



# Provincial Scope Document

## *ELECTRICAL WIRING (Post-Secondary) 2008*

**Contest Length: 6 hrs**

**Check in time: 7:30**

**Orientation: 7:45**

**Contest Start: 8:00**

### **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 one, two, three or all of the following areas:**

- Installing residential, commercial wiring and control systems;
- Installing branch circuit components;
- Installing heating equipment and controls;
- Installing motor control systems;
- Troubleshooting electrical equipment using test equipment and diagrams;

### **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 (20<sup>th</sup> Edition 2006).

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

The equipment and materials used during the contest are standard items commonly used in the electrical industry. Please contact the committee if there are any questions about the tool requirements

*Contestants should have the following tools in their toolkits:*

Some of the tools can be available on site if prior arrangements are made; contact the committee in advance.

- 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;
- 1 Unibit metal bit
- 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).
- 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 (CEC) 2006 20<sup>th</sup> Edition;

### **Tools and equipment**

Contestants may bring tools other than those listed above. Of course, those tools will have to be approved by the judges prior to use. Each contestant will have access to a 120-volt outlet for the battery charger and a ladder.

## Safety

**Contestants must bring** CSA-approved safety gear (hard hat, safety boots, safety glasses / goggles, leather gloves). 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.

## **Project Competition:**

### **Project competition and material list**

The list in Annex A is an outline of the type materials that **may be used** during the competition.

## **Judging Criteria:**

POINT BREAKDOWN	TOTAL 1000
A Operation	350
B Equipment and component installation	100
C Use of supplies	50
D Measurement	100
E Cable installation	100
F Tubing and conduit installation	100
G Connection of conductors to components and equipment	100
H Compliance with health and safety rules	100

## **Technical Committee:**

Mark Fettback      Technical Chair      mark@wpe.bc.ca

**Gold medal winners at the BC Skills Competition are eligible to compete at the Canadian Skills Competition May 25-28, 2008 in Calgary, Alberta.**

**Skills Canada BC reserves the right to update contest information. Please check the website for changes.**

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## ANNEX "A"

### **Preliminary material list**

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