

DATE	LOCATION
Thursday, May 6, 2021	NSCC Ivany Campus - Room 3640

1. Schedule

Time	Task
9:00 - 9:30 am	Orientation
9:30 -12:00 pm	Competition
12:00 – 12:30 pm	Lunch (provided)
12:30 – 4:00 pm	Competition
4:00 – 4:30pm	Marking (competitors not present)

2. Purpose of the Contest

To assess the competitor's skills relating to the installation, operation, maintenance and repair of mechanical and / or electrical components and equipment of a Refrigeration and / or Air Conditioning System.

3. Criteria

- Applying basic and advanced control circuit concepts (electrical and / or electronic);
- From a written functional description prepare an electrical schematic / ladder diagram and wire a control circuit and its components;
- Troubleshoot refrigeration system component(s) electrical and mechanical, if required;
- Diagnose electrical and mechanical fault(s) in an operating system, if required;
- Applying basic and advanced piping skills
- Perform brazing procedures, if required;
- Comply with all Provincial and Federal codes and regulations;
- Applying health and safety regulations.

Project: may be a variety of tasks to install refrigeration tubing, mechanical components and indicated accessories, on a split refrigeration or air conditioning system, Test, evacuate, charge and commission the system, troubleshoot electrical, electronic controls and mechanical systems and/or related repairs.

4. Number of Stations / Allocations

There will be a maximum of six (6) spaces, allotted as follows:

NSCC Ivany – 1

NSCC Marconi Campus – 1

NSCC Lunenburg Campus – 1

NSCC Cumberland Campus – 1

Registered Refrigeration Apprentice – 2

A waitlist will be maintained, and all spaces will be filled based on the allotment, then first-come, first-serve.

5. Skills & Knowledge to be Tested

The goal of the contest is for competitors to showcase their skills learned and to experience more about Refrigeration & Air Conditioning Systems. Refrigerant handling is an important component and competitors must be aware of current regulations. Proper knowledge, wiring, and operation of controls is essential.

6. Prerequisites

Contest-Specific Prerequisites

- Thorough knowledge of the refrigeration cycle;
- The ability to use refrigeration tools and specialized equipment;
- The ability to use tools required for working with copper tubing;
- Knowledge of and compliance with current industry codes and safety regulations;
- The ability to use precision electrical test equipment;
- The ability to develop and draw electrical diagrams;
- A good operating and wiring knowledge of typical controls used in refrigeration and air-conditioning systems – including, mechanical, electrical and electronic components.

SCNS Prerequisites

- Enrolled in a community college, university or private school OR be registered as an apprentice with the Department of Labour and Advanced Education;
- Registered as a competitor with Skills Canada – Nova Scotia (SCNS);
- The competitor cannot be a certified journey-person;
- The competitor must possess a Canadian citizenship or landed immigrant status and be a resident of Nova Scotia. Competitors are responsible for verifying this information if requested;

- Have been earning post-secondary credits any time during the academic school year (September to June);
- All competitors must be able to show either current apprenticeship status and/or proof of enrollment in a post-secondary institution upon request of the Provincial Technical Committee (PTC) or SCNS.

7. Equipment & Clothing

a) What Will Be Supplied

- Trainer and shop materials;
- Torches, if required;
- Nitrogen & Regulator;
- Leak detector.

b) What Competitors Must Supply

- Set of screwdrivers;
- Set of Nut Drivers;
- 6", one 10" adjustable wrench;
- Linesman pliers;
- Side cutter pliers;
- One needle nose pliers;
- Ratchet valve wrench;
- Tubing cutter;
- Mini Tube Cutter
- Reaming Tool;
- Inspection Mirror;
- Electrical Test Meter;
- Clamp on Ampmeter;
- Tape Measure;
- Pens, pencils, notepad;
- Gauge manifold;
- PPE is required and must be supplied by the competitor:
 - Clear Safety Glasses only;
 - Mechanic Style Gloves;
 - CSA Safety Footwear.
 - Non-Medical Mask as per Health Guidelines

Please note: competitors are required to supply their own CAT III or better electrical test meter - and suitable gauge manifold set with new environmental hoses, Vacuum pump, micron gauge, evacuation grade hose, & Core Removal tool. No additional ones will be available. All tests & verification on this equipment must be completed prior to competition day. No additional time will be permitted on competition day.

Mandatory orientation will be at **9:00 am** on the morning of the competition, **May 6, 2021** in room **3640 BSVT Shop** at the **NSCC Ivany Campus**, Woodside Wing, 80 Mawiomi Place, Dartmouth, NS.

Competitors that do not show up for the orientation will not be permitted to compete.

8. Evaluation & Judging Criteria

Competitors will be graded on their knowledge and ability to assemble, pipe, wire, commission and adjust a Refrigeration and / or Air Conditioning System.

9. Additional Information

- While in the Competition work area, contestants must wear all Personal Protective Equipment (PPE) at all times.
- Judges may be industry representatives (preferred) and the Provincial Technical Committee (PTC) runs the competition. PTC will not influence or interfere with the judges decisions. All discrepancies will be reviewed by the Chair
- Final decisions are made by the PTC chairperson;
- Judges are to score each contestant fairly and consistently as per a standard marking sheet that will be provided;
- No ties are permitted. Troubleshooting marks will determine the winner. If a tie still persists, total finished time to complete the project will be used.

10. PTC Contact Information

Name	Employer	Email
Brian Nicholl – Chair	NSCC Ivany Campus	brian.nicholl@nsc.ca
Kevin O'Halloran	NSCC Ivany Campus	kevin.ohalloran@nsc.ca
Jeff Muise	NSCC Lunenburg Campus	jeff.muise@nsc.ca
Darrin Embree	NSCC Cumberland Campus	darrin.embree@nsc.ca
Jim Oakley	NSCC Marconi Campus	james.oakley@nsc.ca



Contest Description Refrigeration & Air Conditioning Post-Secondary

Don Mole	Carmichael Engineering	dmole@carmichael-eng.ca
Keith Carvery	Trane Atlantic	kcarvery@trane.com
Mike Nicholl	Retired – Cimco Refrigeration	nicholl@eastlink.ca
Zach Walsh	Acadia Refrigeration	zach.w.walsh@hotmail.com
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