



FACILITY ENERGY TECHNICIAN 4

4035

GENERAL DESCRIPTION OF CLASS

The FACILITY ENERGY TECHNICIAN 4 specializes in design, development, installation and administration of Computer Controlled HVAC/R Systems for remodeled or new building systems to efficiently generate heat, ventilation, air conditioning and refrigeration in state owned buildings and facilities.

DISTINGUISHING FEATURES

This class is the fourth level of a four-level series. The Facility Energy Technician 4 is distinguished from the Facility Energy Technician 3 by the responsibility for the design, development, installation and overall administration of Computer Controlled HVAC/R systems.

DUTIES AND RESPONSIBILITIES

The duties listed are characteristic of the type and level of work associated with this class. Individual positions may do all or some combination of the duties listed as well as other related duties.

1. Heating, Ventilation and Air conditioning (HVAC)

Administer the operation of HVAC systems in state owned and operated buildings and facilities. Use computers to monitor HVAC systems, temperatures, and pressures. Troubleshoot building HVAC systems in response to trouble calls. Use building plans, equipment documentation, electrical diagrams, controls program logic, control sequences, digital thermometer, and volt/amp multi-meters to assist in troubleshooting HVAC system problems. Design new control systems or replacement systems and the sequences of the equipment operated by those systems. Set up building trends to monitor building energy usage. Set up historical data logs from the trends to be used in analyzing energy conservation efforts. Create and modify control schemes for efficient control of Building Automation systems, within energy management guidelines and customer requirements.

2. Computer Controlled HVAC/R Systems

Create customized control programs using mathematical formulas and sequential logic to create efficient Computer Controlled HVAC/R and mechanical systems. Install and configure Computer Controlled HVAC/R Systems in state facilities by running conduit, pulling wire, and making final connections to controllers, relays, pneumatic/electronic interfaces, and communications networks. Install and maintain the local area network (LAN) between the host controller and the fiber optic connection in each building. Install and maintain Public Unitary Protocol (PUP) networks between host and connected unitary controllers in each building. Install and maintain Public Host Protocol (PHP) networks for dial-in and dial-out for monitoring and alarming of HVAC systems in dial-up buildings. Troubleshoot and maintain laboratory control systems to provide the required negative space pressures, air pressures, air changes, and fume hood flows necessary to satisfy environmental and worker safety regulations while also maintaining tenant comfort. Review control system specifications and plans, including inspection of work performed and document review. Retrofit existing outdated or malfunctioning pneumatic control systems with new Computer Controlled HVAC/R System, within cost and spending limits. Work with engineering groups to implement control schemes as they are laid out in specific mechanical upgrade projects. This includes chiller, cooling tower, damper, and boiler replacement projects. Integrate the mechanical systems with Computer Controlled HVAC/R System. Design the control sequences and create custom programming to operate systems to perform lead/lag and alarming functions while integrating the systems with the

complete building HVAC system. Create project documentation to provide operational sequences, flow charts, hard copies of SPL programs, and other drawings and text information which provides all the information needed for help in the operation and troubleshooting of the systems after installation. Administer building HVAC, lighting schedules, Emergency shutdown procedures in state buildings and facilities.

The duties listed below are for positions that work with adult or youth inmate workers:

Employees coordinate work flow and assign work to adult or youth inmate workers. They direct inmates to follow rules, policies, procedures and security guidelines; instruct and train inmates on work techniques and procedures, and in safe and efficient operations of tools and equipment. Employees evaluate inmate work performance; search inmates and area for contraband; verify and sign inmate time cards; monitor work area for cleanliness and order; and direct inmates in cleaning methods.

RELATIONSHIPS WITH OTHERS

Employees in this class are in daily contact with a variety of people including agency staff, students, patients, inmates, or agency clients in person or by telephone to complete assigned tasks. Employees are in occasional contact by phone with manufacturer representatives, consultants and engineering firms to obtain technical information, and with equipment vendors to order parts. Employees are also in daily contact with other trades employees to coordinate and control installation with other construction-related activities. Employees may direct and instruct other staff on projects. Employees may direct, instruct and coordinate adult and youth inmate work crews.

SUPERVISION RECEIVED

The Facility Energy Specialist 4 independently plans and coordinates all work involving Computer Controlled HVAC/R Systems. Employees receive work assignments and general supervision from an administrative supervisor. The supervisor or manager assigns work orally or through a written job order which may include control diagrams, blueprints, or maintenance instructions. Work is reviewed in progress or upon completion for quality and compliance with standards. Supervisory control typically does not extend beyond approval of priorities, schedule and final work product.

KNOWLEDGE AND SKILLS (KS)**Extensive knowledge of:**

HVAC/R and physical plant systems (all components and how they work together as one system) in large buildings.
Refrigeration processes and equipment, as related to large building HVAC/R systems.
Computer Controlled HVAC/R System processes and equipment, as related to large building HVAC/R systems.
Heating processes and equipment (such as steam & hot water boilers and electric strip heat).
Pneumatic and electrical controls as they relate to HVAC/R systems.
Computers, communications networking and related software used in the control of HVAC/R systems.

General knowledge of:

Standard practices, methods, tools and materials used in the refrigeration and controls trade.
Internal operation of refrigerators, freezers, water heaters, air conditioners and other types of heating and cooling equipment.
Hazards and safety precautions of the HVAC/R and refrigeration trades.
Computer Controlled HVAC/R, Pneumatic, and electrical, control systems as they relate to HVAC/R and refrigeration systems.
Electrical motors and pumps of the HVAC/R and refrigeration trades.

Basic knowledge of:

Electronic heating and cooling systems.
HVAC/R application software used to repair and maintain HVAC/R equipment.
Electronic heating and cooling systems related to HVAC/R and refrigeration.

Skill to:

Maintain and repair electrical motors and pumps typical of the HVAC/R and refrigeration industry.
Maintain and repair commercial or domestic refrigerators, freezers, and air conditioners.
Locate and repair defects in HVAC/R electrical control and refrigeration equipments.
Use the tools and equipment required of the HVAC/R and refrigeration trades.
Read schematic control diagrams, and interpret control programming language, related to HVAC/R and refrigeration.
Create custom programs used in Computer Controlled HVAC/R Systems.
Read blueprints and work from sketches related to HVAC/R and refrigeration.
Operate, maintain, and repair large chillers.
Create trends to use in troubleshooting processes.
Maintain and repair Computer Controlled HVAC/R systems and related communications networks.

NOTE: The KNOWLEDGE and SKILLS are required for initial consideration. Some duties performed by positions in this class may require different KS's. No attempt is made to describe every KS required for **all** positions in this class. Additional KS requirements will be explained on the recruiting announcement.

Adopted 10/2005

Revised

STATE OF OREGON
 Dept. of Administrative Services
 Human Resource Services Division