



# Cariboo Regional Skills Competition

Scope Document

*Electrical Wiring (Post-Secondary)  
(2020)*

Thompson Rivers University  
March 6, 2020

## ELECTRICAL WIRING (Post-Secondary) (2020)

### **Purpose of the Challenge:**

To assess the contestant's skills and abilities performing various installation tasks in the field of residential and commercial electrical wiring.

### **Skills & Knowledge to be tested:**

Throughout the contest, contestants can expect to be evaluated in any of the following areas:

- Installing residential, commercial wiring and control systems;
- Installing branch circuit components;
- Installing heating equipment and controls;
- Installing motor starter and controls;
- Installing communication systems, warning devices and various types of detectors;
- Fault finding using test equipment

### **Pre-requisites:**

Contestants must demonstrate mastery of the following technical skills:

- Measuring and marking dimensions on a on a work surface using scale plans and drawings based on the metric measuring system;
- Installing electrical equipment, cables, conduit, tubing and raceways;
- Measuring and bending tubing and conduit;
- Assembling components using screws, staples and bolts;
- Linking lines and equipment to control panels and their components;
- Wiring and connecting electrical components;
- Identifying and marking conductors according to plans and drawings;
- Complete a fault finding and troubleshooting exercise using test equipment.

Contestants must demonstrate mastery of the following theoretical skills:

- Reading, interpreting and executing plans, drawings, diagrams and schematics in compliance with standards;
- Reading, interpreting and executing manufacturer's technical specifications for the electrical components to be installed;
- Knowledge and application of electrical materials and work methods;
- Knowledge and application of basic electrical circuits;
- Knowledge and application of basic electrical devices and equipment;
- Knowledge and application of occupational health and safety regulations;
- Knowledge and application of electrical code requirements in Canada and installation to comply with the current Canadian Electrical Code Book (2015 Edition).

### **Equipment, Tools, Supplies, Clothing, Safety Equipment:**

Contestants should have the following tools and equipment available in their toolkits:

- Supplies for drawing and writing (i.e. paper, pencil, eraser, ruler.)
- Set of screwdrivers (Robertson, flat, Phillips)
- Electrician's pliers (linesman pliers)
- Cutting pliers (diagonal)
- Wire strippers
- Knife
- Needle-nose pliers
- Hammer
- Adjustable wrench
- Set of hex wrenches (Allen keys)
- 1 set of manual knock-out punches for 1/2", 3/4", 1" conduit (not hydraulic)
- Wire markers / Tape dispenser
- Tapping screwdriver or set of taps (6/32 - 8/12 - 10/32 - 10/24 - 1/4x20).
- File or conduit reamer
- Hack saw
- Torpedo level
- Multimeter
- Adjustable pliers (water pump pliers)
- 1 Unibit metal bit
- Wood bit (3/8" chuck)
- Robertson and Phillips screw bits for cordless drill
- Canadian Electrical Code Book (21st Edition 2009)

Contestants may bring tools other than those listed above. Any tools not on the list must be approved by the judges prior to use.

Equipment provided by Technical Committee at event

- Manual 1/2" EMT pipe bender
- Cordless drill (3/8" chuck)
- Ladder if needed

Safety & Clothing provided by contestant

- CSA approved safety gear hard hat, safety footwear, safety glasses, hearing protection, gloves.
- Safety equipment must be worn at the competition site
- Contestants must wear the appropriate safety gear in accordance with health and safety regulations



### **Project Documents:**

This Scope Document is the only documentation available to the competitors before the day of the event.

### **Judging Criteria:**

- Operation 300
- Equipment and component installation 100
- Use of supplies 50
- Measurement 100
- Cable installation 100
- Tubing and conduit installation 100
- Connection of conductors to components and equipment 100
- Compliance with health and safety rules 100
- Fault finding 50

There are no ties allowed, the tie break procedure used will:

- First criteria – operational & fault-finding combined score
- Second criteria – completion time
- Third criteria – safety score

### **Technical Committee:**

Technical Chair: Mike Finch [mfinch@tru.ca](mailto:mfinch@tru.ca)