



CONTEST DESCRIPTION

# Plumbing

POST-SECONDARY

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## **1 THE SKILLS FOR SUCCESS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY**

The Government of Canada has updated the previous Essential Skills framework to the new Skills for Success model in response to the evolving labour market and changing skill requirements. This model outlines nine fundamental skills Canadians need to thrive in work, education, training, and daily life.

Skills/Compétences Canada aims to highlight the importance of these skills, vital for success in trade and technology careers. Competitors can see how Skills for Success are integrated into contest descriptions, projects, and project documents. Recognizing these skills during the competition helps competitors match tasks with specific skills necessary for success and understand how these skills apply within their trade or technology programs and future careers.

The nine key Skills for Success, validated for workplace success, are:

1. Numeracy
2. Communication
3. Collaboration
4. Adaptability
5. Reading
6. Writing
7. Problem Solving
8. Creativity and Innovation
9. Digital

These Skills for Success are detailed in sections 2.3 and/or 3.2 (to be completed by SCC) of your Contest Description and, if relevant, in your Project and supporting documents.

## **2 CONTEST INTRODUCTION**

### **2.1 Description of the associated work role(s) or occupation(s)**

[https://www.skillscompetencescanada.com/en/skill\\_area/plumbing/](https://www.skillscompetencescanada.com/en/skill_area/plumbing/)

### **2.2 Purpose of the Challenge**

To assess the contestant's knowledge and skills in the installation of a plumbing system with high regard to the aspects of quality workmanship, proficiency of pipe joining techniques, accuracy of work, and time management.

### **2.3 Duration of contest**

12 hours

### **2.4 Skills and Knowledge to be tested.**

Mathematical problem solving, safe work practices, proper use of tools, correct pipe assembly techniques, blueprint and/or specification interpretation ability and a strong positive work ethic.

### 3 CONTEST DESCRIPTION

**3.1** List of documents produced and timeline for when competitors have access to the documents on the Skills/Compétences Canada website.

DOCUMENT	DATE OF DISTRIBUTION
Project	December 2024

**3.2** Tasks that may be performed during the contest.

- Applying mathematical concepts involving parallel, 60, 45, 22 1/2 ° offsets<sup>1,7</sup>
- Interpreting and applying the blueprint specifications, product specifications and shop drawing<sup>5,7</sup>
- Assembly of various pipe and fitting systems<sup>7</sup>  
Including Copper – soft soldering (lead free with water-based flux), press fit, brazing.
- Plastic DWV drainage
- Cast Iron Drainage (hub-less)
- Black Iron Piping (Threading, Press Fit)
- PEX (Expansion, compression)
- Bending of tube using mechanical benders
- Apply safe work practices<sup>7</sup>
- All dimensions shall be in millimeters
- All dimensions will be taken from the designated centreline or benchmarks (datum lines)

*Skills for Success - <sup>1</sup>Numeracy, <sup>5</sup>Reading, <sup>7</sup>Problem Solving*

### 4 EQUIPMENT, MATERIAL, CLOTHING

**4.1** Equipment and material provided by Skills/Compétences Canada (as required)

- Soldering torches
- Solvent cement
- Teflon tape
- 2 ft Levels
- Tubing Benders
- 24" Carpenter Square
- Soldering paste
- Flux brushes
- 1/2" and 3/4" cleaning brushes

- Sand cloth
- Cordless Drill 1/2"
- #2 and #3 Robertson 3" Bit Tip
- Ridgid Pipe Threader
- Ridgid Press Tool (Copper and/or Black Iron)
- Ridgid Soil Pipe Cutter
- Unistrut shear
- Tri-stands
- Ladder

**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.**

Only the tools listed below will be permitted.

No modified tools allowed.

- Metal rules metric
- IPT Red Handbook (NTC will check for private notes in it)
- Measuring tape with millimeters (25 mm wide recommended)
- 9" torpedo levels
- Water Pump Pliers
- Plastic pipe cutters for up to 3" (manual)
- Plastic pipe reamer 3", 2", 1 1/2"
- 10-inch or 12-inch metal saw with spare blades, or equivalent
- Adjustable wrenches (6" 8" and 12" recommended) or equivalent
- Pipe Wrenches (8", 10" and 12" recommended) or equivalent
- Tube cutters 5/8" to 2 1/8", Ridgid #20 or equivalent
- Tube cutters (Ridgid #15 or equivalent) for 3/16" to 1 1/8" diameter copper tube
- Mini pipe cutter or equivalent
- Combination square
- 16-ounce hammer or equivalent
- 1/2 round steel file and or flat smooth file with a handle
- Plumb bob
- Pencils / soapstone / markers / erasers
- Paper
- Utility knife
- Striker
- Copper de-burring tool
- Assorted screw drivers
- Hex and or spud 14-inch wrench

- Centre punch
- Chalk line
- PEX cutters
- 5/16" nut driver
- Hacksaw
- Pocket calculators (non-programable)

#### **4.2.1 Toolbox**

One of the objectives of SCC is the sustainability of the Competition. As a result, the toolboxes brought by Competitors will be restricted to the following maximum specifications.

