at the journeyperson level in the trade is required. 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 20 times per day to repair, install and/or maintain equipment concealed in ceilings, walls, and self-contained equipment frames, as well as wall-mounted units. The incumbent must be able to enter and maneuver in restricted spaces in order to access equipment components and piping. The incumbent may be required to ascend ship's ladders and/or maintenance stairs to heights up to sixty feet (60') in order to access control systems and other equipment mounted on roof tops. 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 time for the entire length of shift. The

incumbent must be able to transport tools, components and devices up and down ladders to roof-tops and to lower mechanical rooms.

The incumbent must be able to transport, manipulate and maneuver tools, thermostats, valves, gauges and piping/tubes. 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 and make fine adjustments in valves, controls, gauges and thermostats. The incumbent must be able to use wrenches, pipewrenches, screwdrivers, pliers, torches, and other tools of the trade to install, remove, dismantle, adjust, reassemble and re-install piping, control gauges, valves up to ¾ inch in diameter, thermostats and other control elements and components. The incumbent must be able to work at ground/floor level and/or in restricted spaces and confined spaces up to two hours at a time for the entire length of shift in order to access HVAC control systems and equipment.

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 tubes, pipes and other components. The incumbent must be able to accurately read temperature, pressure and fluid level gauges, and air-monitoring equipment.

The incumbent must be able to tolerate exposure to extreme temperatures ranging from $-25^0$ F to $130^0$ 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 440 volt power sources up to eight hours per day. The incumbent must be able to tolerate exposure to dampness, freon and other gases. Additionally, the incumbent must be able to tolerate exposure to microwaves, fans, blowers, motors, and other mechanical equipment in building mechanical rooms, tunnels, and other locations, and to live steam in mechanical rooms and hydronic heating system pipes. The incumbent must be able to work in close proximity with pipes at $215^0$ F.

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 reasonable job accommodation.