SNOHOMISH COUNTY JOB DESCRIPTION

BUILDING SYSTEMS ENGINEER

Spec No. 7024

BASIC FUNCTION

To provide advanced building control and facility security system design, development, implementation and documentation for efficient deployment and preventive maintenance in a multiple building management environment within a public sector operational setting including detention facilities that can directly affect the health and safety of the occupants. Leads complex building maintenance projects to ensure resources are fully utilized in the most efficient way. A journeyman level maintenance technician at the most technically complex level in electrical, power distribution, programmable logic controls, human machine interface and electronic systems that encompass fire and life safety, security, access control, video, electrical and HVAC. Uses principals and theories to efficiently solve technical problems.

Acts as subject matter expert and is responsible for the project development, implementation, and oversight of complex and critical systems such as electronic security, fire alarm, HVAC controls and electrical generation and distribution for multiple county buildings as assigned. This employee mentors other maintenance technicians, provides project site supervision of employees and contractors, and inspects others' work.

STATEMENT OF ESSENTIAL JOB DUTIES

1. Designs, plans, implements, and troubleshoots electrical, mechanical, and security systems, fiber optic systems, electronic surveillance cameras and systems, electronic noise abatement systems and any other electronic security systems as required for the facility; provides preventive maintenance to reduce equipment downtime and energy efficiency; evaluates technical adequacy and liability of systems that support safe operations in detention facilities.

2. Troubleshoots and solves intertwined facility systems problems; delivers cost effective and timely solutions; develops and implements complex programming for a variety of programmable logic controls related to security systems, access controls and HVAC controls; utilizes various communications protocols, network communications, and various applications to produce and modify control and ladder logic programming, basic scripts and uploading programs to PLC as well as development of human machine interface (HMI) for a variety of systems used in County buildings such as Johnson Controls Metasys, Staefa, PCSC Security Systems, Wonderware, Modicon, and GE Fanuc applications.

3. Ensures the integrity of county building systems, including jails, by applying expert knowledge and skills in multiple integrated specialties, understanding our customers' needs of the facility systems and how facility technicians maintain the systems using proficiency in both mechanical and systems programming job functions related to electrical systems, fire systems, building management systems and building security systems.

4. Evaluates the condition of buildings, systems, and equipment to determine life cycle, providing prioritized capital and expense projections.

STATEMENT OF ESSENTIAL JOB DUTIES (Continued)

5. Develops creative, practical solutions, acting as county liaison with technical engineering and hardware contractors to lead complex building system and security projects to completion by efficiently allocating available resources and time and implementing the most effective processes for completion.

6. Periodically inspects key electronic and electrical equipment; advises as to corrective and preventative maintenance measures needed; identifies and implements any necessary changes to operation instructions for equipment or systems.

7. Insures compliance with NEC70E and UL508 maintenance procedures for power distribution, emergency and stand-by generators; insures compliance with projects' regulatory agencies; oversees annual compliance testing and inspections for all systems including fire alarm confidence testing.

8. Regularly leads department level preventative maintenance planning; provides recommendations to maintenance program leaders on most effective approaches to handle maintenance issues; is an active participant in the County's green initiatives.

9. Develops, customizes and delivers training and mentoring support for maintenance technicians and may recommend training areas/programs for specific maintenance personnel to maintenance supervisor.

10. Independently, and as a team leader, develops and publishes maintenance and installation standards, based on industry standards (ASHRAE, IEEE/ANSI, etc.) for the installation and maintenance of county systems; insures that all documentation is kept current with changes to the systems.

11. Prepares specifications for projects, obtains project related permits and oversees projects of substantial complexity: coordinates with Department of Information Services as necessary.

12. Develops project cost estimates, provides input to Division budgets, tracks actual project expense, maintains control of project expenditures, and recommends alternatives to keep the project on schedule and within the budget; supervises project contractors and vendors.

13. Identifies inventory of critical components to minimize operational downtime.

14. Performs all duties in accordance with established safety procedures; recommends changes to enhance safety; ensures compliance with jurisdictional authority and correct interpretation of building code; ensures efficient use of power, safe disposal of hazardous material and recycling of reusable material.

STATEMENT OF OTHER JOB DUTIES

15. Performs other duties as assigned.

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MINIMUM QUALIFICATIONS

A Bachelor's degree in mechanical or electrical engineering or computer science and eight (8) years experience in three of four major areas of skilled commercial or industrial concentration: Electrical, Low-Voltage Digital Systems (fire alarm, building automation controls, security, CCTV, etc), Access Controls, Mechanical and HVACR; OR any equivalent combination of training and/or experience that provides the required knowledge and abilities. A breadth of competencies in Electrical, Power Distribution, Controls, Elevator, Fire Alarm, Boiler, Sprinkler, Plumbing supported by certifications or licensing issued by a Federal, State, County or Municipal Authority is preferred. Must pass job related tests.

