

## WESTERN MICHIGAN UNIVERSITY

**TITLE:** Pipefitter/Steamfitter

**GRADE:** ST4

**FUNCTIONS:**

This position provides highly skilled craft labor, working with tools to install, repair, replace and perform preventive maintenance for all elements of the University's heat and hot water distribution system. The incumbent installs, repairs and maintains all piping and devices required for the delivery of steam and return of condensate for heating and domestic use, including air separators, expansion tanks, domestic hot water heaters, valves, strainers and traps. This position inspects and traces piping; cuts or breaks existing fittings and removes damaged and/or deteriorated segments of piping; threads new pipe under 4" in diameter to receive new fittings; and installs new fittings to reconnect replacement pipe under 4" in diameter or welds replacement piping over 4" in diameter to existing sound piping material. The incumbent installs, repairs and replaces underground pipes, pipes located in vaults and steam tunnels, and pipes concealed in floors, walls and ceilings. The incumbent works from ground/floor level to heights up to 48 inches without the use of scaffolding and ladders, and above 48 inches with scaffolding or ladders. This position bleeds hydronic heating systems to remove excess air and correct water flow. The incumbent cleans coils in hydronic heating systems and domestic water heaters, and changes coils in heat vent units. The incumbent removes coils from domestic water heaters and soaks them in 55 gallon barrels of muriatic acid to remove lime and other deposits. This position removes and replaces heat vent unit coils with the assistance of 2-3 other tradespeople. The incumbent tests traps in steam heating lines, checking the functioning of parts, and replacing or repairing traps as required. This position repairs heating elements and wall-mounted convectors and changes building relief valves. This position repacks valves, removing damaged or deteriorated packing, cutting packing to size, and reinstalling packing.

The incumbent utilizes shovels to locate underground pipelines, to dig out pipes as necessary, and to clear pathways for backhoe equipment used to excavate pipe for maintenance and repair. This position employs pipewrenches up to 36", wrenches up to 1.5"; sockets up to 1.5" and other tools including hammers, chisels, screwdrivers, drills, grinders, pliers, portable band-saws and other hand and power tools to break fittings and unions, section out damaged and deteriorated pipes, and cut and size replacement pipe. The incumbent uses shop and portable threaders to thread new pipe, and employs arc and gas welding equipment to weld pipe over 4" in diameter. This position utilizes a portable generator to power electrical equipment in the field. The incumbent uses 20 lb and 40 lb portable torches to solder heating elements. This position employs packing jigs and packing solder. When working in vaults, confined spaces and tunnels, the incumbent uses confined space air quality monitoring meters to monitor for the presence of toxic gases.

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 as required by MIOSHA rules. The incumbent must wear a respirator when working in vaults, tunnels and other confined spaces. A face shield, leather vest and MIOSHA approved leather gloves are required when using welding equipment. 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/or written verification of a minimum of five (5) years experience at the journeyman level in the pipefitter trade is required. The incumbent must possess documented welding experience in a commercial application. 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. A state of Michigan Plumbers license is desired.

In order to perform the essential functions of the job, the incumbent must be able to enter and maneuver in restricted spaces in order to access pipes located in steam tunnels, confined spaces and vaults. The incumbent must be able to enter and exit ditches ranging from 5 feet to 12 feet in depth with or without ladders or mechanical devices in order to access underground piping which has been excavated for repair or replacement. The incumbent must be able to load/off load from an assigned vehicle a portable generator weighing 150 lbs and transport said generator to work sites with or without the assistance of another tradesperson and/or mechanical devices. The incumbent must be able to apply 125 foot-pounds of torque to a pipewrench to loosen/force pipes, or bolt/unbolt flanges.

The incumbent must be able to remove and replace heat vent unit coils weighing 140 lbs and measuring 4' x 4' x 10' with the assistance of other tradespersons and/or mechanical devices. The

incumbent must be able to lift and carry or otherwise transport materials weighing 10-100 lbs distances up to 100 feet to access work sites.

The incumbent must be able to transport, manipulate and maneuver tools, torches, pipes, couplings and coils. 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 when installing, repairing and/or replacing pipes located in steam tunnels. The incumbent must be able to tighten/loosen and make fine adjustments in valves, controls and gauges. The incumbent must be able to use pipewrenches, wrenches, screwdrivers, hammers, chisels, torches and other welding equipment, threaders, grinders, drills, and other tools of the trade to install, remove, dismantle, adjust, reassemble and re-install coils, piping, gauges, valves and other components of hydronic heating and domestic hot water systems. The incumbent must be able to work at ground/floor level and/or in restricted spaces up to two hours at a time for the entire length of shift in order to access traps, underground pipes and other piping.

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 coils, tubes, pipes and other components, and accurately join or weld piping sections or other elements. The incumbent must be able to accurately read temperature, pressure and other gauges, and air-monitoring devices.

The incumbent must be able to tolerate exposure to extreme temperatures ranging from -25<sup>0</sup> F to 130<sup>0</sup> F, depending on seasonal weather conditions and location of interior/exterior work assignments. The incumbent must be able to work with pipes at temperatures up to 185<sup>0</sup> F. 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 live steam up to eight hours per day. The incumbent must be able to tolerate exposure to dampness, and to 440 volt power sources, and must be able to tolerate exposure to cleaning agents. 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.

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.