Skills Compétences Canada











CONTEST DESCRIPTION

Refrigeration and Air Conditioning

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 2.4 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

- Description of the associated work role(s) or occupation(s)

https://www.skillscompetencescanada.com/en/skill_area/refrigeration/

- Purpose of the Challenge

To assess the contestant's skills relating to the installation, operation, maintenance and repair of mechanical and/or electrical components and equipment for a refrigeration and/or air Conditioning system.

- Duration of contest

12 Hrs over 2 days

- Skills and Knowledge to be tested.

The goal of the contest is to encourage students to learn more about refrigeration and air-conditioning. Refrigerant handling is an important component, and contestants must be aware of current regulations.

3 CONTEST DESCRIPTION

- 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 Part 1 Project Part 2	December 2026 April 2027
Refrigeration standards	February 2027

- Tasks that may be performed during the contest.

Applying basic and advanced control circuit concepts (electrical and, or electronic)

- From a provided electrical schematic, install electrical components and wiring to achieve provided sequence of operation
- Perform various joining procedures.
- Project: Build a refrigeration piping system as per supplied information.
- Comply with all applicable Provincial and Federal codes and regulations.
- Applying health and safety regulations

Pre-requisites:

- Thorough knowledge of the refrigeration cycle[7]
- The ability to use refrigeration tools and specialized equipment.
- The ability to measure accurately and use tools required for working with copper tubing.[1]
- Knowledge of and compliance with current industry codes and safety regulations
- The ability to use precision electrical test equipment.
- The ability to interpret electrical diagrams[5]
- A good operating knowledge of typical controls used in refrigeration and air-conditioning systems (mechanical, electrical and electronic)[7,9]

4 EQUIPMENT, MATERIAL, CLOTHING

- Equipment and material provided by Skills/Compétences Canada
- Batteries (D, 9V and AA and AAA)

- Safety vests qty (10)
- Proper bins for recycling, Metals, Recyclables (plastics etc.) and waste bin and Oil disposal Bin for recycling
- mechanics gloves Qty: 4 X-Large, 20 Large, 4 Medium, 2 small
- Safety glasses Qty:12 minimum
- Ears plugs

4..1 (IF NEEDED, 2ND LEVEL)

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.

- Equipment and material provided by the competitor.
- 1 – Set of common screwdrivers (Philips 8in, Blade 8in, Robertson #6 and #8 8in
- 1 – Precision screwdriver (Philips and Blade)
- 1 – Set of nut-drivers (¼- 3/8, 5/16, 7/16)
- 1 – Set Impact ready nut drive bits (¼, 3/8, 5/16, 7/16
- 1 – Set of combination wrenches ¼ to $^{15}/_{16}$ in.
- 1 – 6in, 8in, 10in and 12in adjustable wrench's
- 1 – Linesman pliers
- 1 – Electrical side cutters
- 1 – Needle nose pliers
- 1 – Slip joint (aka Channel Lock, Pump Pliers)
- 1 – Wire crimper
- 1 – Wire Stripper
- 1 – Set of imperial and metric allen keys
- 1 – Combination ratchet valve wrench
- 1 – Manual flaring – swaging kit. (non-lever and non-hydraulic type)
- 1 – Hammer (Ballpeen)
- 1 – Tubing cutter ¼ to 1-1/8 in.
- 1 – Mini tube cutter ¼ - 7/8
- 1 – Flat File
- 1 – Tube reaming tool
- 1 – Mirror
- 1 – Flashlight
- 1 – Tape measure
- 2 – Valve core remover (4 in 1 ball valve tool)
- 1 – Utility knife
- 1 – MUST have a 4 ports Analog Gauge manifold with 3/8” vacuum hose or equivalent. (Ball valve connection)

- 1 – Calculator (cannot use cell phone)
- Pencils, pens, Fine point Sharpies, ruler (non-architect) and notepad
- Safety Glasses and mechanic gloves
- 7 - inch Vise-Grip Pliers
- 1 – Solenoid Magnet
- 1 –12"X12" heat shield Pad
- 1 – 9" Torpedo Level
- 1 - mechanics gloves
- OPTIONAL Noise cancelling Earmuff (no radio)

4..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 _____ meters^3 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.

- Required clothing provided by the competitor.
- Competitors must wear appropriate clothing and standard safety gear.
- Long sleeve (non-synthetic shirt for brazing) and long pants

5 HEALTH AND SAFETY

- 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 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..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.

- List of required personal protective equipment (PPE) provided by Skills/Compétences Canada
- Ear Plugs
- Latex gloves
- Eye wash station

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

- List of required personal protective equipment (PPE) provided by the competitor.
- Clear Safety Glasses
- "Mechanics-style" work Gloves
- CSA approved Safety shoes
- CSA approved Safety Glasses
- Shade level III brazing glasses

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

6 ASSESSMENT

- Point breakdown

Note: This list is subject to change.

TASKS	/100
Electrical Controls	35
Piping	45
Commissioning	10
Safety	10

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
Use of technology – personal laptops, tablets, mobile phones and smart devices	No technology will be permitted in the competition area. These items can be stored by the judging team.
AI	No AI or AI devices will be permitted in the competition area.

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 2 month prior to the competition or this service may not be guaranteed.

- Academic accommodations

If a competitor requires the help of an accommodation once onsite during the competition, the Skills/Compétences Canada Provincial/Territorial offices must advise Skills/Compétences Canada National Secretariat a minimum of 2 month prior to the competition or this accommodation may not be guaranteed.

If approved the accommodation will be provided to all competitors

- Ties

Tiebreaker #1: The competitor with the highest score for Electrical Controls & Safety criteria shall be declared the winner.

Tiebreaker #2: The competitor with the shortest time in Piping shall be declared the winner.

Tiebreaker #3: The competitor with the shortest time in the Electrical Control shall be declared the winner.

- 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.

- Physical or verbal abuse

Competitors are responsible for the conduct of their coaches, provincial representatives, family members, and supporters. Any physical or verbal abuse directed at a judge or NTC member by any of these individuals may result in the competitor being disqualified and removed from the competition.

- 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	Devin Owens
Nova Scotia	Brian Nicholl
New Brunswick	Greg Daborn
Ontario	Mark Parliament
Manitoba	Hendrix Mills
Alberta	Ty Smith
British Columbia	Peter Arkesteyn
Québec	Didier Gaudron
Saskatchewan	Geoff Hopkins

Contact the Skills/Compétences Canada national secretariat for any questions or concerns: Olga Malvine Rwemera (olgamr@skillscanada.com).