The Competitor toolbox must not exceed 1 meters<sup>3</sup> in volume. It can be multiple toolboxes, but the total of all toolboxes must not exceed the maximum volume indicated. There is no exception to this rule. If the Competitor toolbox is larger than what is indicated, the Competitor with the guidance of the NTC, will need to remove items from the toolbox and those items will not be used during the competition. All tools must fit inside one or more toolboxes. Tools outside of a toolbox will not be permitted.

#### **4.3 Required clothing provided by the competitor.**

- Long sleeve clothing
- No jewellery
- Long hair must be tied back and concealed

### **5 HEALTH AND SAFETY**

#### **5.1 Safety program**

SCC has implemented a comprehensive safety program as health and safety is an integral part of our competitions. Our safety program includes guidelines and procedures to make the work environment in each skill area safer.

##### **5.1.1 Safety manual**

As part of our program a safety manual has been created to monitor and document health and safety within each skill area. It includes a definite plan of action designed to prevent accidents. The safety manual will be provided for every skill and these instructions must be followed and respected by all participants and officials at the SCNC.



### 5.1.2 Safety workshop

During orientation, 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 environmental 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

- Safety Glasses
- Ear plugs
- Leather gloves

**Note:** Competitors who do not have the required protective equipment will not be allowed to participate in the competition

### 5.3 List of required personal protective equipment (PPE) provided by the competitor.

- CSA approved Safety shoes
- Nitrile-coated gloves
- Knee pads or equivalent

**Note:** Competitors who do not have the required protective equipment will not be allowed to participate in the competition

## 6 ASSESSMENT

### 6.1 Point breakdown

**Note:** This list is subject to change.

TASKS	/100
Accuracy of Installation	50
Quality of Installation	35
Pressure Test	5
Safety	10
Full points for dimension within 2mm. Half points deduction for dimension more than 2 to 4mm. No points awarded for dimensions more than 4mm.	

## 7 CONTEST SPECIFIC RULES

Contest specific rules cannot contradict or take priority over the Competition Rules. They do provide specific details and clarity in areas that may vary from contest to contest. Any additional contest rules will be reviewed during the competitor orientation.

TOPIC/TASK	CONTEST SPECIFIC RULE
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Safety	<ul style="list-style-type: none"> <li>Competitors must wear long sleeves and gloves while soldering</li> </ul>
Tools / Infrastructure	<ul style="list-style-type: none"> <li>No project specific aids, tools or jigs allowed</li> <li>The National Technical Committee (NTC) will be conducting a toolbox inspection during competitor orientation</li> </ul>

## 8 ADDITIONAL INFORMATION

### Interpreter

If a competitor requires the help of an interpreter once onsite during the competition, 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 may not be guaranteed.

### 8.1 Ties

- Tiebreaker #1: In the event of a tie, the competitor who completed the project in the shortest amount of time will be declared the winner.
- Tiebreaker #2: If a tie remains, the competitor with the most complete project will be declared the winner.
- Tiebreaker #3: If a third tie occurs, the competitor with the highest score in the “Assessment of cold-water installation” will be declared the winner.

### 8.2 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.

### 8.3 Competition rules

Refer to the competition rules of the Skills Canada National Competition which can be found on our website.

## 9 NATIONAL TECHNICAL COMMITTEE MEMBERS

MEMBER ORGANIZATION	NAME
Newfoundland and Labrador	Greg Abbott
Nova Scotia	Ronda Frigault
New Brunswick	Brian Siddall
Ontario	Dan Shelly – Co-Chair
Manitoba	Patrick Savard – Chair
Quebec	Yannik Duchesne-Caron
Alberta	Jeremy Bridge



British Columbia	John Michalec
Saskatchewan	Will Rayner

Contact the Skills/Compétences Canada national secretariat for any questions or concerns: Nathalie Maisonneuve ([nathaliem@skillscanada.com](mailto:nathaliem@skillscanada.com)).