



CONTEST DESCRIPTION

Plumbing

POST-SECONDARY

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

In response to the evolving labour market and changing skill needs, the Government of Canada has launched the new Skills for Success (*former Essential Skills*) model defining nine key skills needed by Canadians to participate in work, in education and training, and in modern society more broadly. SCC is currently working with Employment and Social Development Canada (ESDC) to bring awareness of the importance of these skills that are crucial for success in Trade and Technology careers. Part of this ongoing initiative requires the integration and identification of the Skills for Success in contest descriptions, projects, and project documents. The next phase and very important aspect of our Skills for Success (SfS) initiative is to provide a *Skills Report Card* to each competitor at the Skills Canada National Competition. The purpose of the report card is to inform the competitor about their current level of nine identified Skills for Success based on their competition scores. With this knowledge, the competitor will be made aware which skill may require improvement. Full implementation is expected in the next Skills Canada National Competition. The following 9 skills have been identified and validated as key skills for success for the workplace in the legend below:

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

These Skills for Success have been identified in section 3.2 of your Contest Description and if applicable, 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/

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 2023 |

3.2 Tasks that may be performed during the contest.

- Applying mathematical concepts involving parallel, 60, 45, 22 1/2 ° offsets^{1,7}
- Interpreting and applying the blueprint specifications, product specifications and shop drawings^{7,8}
- Submit isometric drawings and material list for assessment⁶
- Assembly of various pipe and fitting systems⁷
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 copper tube using mechanical benders
- Apply safe work practices⁷
- All dimensions shall be in millimeters
- All dimensions will be taken from the designated centreline or benchmarks (datum lines)

Skills for Success - ¹Numeracy, ⁶Writing, ⁷Problem Solving, ⁸Creativity & Innovation

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

- Soldering torches
- 2 ft levels
- Solvent cement
- Teflon tape
- Soldering paste
- Flux brushes
- 1/2" and 3/4" cleaning brushes
- Sand cloth
- Isometric paper
- Lever style bender for 5/8" O.D. copper
- Angle Cordless Drill 1/2"
- Cordless impact driver 1/4"

- Cordless Drill 1/2"
- #2 and #3 Robertson 6" Bit Tip
- 2 ft carpenter's square
- Combination squares
- Ridgid Pipe Threader
- Ridgid Press Tool (Copper and/or Black Iron)
- Ridgid Soil Pipe Cutter
- Ready rod shear
- 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
- 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
- Pocket calculators (non-programable)
- NRC Current Plumbing Code

4.2.1 Toolboxes Guidelines

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 meters³ 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 |
|---|------|
| Cleanliness of completed project | 5 |
| Assessment of Drainage | 5 |
| Assessment of heating installation | 30 |
| Assessment of hot water installation | 25 |
| Assessment of cold-water installation | 25 |
| Assessment of fixture installation | 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 |
|------------|--|
| Safety | <ul style="list-style-type: none"> • Competitors must wear long sleeves while soldering |

| | |
|------------------------|---|
| Tools / Infrastructure | <ul style="list-style-type: none"> • No project specific aids, tools or jigs allowed • The National Technical Committee (NTC) will be conducting a toolbox inspection during competitor orientation |
|------------------------|---|

8 ADDITIONAL INFORMATION

8.1 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.

8.2 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.

8.3 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.

8.4 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 | Chris Gushue |
| Nova Scotia | Ronda Frigault – Chair |
| New Brunswick | Brian Siddall |
| Ontario | Dan Shelly – Co-Chair |
| Manitoba | Patrick Savard |
| Alberta | Jeremy Bridge |
| British Columbia | Audrey Curran |
| Yukon | Dan Scobie |
| Saskatchewan | Dennis Callaghan |



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Canada
Québec2024

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