

# 12TH PROVINCIAL SKILLS COMPETITION

## 2009 SKILLS CANADA NEWFOUNDLAND AND LABRADOR



**18**  
**ELECTRICAL WIRING**  
**Scope document**  
**Post - Secondary Level**  
**Friday April 3, – College of the North Atlantic - Seal Cove**

**Duration of Contest: 6hrs.**

### **PURPOSE OF THE CHALLENGE**

Assess the contestant's skills and abilities performing various installation tasks in the field of residential and construction electrical wiring.

### **SKILLS AND KNOWLEDGE TO BE TESTED**

Throughout the final contest, contestants can expect to be evaluated in one, two, three or all of the following areas:

- written examination (25 questions based on the Canadian Electrical Code)
- installing residential, commercial wiring and control systems;
- installing branch circuit components;
- installing heating equipment and controls;
- Trouble shooting using test instruments

### **PRE-REQUISITITES**

Contestants must demonstrate mastery of the following technical skills:

- measuring and marking dimensions on a work surface using scale plans and drawings based on the metric or imperial measuring system;
- measuring and accurately marking the location of outlets and tapping holes in control panels;
- installing and trouble-shooting electrical equipment, cables and wiring
- installing conduit, tubing and raceways;
- measuring and bending tubing and conduit;
- measuring, sawing, drilling, tapping and deburring metals and plastics;
- assembling components using screws, staples and bolts;
- wiring and connecting electrical components;
- Identifying and marking conductors according to plans and drawings.
- NOTE: During the competition competitors will be required to complete a troubleshooting exercise using a meter. The competitor will be assigned a time to complete this task.

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### Contestants must demonstrate mastery of the following theoretical skills:

- reading, interpreting and executing plans, drawings, diagrams and schemas in compliance with standards;
- reading, interpreting and executing manufacturer's technical specifications for the electrical components to be installed;
- knowledge of electrical materials and construction electricity work methods;
- knowledge of basic electrical circuits;
- knowledge of basic electrical devices and equipment;
- knowledge of occupational health and safety regulations;
- knowledge and application of electrical code requirements in Canada and installation to comply with Canadian Electrical Code Book.

### **EQUIPMENT, TOOLS, SUPPLIES, CLOTHING**

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

### Contestants must have the following tools in their toolkits:

- Supplies for drawing and writing, i.e., pencil, eraser, measuring tape (metric), etc.
- Punch
- Set of screwdrivers (robertson, flat and philips)
- Electrician's pliers (linesman pliers)
- Cutting pliers (diagonal)
- Knife
- Needle-nose pliers
- Hammer
- Adjustable wrench (crescent wrench)
- Set of hex wrenches
- Wood bits, 1/2 - 5/8 - 3/4;
- Black electrical tape
- 1 set manual hole punches for 1/2", 3/4", 1" conduit (Not hydraulic)
- Tapping screwdriver (6/32 - 8/12 - 10/32 - 10/24 - 1/4x20).
- Tape dispenser (wire numbers)
- Fish Tape
- File or conduit reamer
- Hacksaw
- Torpedo level
- Multi-meter
- Adjustable pliers (pump pliers)
- Cordless drill (battery operated), or power drill to handle **any and all** drilling procedures.
- Set metal drill bits
- Manual pipe bender, EMT 1/2(OFF-SET [one operation] are not allowed)
- 120 volt portable heat gun complete with 5-15R male cord

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### Tools and equipment cont.

Contestants may bring tools other than those listed above. Of course, those tools will have to be approved by the judges. A workbench and ladder will be provided at each workstation. Each contestant will have access to a 120-volt 15A outlet for the portable heat gun and battery charger.

**Note: Competitors must have a copy of Canadian Electrical Code 2006 Edition**

### Safety

**Contestants must bring:** CSA-approved safety gear (hard hat, safety boots, goggles, leather gloves). Safety equipment **must be worn** at the competition site e.g.; hard hats, safety boots and safety glasses at all times and goggles when drilling. Contestants **must** wear the required safety gear and comply with occupational health and safety regulations in order to compete. Contestant's clothing **must** be neat and clean – torn clothing is not allowed.

## PROJECT COMPETITION

### Project competition and material list

The Provincial Technical Committee (PTC) will be responsible for making a project competition, judging criteria and a material list to comply with Canadian Electrical Code Book.

### POINT BREAKDOWN / TOTAL 100

A Written examination	20
B Equipment and component installation	15
C Operation	28
D Cable installation	10
E Tubing and conduit installation	10
F Compliance with health and safety rules	8
G Fault Finding	9

Tie breaker ----- Time it takes to complete tasks.

## TECHNICAL COMMITTEE

<i>Felix Slaney</i>	<i>Technical Chair</i>	<i>College of the North Atlantic</i>
<i>Randy Rice</i>		<i>College of the North Atlantic</i>
<i>Kevin Biles</i>		<i>College of the North Atlantic</i>
<i>Chris Moss</i>		<i>College of the North Atlantic</i>