



ComIDENTIFICATION

Department	Position Title	
Infrastructure	Electrical/Building Controls Technician	
Position Number	Community	Division/Region
33-13459	Inuvik	Beaufort Delta

PURPOSE OF THE POSITION

The Electrical/Building Controls Technician is responsible for the inspection, service and repairs to electrical, electronic systems, and optimizes Direct Digital Control (DDC) systems, other control systems, Heating Ventilation and Air Conditioning (HVAC) systems, fire alarm systems, and intrusion alarm systems in Government of the Northwest Territories (GNWT) owned and operated buildings in 13 different communities to ensure safe and efficient operation in accordance with the Canadian Electrical Code, Northwest Territories (NWT) Safety Regulations and departmental policies and procedures.

SCOPE

Located in Inuvik and reporting to the Maintenance Coordinator - Communities, this position is responsible for performing electrical inspections, servicing, and repairs on approximately 175 GNWT assets in 13 different regional communities and several other remote sites, including Deep Water Lake and James Creek. This position completes and/or manages approximately 1,300 work orders per year at an approximate value of \$400,000.

This position conducts electrical and electronics inspections and repairs on highly sensitive and critical systems in buildings throughout the region. Typically, the inspections and much of the resulting work is governed by a variety of codes and legislation, including but not limited to the Canadian Electrical Code, Canadian Building Code, NWT Fire Code, and NWT safety acts and regulations. Compliance with these codes and legislation is required for the continued operation of the buildings in question (typically health centers, a hospital, schools, government office buildings, water plants, and petroleum products tanks farms - many in isolated communities).

Additionally, the position conducts inspections and repairs on electro-mechanical building systems such as HVAC systems, Energy Management and Control Systems (EMCS), and the DDC



systems that run these systems and additional repairs on electronics such as camera systems, fire alarm systems, intrusion alarm systems and nurse call systems.

Due to the fact that many GNWT building systems are operated through computerized controls, and any given building may have a number of computerized systems and software applications, the incumbent must be familiar with and be capable of troubleshooting and making programming adjustments as needed to meet code operating requirements.

RESPONSIBILITIES

1. Inspects all electrical systems, electronic systems, Direct Digital Control systems (DDC), Energy Management and Control Systems (EMCS), boiler control systems, fire alarm systems, electrically-based fire control systems and generator systems in GNWT buildings, and works to identify any potential electrical hazards. Consults with various codes and legislation and plans and executes repairs on these critical fire and life safety systems.

- Conducts regular preventative maintenance checks of all electrical systems and components, including controls in accordance with the department's Computerized Maintenance Management System (CMMS) to ensure systems are safe and functioning according to design parameters.
- Analyzes systems and components, including controls, in order to identify whether they are operating nominally and makes repairs and modifications to optimize the system in an effort to reduce operating costs, expand the original design, reduce life cycle cost and improve occupant comfort levels.
- Diagnoses faults in building systems (such as HVAC systems and components) and identifies repairs or system modifications required to correct deficiencies or improve operation beyond original design parameters.
- Diagnoses faults in electrical systems, components and appliances, and identifies repairs required to correct deficiencies. Executes repairs as required.
- Completes code or legislated formal inspection reports on all deficiencies and initiates and completes work orders for the repairs.
- Uses the CMMS to generate work orders as necessary and completes the work where possible. Otherwise, the work is issued to a contractor and completed under the supervision of the incumbent. Incumbent inspects all contractor work to ensure compliance with code and GNWT policies and safety practices.
- Tests emergency generators and switch gear at regular intervals to ensure they are operating properly. Identifies deficiencies and corrects them, if electrical in nature, and advises the Maintenance Coordinator if mechanical repairs are required.
- Reviews electrical blueprints for new construction and renovations to ensure compliance with codes and the GNWT's Good Building Practices (GBP) for Northern Facilities, as well as to confirm that what is designed is appropriate for the application.



As well, the incumbent advises management on building design and system specification that may cause problems or logistics-related issues, based on experience and location.

