



BUILDING CONTROLS ELECTRICIAN

Job Code: 397ABE
Bargaining Unit: 20
Effective Date: 8/25/2005

Description of Work

General Statement of Duties

Under supervision, to perform electrical work involved in the construction, installation, alteration, maintenance and repair of electronic electrical systems primarily related to automation control devices, instruments, apparatus, and equipment; and performs related duties as required.

Supervision Received

Works under the general supervision of a unit or division head.

Supervision Exercised

None.

Typical Duties Performed

The listed examples may not include all the duties performed by all positions in this class.

Installs and maintains computer and associated equipment which is dedicated to governing industrial controls.

Repairs and maintains starters, clock systems, public address systems, fire alarm systems, control boards, electric receptacles, meters, fans, signal systems, bell and buzzer systems, HVAC equipment, boiler control wiring, and similar items related to automation controls systems.

Installs, maintains, and repairs microwave transmitters, receivers, modems, diplexers, duplexers, antenna cables, antennas, etc.

Installs automation system which includes programming controller, motor starter, pneumatic controls, security systems, fire alarm, etc.

Performs interior and exterior wiring; assembles, wires, and repairs transformer related to above mentioned systems.

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Typical Duties Performed (continued)

Uses and interprets standard and complex test equipment such as a Quat Traces oscilloscope, IFR 12005 service monitor, digital amp/volt/ohm meter, recording volt and amp meter, etc.

Traces circuitry, diagnoses malfunctions and adjusts controls to achieve peak performance; adjusts voltage, gain, stability, and other characteristics of circuits.

Determines suitability of automated controls and equipment in terms of objectives and recommends or redesigns circuits as necessary.

Prepares test reports including analysis of results, cost analysis of corrective actions necessary; prepares technical reports on equipment, reliability, and performance.

Designs, develops, and evaluates new units of electronic equipment.

Arranges, mounts, and wires components on a chassis to ensure that possible source of electrical interference are physically isolated or shielded, and securely mounted to the chassis to avoid malfunctioning under extreme conditions of temperature, shock, and vibration.

Knowledge, Skills and Abilities

Considerable knowledge of electronics theory, including transistor and solid state diode theory, operation of pulse forming networks, and voltage and current comparison networks.

Considerable knowledge of laws, rules, and regulations such as National Electrical Codes, F.R.C., O.S.H.A., dealing with high voltage work, installing and maintaining high voltage electrical raceway and installation, bonding, grounding, and over current protection.

Considerable knowledge of electrical and electronic block diagrams, wiring diagrams, and schematics in order to understand the construction and operation of industrial controls and troubleshoot malfunctions.

Considerable knowledge of logic circuitry, such as gates, latches, and flip flops as found in common integrated circuits.

Considerable knowledge of characteristic voltage, current, and signal shape of the input and output of a wide variety of microprocessors, integrated and discrete solid state

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Knowledge, Skills and Abilities (continued)

circuits or transistor applications in order to recognize indications of improper operation and differentiate them from temporary anomalies introduced by the testing itself.

Considerable knowledge of how to install, maintain, and troubleshoot heating, ventilation, and air conditioning controls.

Considerable knowledge of the operation of security system equipment including microphones, amplifiers, motion sensors, ultra sonic sensors, dialers, VCR equipment, glass break detectors, Mardix equipment, etc.

Considerable knowledge of the operation, capabilities, and limitations of electronic control equipment and systems.

Working knowledge of pneumatic, hydraulic, and mechanical systems.

Considerable skill in operating a variety of hand and power tools safely, and in caring for the tools.

Working skill in troubleshooting complex electronic systems.

Considerable ability to read and understand documentation in the form of instructions or manuals, maintenance schedules, operating, and troubleshooting guides, etc.

Considerable ability to coordinate work with other skilled trades employees.

Considerable ability to estimate the costs of materials and labor for electrical work.

Minimum Qualifications

High school diploma or G.E.D. certificate, must meet the experience requirements to obtain a Class A journey-level electrician's license, must possess and maintain a Class A journey-level electrician's license issued by the State of Minnesota and must have one year of experience in automation control systems and microwave installation, repair and maintenance. Must possess a valid Minnesota Class D driver's license, or equivalent out-of-state driver's license, with no suspensions or revocations within the two-year period prior to the date of appointment (suspensions for parking-related offenses excluded); and must possess a FCC license within two years of appointment. Please note that a candidate's driving record will be reviewed prior to an offer of employment.