SPECIAL REQUIREMENTS

A valid Washington State Driver's License.

A valid First Aid/CPR/AED card within six (6) months of employment.

Washington State Electrical License: 01, 06 or 07 required (01 preferred).

A job offer will be conditioned on satisfactory results of a criminal history background investigation, and post offer physical exam or inquiry.

A written and field test may be required.

KNOWLEDGE AND ABILITIES

Knowledge of:

- control and process logic, various communications protocols (BACnet, MODbus, LON Works, TCP/IP) as well as network communications infrastructure;
- Johnson Controls Metasys, Staefa, PCSC Security systems, Wonderware, Modicon, GE Fanuc Intellution/Proficy applications required;
- writing control and ladder logic programming, basic scripts and uploading programs to PLC as well as development of HMI;
- integrated network connected systems, alarm systems, CCTV, fire and security systems; electronics, programmable logic controls and audio/video theory;
- industry-standard practices and vendor-recommended troubleshooting and repair procedures;
- buildings and infrastructure systems including structural, building envelope, wall/floor/ceiling, electrical, power distribution, telecom/data-com, mechanical, plumbing, access controls, life safely, and vertical transportation;
- predictive maintenance;

KNOWLEDGE AND ABILITIES (Continued)

- working knowledge of project planning, management and methodologies;
- practices, tools, equipment and materials used in the electrical and electronic trade;
- mechanical and electrical locking and signaling systems and keyways;
- principles, methods, tools and equipment to install, test, maintain and repair electronic equipment;
- technical design specifications;
- safety regulations and the hazards associated with the work;
- the tools, materials, methods and procedures associated with HVAC, carpentry, electrical, security, plumbing and mechanical maintenance work;
- general commercial building systems;
- general CMMS commercial building systems and scheduling modules;
- how to solve technically complex problems;
- tools, methods and procedures utilized in the various skills required to maintain facilities;
- work standards needed within correctional facilities;
- AED, CPR and first aid methods and techniques.

Ability to:

- listen and interpret client, coworker and contractor needs;
- manage the workloads and schedules of subordinate technicians and contractors via group planners and coordinators;
- demonstrate leadership skills, lead by example, and provide direction to others;
- prepare product documentation, write reports and give presentations;
- communicate effectively orally and in writing with people of all ages and from a variety of cultural, economic and ethnic backgrounds;
- take corrective action in a win-win manner;
- set priorities and adapt to changing priorities;
- adapt to different work cultures;
- meet deadlines and schedules;
- establish and maintain effective work relationships with a diverse group of superiors, subordinates and co-workers in a wide variety of circumstances;
- diagnose and troubleshoot complex electrical and electronic problems and perform needed repairs;
- identify customer requirements and define scope;
- design and/or specify systems and products;
- research suitable solutions to complex systems;
- utilze knowledge of control and process logic, various communications protocols (BACnet, MODbus, LON Works, TCP/IP) network communications infrastructure, and Johnson Controls Metasys, Staefa, PCSC Security systems, Wonderware, Modicon, GE Fanuc applications to produce and modify control and ladder logic programming, basic scripts and uploading programs to PLC as well as development of HMI;
- problem solve to analyze issues and create action plans;
- perform root cause analysis using standard industry tools;

KNOWLEDGE AND ABILITIES (Continued)

- fill in for supervisor as required;
- understand and follow safety rules and regulations;
- diagnose, troubleshoot and repair complex commercial electrical, HVAC, mechanical, and plumbing problems;
- read, interpret, and work from a variety of equipment manuals, blueprints, drawings, sketches and work orders;
- maintain necessary records and prepare required reports;
- deal courteously and tactfully with the general public, supervisors, coworkers, and subordinates;
- assist in a building evacuation;
- respond to first aid, AED or CPR events.

PHYSICAL EFFORT

The work occasionally involves a variety of manual labor tasks requiring some strenuous physical effort such as lifting objects weighing up to seventy-five (75) pounds.

SUPERVISION

The employee is expected to think and work independently, without supervisory direction, at the detail level. The employee will be responsible for prioritizing their own work load.

WORKING CONDITIONS

The work may require outdoor work in all types of weather at multiple sites including facilities that are open 24 hours, 7 days per week. The job may involve working at considerable heights; in confined spaces; and in occupied secure detention facilities. Employees are exposed to a variety of hazards such as working near potentially dangerous prisoners, traffic, equipment and high-voltage power plus exposure to dust, fumes, grease, refuse, hazardous materials, bodily fluids and inclement weather. Some of the work is performed in a maximum security detention facility.

Employees may be required to work evenings, weekends, and holidays, and be on call when necessary.

Employee may be required to report to work at different sites.

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Class Established: December 2011
EEO Category: 2 – Professionals
Pay Grade: 243 – Classified Pay Plan
Workers Comp: 1501 Hazardous