- Uses effective and approved lock out/tag out systems to prevent personal injury, occupant injury, property damage or dangerous situations
- 2. Maintains electrical systems, components and appliances in government buildings and works to ensure a safe and efficient operation.**
 - Installs repairs and replaces electrical wiring and lighting systems to ensure safety of users and that systems function properly.
 - Installs and repairs electrical motors and controls, fire alarm systems, clock systems and electrical heating systems and associated heating, ventilation and air conditioning (HVAC) controls to achieve maximum building energy efficiency.
 - Installs repairs and replaces generator components and switch gear to ensure safe and efficient operation.
 - Repairs or replaces unserviceable motors and equipment as required.
 - 3. Completes records for all maintenance and repairs to electrical systems and components to identify historical costs and work performed on each asset.**
 - Identifies supplies required to complete jobs and compiles material lists in order to ensure sufficient materials are on hand.
 - Completes work orders for all work assignments indicating materials used, work accomplished, and time required to complete jobs in order to document associated costs.
 - Accounts for eight hours each day plus any overtime hours to ensure time is charged out against assets.
 - Completes applications for electrical permits in order to obtain approval to commence with electrical work.
 - 4. Checks electrical work performed by contractors to ensure compliance with plans, specifications and governing code.**
 - Conducts inspections of all electrical installations to ensure work requested was completed according to the Department's requirements.
 - Identifies deficiencies in workmanship or quality of materials that require correction.
 - Identifies, arranges, assists and supervises any specialty resources that are required to complete a job.
 - Organizes, supervises and inspects any warranty electrical, electronics and controls work performed by contractors.
 - 5. Specifies, orders, installs, and services and maintains special electrical and electronic components to ensure they operate safely and continuously in accordance with original design specifications of the equipment.**



- Isolates faulty electronic circuits or components and replaces circuit boards or other components on boiler, HVAC or other heating or building system controls. Troubleshoots, repairs and tests alarms for facility intrusion, personal assault, electrical system failure, mechanical system failure and sound systems within applicable GNWT assets to ensure component is functioning safely within its parameters.
 - Installs, sets up, and maintains specialty equipment to prevent patient elopement at hospitals and other health care facilities as required.
- 6. Services uninterrupted power supply (UPS) systems and generators to ensure continuous power for essential pieces of equipment or entire building where they are designated as emergency community shelters.**
- Repairs, services, tests, certify and ensure the operational integrity of fire alarms and emergency lighting systems.
 - Conducts monthly, quarterly and annual inspections, adjustments and repairs to achieve the above
- 7. Installs, maintains, terminates specialized electronic systems such as fire alarm panels, HVAC systems, DDC systems, security systems, video surveillance, network cabling, panic alarms, public address systems, EMCS.**
- Installs intrusion alarm security systems including motion sensors, contact sensors, control panels, and wiring.
 - Sets up security systems to accommodate client security needs including programming and testing.
 - Installs video surveillance systems including cameras, mountings, servo units, Digital Video Recorders (DVR) and wiring.
 - Installs network cabling for electronic systems according to GNWT standards.
 - Terminates wiring with specialized connectors.
 - Uses specialized equipment to test signal strength of wiring systems
 - Set up equipment and programs computers to integrate systems

WORKING CONDITIONS

Physical Demands

- Works in awkward positions, in small and cramped spaces, and in high places; carries heavy tools and equipment.
- Works at great heights on a regular basis requiring the use (and knowledge of how to use) safety harnesses and other fall arrest gear, bucket trucks, scissor lifts and scaffolding.
- Works regularly with high energy systems that are potentially lethal.
- Frequency: 6 hours plus per day.



Environmental Conditions

- Exposure to toxic/unpleasant fumes, exposure to electrical systems and components.
- Risk of injury both in the nature of the work and in performing repair work on site.
- Work may be outside in extreme temperatures, on building roofs, or high on the walls of buildings.
- The sensitivity and criticality of the work the position performs may require performance of duties in conditions that would not otherwise be permitted.
- Frequency: 4-6 hours per day.

