CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

ELECTRICAL INSTALLATIONS

INSTALLATIONS ELECTRIQUES

POST-SECONDARY /
NIVEAU POSTSECONDAIRE

SkillsCompétences Canada
Winnipeg2017

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1 THE ESSENTIAL SKILLS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY

SCC is currently working with Employment and Social Development Canada (ESDC) in order to bring awareness to the importance of Essential Skills that are absolutely crucial for success in the workforce. Part of this ongoing initiative requires the integration and identification of Essential Skills in contest descriptions, projects, and project documents. The next phase and very important aspect of our Essential Skills (ES) initiative is to provide an ES report card to each competitor at the Skills Canada National Competition. The purpose of the ES report card is to inform the competitor about their current level of essential skills based on their competition scores. With this knowledge, the competitor will be made aware which essential skill may require improvement. Full implementation is expected in the 2017 Skills Canada National Competition.

The following 9 skills have been identified and validated as key essential skills for the workplace in the legend below:

[1]Numeracy, [2]Oral Communication, [3]Working with Others, [4]Continuous Learning, [5]Reading Text, [6]Writing, [7]Thinking, [8]Document Use, [9]Digital

These essential skills have been identified with in section 2.3 and/or 3.2 of your Contest Description. The top three Essential Skills for your area of competition have been identified on your Project and all other supporting project documents.

2 CONTEST INTRODUCTION

2.1 Description of the associated work role(s) or occupation(s).
http://skillscompetencescanada.com/en/careers/construction/electrical-wiring/

2.2 Purpose of the Challenge.
Assess the contestant's skills and abilities performing various installation tasks in the field of residential, commercial and industrial electrical wiring.

2.3 Duration of contest.
12 hours

2.4 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:

- Installing residential, commercial wiring and control systems;
- Installing branch circuit components;
- Installing heating equipment and controls;
- Installing motor control systems;
- Installing communications systems, warning devices and various types of detectors.
- Install and program an intelligent relay using the relay faceplate
- Trouble shooting using test instruments

3 CONTEST DESCRIPTION

3.1 List of documents produced and timeline for when competitors have access to the documents.

DOCUMENT	DATE OF DISTRIBUTION VIA WEBSITE
Test Project (drawings)	January, 2017

3.2 Tasks that may be performed during the contest

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;[1, 8]
- Measuring and accurately marking the location of outlets and tapping holes on control panels;[1]
- Installing electrical equipment, cables, conduit, tubing and raceways;
- Measuring and bending tubing and conduit;[1,]
- Measuring, sawing, drilling, deburring metals and plastics;[1,]
- Assembling components using screws, staples and bolts;
- Linking lines and equipment to control panels and their components;[7]
- Wiring and connecting electrical components;
- Wiring and programming of an intelligent relay;
- Identifying and marking conductors according to plans and drawings.[8]
- During the competition, competitors will be required to complete a trouble shooting exercise using their own test equipment. The competitor will be assigned a time to complete this task[7]
- PVC bending to be accomplished through the use of a 120 V/15amp heat gun.

Contestants must demonstrate mastery of the following theoretical skills:

- Reading, interpreting and executing plans, drawings, diagrams and schematics in compliance with standards; [8]
- Reading, interpreting and executing manufacturer's technical specifications for the electrical components to be installed; [8]
- Knowledge of electrical materials and construction work methods;
- Knowledge of basic electrical circuits;
- Knowledge of basic electrical devices and equipment;
- Knowledge of occupational health and safety regulations; [5]
- Knowledge and application of electrical code requirements in Canada and installation to comply with the current addition of the Canadian electrical code book (CEC current edition) [5]

Essential Skills – [1]Numeracy [5]Reading Text, [7]Thinking(Critical, Problem Solving), [8]Document Use

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

- Work bench
- Ladder - Featherlite
- Access to a 120-volt 15A (5-15R) for the portable heat gun, battery charger and power drill
- Manual pipe bender EMT ½
- Fluke multimeter 179 with black lights – Fluke model: 179
- 5/8" x 6" total length self feeding ship auger – Stanley/Dewalt model: DW1665
- Cordless drill - Impact combo pack 20V Max – Stanley/Dewalt model: DCK280D2
- Electrician level – Stanley/Dewalt model: 43-609
- Tape measure – Stanley/Dewalt model: 33-428
- Driver Bits - Bits#2 1/4inch x6inch Robertson #8-9-10 – Stanley/Dewalt model: DW2262
- #1 green Robertson screwdriver – Stanley/Dewalt model: 60-015
- #2 red Robertson screwdriver – Stanley/Dewalt model: 60-016
- #3 black Robertson screwdriver – Stanley/Dewalt
- 6 piece vinyl screwdriver set – Stanley/Dewalt model: 66-565
- 8 inch long nose pliers – Stanley/Dewalt model: 89-870
- 9 1/2 inch lineman pliers – Stanley/Dewalt model: 89-865
- 8 inch angle cutting pliers – Stanley/Dewalt model: 89-861
- 16 oz claw hammer – Stanley/Dewalt model: 51-942
- 20 inch sharp tooth saw – Stanley/Dewalt model: 20-527

