



# Cariboo Regional Skills Competition

Scope Document

*Electrical Wiring (Secondary) 2012*

Thompson Rivers University  
March 2, 2012

## ELECTRICAL WIRING (Secondary) 2012

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

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 all of the following areas:**

- Installing residential, commercial wiring and control systems;
- Installing branch circuit components;
- Installing heating equipment and controls;
- Installing magnetic motor starter and controlling from a single start stop station.

### **Pre-requisites:**

Contestants must demonstrate mastery of the following technical 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 Canadian Electrical Code Book (21<sup>st</sup> Edition, 2009).

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

The equipment and materials used during the contest are standard items commonly used in the electrical industry.

### **Supplied by the competitor:**

- Hard hat
- Safety boots
- Safety glasses / goggles
- Leather gloves
- Neat and clean clothing
- Supplies for drawing and writing, i.e., pencil, eraser, compass, measuring tape, etc.
- Set of screwdrivers (Robertson, flat, Phillips)
- Electrician's pliers (linesman pliers)
- Cutting pliers (diagonal)
- Wire strippers
- Knife
- Needle-nose pliers
- Hammer
- Adjustable wrench (crescent wrench)
- Set of hex wrenches (Allen keys)
- Wood bit, 1/2 - 5/8 - 3/4;
- Unibit metal bit
- 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).
- Black electrical tape
- File or conduit reamer
- Hack saw
- Torpedo level
- Multimeter
- Adjustable pliers (water pump pliers)
- Cordless drill (battery operated)
- Set of metal drill bits
- Manual 1/2" EMT pipe bender, (OFF-SET [one operation] are not allowed)
- Canadian Electrical Code Book (21<sup>st</sup> Edition, 2009)

Contestants may bring tools other than those listed above but those tools will have to be approved by the judges prior to use.

**Supplied by the committee:**

- Each contestant will have access to a 120-volt outlet for the battery charger and a ladder
- Some of the tools can be made available on site if prior arrangements are made. Please contact the committee in advance.

**Preliminary Materials List:**

- Armoured cable AC 90
- Loomex cable NMD90
- Flexible, PVC or EMT conduit
- Recess or surface mounted boxes
- Receptacles / Lights
- Doorbell
- Switches (three and four way)
- Pilot light or Push button station
- 3-phase, magnetic or combination motor starter
- Timers / Photocells
- Heater (baseboard or wall insert)
- Thermostat (line, or built in, or low voltage, or electronic)
- Breakers
- Distribution and control panel

**Safety :**

Safety equipment must be worn at the competition site. Contestants must wear the required safety gear and comply with occupational health and safety regulations in order to compete. Contestants' clothing must be neat and clean – torn clothing is not allowed.

**Judging Criteria:**

- Operation 350
- 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

**Technical Committee:**

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