Sensory Demands

- Using hand-eye co-ordination when working with colour coded electrical wires.
- Must be able to be focused when working with small electrical components.
- Must be able to endure long periods of focused concentration to ensure personal safety, and that of others, and to complete complex technical tasks.
- Frequency: 4-6 hours per day.

Mental Demands

- Regularly has to travel in small aircraft (often in inclement conditions) to surrounding communities for a few days at a time.
- Regularly has to drive on winter road and ice road systems to get to isolated communities.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge of electrical systems, electronic components, boiler, HVAC and other heating and building control systems, the Canadian Electrical Code, CSA and UL codes and guidelines, the GBP and the NWT safety legislation, along with practical experience in order to recognize electrical hazards and complete all repairs and installations safely and in accordance with the electrical code.
- Knowledge of electronics, software, buildings' systems, HVAC, other heating and building control systems, Canadian Electrical Code, CSA and UL codes and guidelines, the Good Building Practices (GBP) for Northern Facilities and the NWT safety legislation.
- Proficiency with camera systems (DVR, cameras, lenses, pan, tilt, zoom features), fire alarm systems, security systems, auto-dialers, low voltage lighting systems (timers, scanners, relays and photo sensors).
- Ability to communicate effectively with apprentices, other trades, contractors, suppliers, factory technical staff, designers, engineers and managers to ensure that installation, repairs and operational functionality are achieved efficiently and effectively.



- Ability to communicate effectively with clients in order to coordinate equipment and facility downtime, arrange appropriate times for accessing buildings, and performing work and training on new equipment and systems, such as security systems, etc.
- Ability to train and mentor apprentices and other helper positions.
- Ability to keep records in order to document work performed on assets and ensure an adequate supply of materials are on hand to complete work.
- Ability to diagnose faulty equipment, troubleshoot and make repairs.
- Ability to commit to actively upholding and consistently practicing personal diversity, inclusion and cultural awareness, as well as safety and sensitivity approaches in the workplace.

Typically, the above qualifications would be attained by:

A certification as a Red Seal Interprovincial Journeyperson Electrician;

Minimum 5 years of directly related experience in both electrical and electronics systems; and,

The incumbent must possess a Class 5 Driver's License.

Equivalent combinations of education and experience will be considered.

ADDITIONAL REQUIREMENTS

Position Security (check one)

- No criminal records check required
- Position of Trust – criminal records check required
- Highly sensitive position – requires verification of identity and a criminal records check

French language (check one if applicable)

- French required (must identify required level below)

Level required for this Designated Position is:

ORAL EXPRESSION AND COMPREHENSION

Basic (B) Intermediate (I) Advanced (A)

READING COMPREHENSION:

Basic (B) Intermediate (I) Advanced (A)

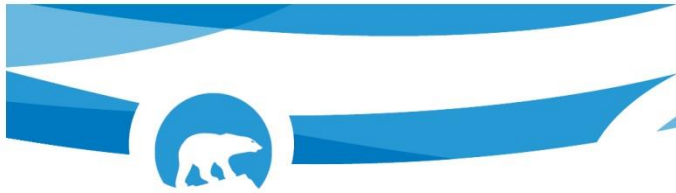
WRITING SKILLS:

Basic (B) Intermediate (I) Advanced (A)

- French preferred

Indigenous language: Select language

- Required
- Preferred



CERTIFICATION

Title: Electrical/Building Controls Technician

Position Number: 13459

Employee Signature	Supervisor Signature
Printed Name	Printed Name
Date <i>I certify that I have read and understand the responsibilities assigned to this position.</i>	Date <i>I certify that this job description is an accurate description of the responsibilities assigned to the position.</i>
Deputy Head/Delegate Signature	
Date	
<i>I approve the delegation of the responsibilities outlined herein within the context of the attached organizational structure.</i>	

The above statements are intended to describe the general nature and level of work being performed by the incumbents of this job. They are not intended to be an exhaustive list of all responsibilities and activities required of this position.