COMPETITORS WILL BE REQUIRED TO USE THE MATERIAL AND EQUIPMENT PROVIDED BY SCC. ALL OTHER MATERIAL AND EQUIPMENT WILL BE REMOVED FROM THE SKILL AREA.

4.2 Equipment and material provided by the competitor

- Supplies for drawing and writing, i.e., pencil, eraser, etc.
- Set of screwdrivers (Robertson, flat, termination and Philips)
- Electrician's pliers (lineman pliers)
- Tri square
- Cutting pliers
- Knife (no utility knives, box cutters etc.) Must be a lockable or fixed blade type.
- Hammer
- Adjustable wrench (crescent wrench)
- Wood bit, 1/2 - 5/8 - 3/4
- Fish tape
- Unibit metal bit, capable of 7/8" hole and/or 1 set manual hole punches for 1/2" knock-outs
- Tapping screwdriver (6/32 - 8/32 -)
- Metal hack saw
- Miter box and saw
- EMT reaming tool
- Wire stripper
- Torpedo level
- Multi-purpose pliers
- Adjustable pliers (multi-purpose)
- Set of metal drill bits
- Canadian Electrical Code Book (Current Edition)
- 120 volt portable heat gun complete with 5-15R male cord end, No spring type cold PVC benders allowed
- Contestants may bring tools other than those listed above. If you wish to bring additional tools, please email the chair of this committee for approval.
- Supply one of the following 120 V intelligent relays (Zelio, Omron, Eaton). Must have a minimum of 4 inputs and 4 outputs and must fit in a 10 x 10 x 6 box (no PLC or computer programming)
- No other outside material is allowed
- Contestants will need approval from the chair in order to use these additional tools

4.3 Required clothing provided by the competitor

- Neat and clean – torn clothing is not allowed
- No facial, hand or loose hanging jewellery

5 SAFETY REQUIREMENTS

5.1 Safety workshop

Upon arrival at the Skill area, Competitors will participate in a Safety workshop and they will be expected to work and maintain a safe working area during the competition. Any Competitor breaking any health, safety and environment rules, may be required to undertake a second safety workshop, this will not affect the Competitor's competition time.

5.2 List of required personal protective equipment (PPE) provided by Skills/Compétences Canada

- Hard Hat – McCordick
- Safety Glasses – McCordick

5.3 List of required personal protective equipment (PPE) provided by competitors

- Hearing protection
- CSA approved Safety shoes
- Safety gloves

6 ASSESSMENT

6.1 Point breakdown

POINT BREAKDOWN	/100
Operation	30
Equipment and component installation	10
Intelligent relay operation	7.5
Measurement	10
Cable installation	10
Tubing and conduit installation	10
Connection of conductor to components and equipment	10
Compliance with health and safety rules	5
Fault finding	7.5

7 ADDITIONAL INFORMATION

7.1 Consecutive translation

If consecutive translation is required on site, the Skills/Compétences Canada Provincial/Territorial offices must advise Skills/Compétences Canada National Secretariat a minimum of 1 month prior to the competition or this service might not be guaranteed.

7.2 Tie (No ties are allowed)

In the event of a tie, the competitor with the highest score in the Operation criteria will be declared the winner. If a second tie occurs, the competitor with the highest score in the Health and Safety criteria will be declared the winner. If a third tie occurs, the competitor with the highest score in the Equipment and Component Installation will be declared the winner.

7.3 Test Project change at the Competition

Where the Test Project has been circulated to Competitors in advance, NTC shall change a maximum of 30% of the work content. Please refer to the Competition Rules.

7.4 Competition rules

Please refer to the competition rules of the Skills Canada National Competition.

8 NATIONAL TECHNICAL COMMITTEE MEMBERS

Member Organization	Name	Email address
Alberta	Ron Stocks	
Manitoba	Derrick Doyle	
Ontario	Adam Hicks	
Québec	Serge Guay	
Nova Scotia	Curtis Goodwin	
New Brunswick	Rick Mason	
British Columbia	Norm Chamberlain	
Newfoundland and Labrador	Randy Rice	
Yukon	Aaron France	
Prince Edward Island	Ray Murphy	
Saskatchewan - Chair	Jay Vollet	jay.vollet@saskpolytech.ca