Human Resources and Skills Development Canada
Ressources humaines et Développement des compétences Canada

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Excellence in Everything We Do

Essential Skills and Apprenticeship

Essential Skills for Success as a Construction Electrician

Construction Electrician

Construction electricians use Essential Skills to complete trade-related tasks. Use this fact sheet to:

- learn how Essential Skills are used on the job;
- find out the skills you need to succeed in your trade; and
- help prepare yourself for your career.

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Reading

- Read completed forms, such as purchase order agreements.
- Read instructions for installing equipment, such as light fixtures or electric heaters.
- Read Material Safety Data Sheets (MSDS) for information on hazardous materials.
- Read notes explaining the sequence of operations when wiring controls for mechanical equipment.
- Read safety manuals.
- Read and understand the Canadian Electrical Code, which contains legal and highly technical language.
- Read other tradespersons' plans and specifications to understand the sequences of installation and locations of apparatus.

Document Use

- Read digital displays, gauges and dials on measuring devices.
- Scan Workplace Hazardous Materials Information System (WHMIS) labels for safe handling information.
- Read a list of worksite procedures for each new worksite, such as information on the voltage being used.
- Complete time cards with information, such as the number of hours worked.
- Read invoices and packing slips to check and cross reference materials received.
- Study maps and refer to directions to find job sites.

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Canada

- Read and integrate information from several diagrams in a repair manual to troubleshoot a problem.
- Interpret drawings when installing, assembling or repairing electrical equipment.
- Translate two-dimensional prints into three dimensions when studying drawings and schematics to troubleshoot problems with electrical components.

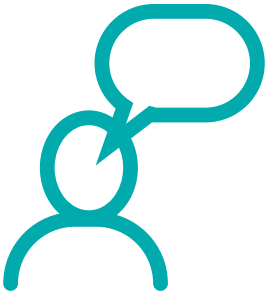
Numeracy

- Determine the correct placement of switch boxes using a tape measure.
- Estimate the time and materials required for a particular job.
- Calculate the average amount of power being used in a building.
- Ensure that installations meet electrical code requirements by taking measurements and performing calculations.
- Calculate a bill charging for time, materials and taxes.
- Make calculations using angles, vectors and trigonometric constants.
- Use formulae, such as Ohm's law, to design or modify electrical installations.

Writing

- Write notes on pipes to indicate the wiring inside.
- Make a list of materials needed for a job.
- Record information about daily work, including hours worked, job locations and details of conversations about the job.
- Write change orders for customers, such as to indicate items that were not included in the original bid.
- Write a grievance report to explain the circumstances that justify an accident claim.

Oral Communication



- Talk to suppliers to order materials or equipment.
- Relay messages, give directions and coordinate tasks with co-workers.
- Discuss electrical code requirements with safety or building inspectors.
- Interact with supervisors and other tradespersons to solve technical problems and to discuss work progress.
- Discuss safety issues on the worksite during regular crew meetings.
- Negotiate with other tradespersons when there are conflicts on a job site, such as the correct placement of an electrical outlet.
- Interact with engineers, owners, architect inspectors and other tradespersons to ensure that work can meet scheduling and code requirements.
- Exchange opinions with co-workers regarding critical safety issues related to complex installations.

Working with Others

- Work with a co-worker or team to complete installations.
- Work with supervisors, owner's representatives, architects, engineers, inspectors and suppliers on a job site.
- Participate in discussions about work processes or product improvement.
- Demonstrate how to perform tasks to other workers.
- Orient or train new employees.

Thinking

- Decide what materials are required for a particular job and which supplier to purchase from based on past service and pricing.
- Refer to several manuals for details regarding complex or unusual installations.
- Refer to the Canadian Electrical Code to find relevant information on installation specifications.
- Decide how to route power, taking into account potential obstacles, customer specifications and code restrictions.
- Decide what type of wire to use based on variables, such as wet or dry conditions.
- Seek advice from other experienced tradespersons, manufacturers' representatives or engineers to solve technical problems.
- Decide where to place power services based on the layout required, code requirements and customer specifications.
- Identify problems by reading blueprints.
- Plan workdays to ensure efficient use of time and resources.

Computer Use

- Use spreadsheets to estimate costs.
- Use software to control electrical equipment to aid in troubleshooting equipment failure.

Continuous Learning

- Stay up-to-date with changing requirements of the electrical code.
- Stay up-to-date with changes in technology, such as computer controls.
- Enroll in classes offered through unions, employers or other groups.

For more information on Essential Skills and related resources, visit **hrsdc.gc.ca/essentialskills**

For more information on the Interprovincial Standards Red Seal Program, visit **www.red-seal.ca**

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