

<b>DATE</b>	<b>LOCATION</b>
Friday, April 11, 2025	NSCC Sydney Waterfront Campus

### 1. Schedule (subject to change)

TIME	TASK
8:00 - 8:30 am	Orientation
8:30 am – 11:30 am	Competition
10:00 am – 10:15am	Break
11:45 am – 12:30 pm	Lunch (provided)
12:30 pm – 3:00 pm	Competition
2:00 – 2:15 pm	Break
3:15 pm – 3:45 pm	Marking (competitors not present)

### 2. Purpose of the Contest

To assess the competitor's skills related to the installation, operation and repair of mechanical and electrical components associated with Refrigeration and Air Conditioning (RAC) Systems.

### 3. Criteria

- Apply knowledge of RAC controls, wiring diagrams and control circuits.
- Prepare a schematic/ladder diagram from a written description/sequence of operation.
- Wire line voltage and control circuits associated with RAC systems.
- Troubleshoot RAC electrical and mechanical system component(s), as required.
- Diagnose electrical and mechanical fault(s) in an operating system, as required.
- Perform mechanical piping skills including brazed and mechanical connections.
- Use specialty RAC service, commissioning and installation equipment as required.
- Comply with all Provincial and Federal codes and regulations.
- Comply with all referenced health and safety regulations.

**Project:** The project will consist of a variety of tasks. Competitors may be required to interpret trade documentation and develop wiring or piping diagrams. Competitors may install electrical and piping circuits with associated RAC system components, controls, and accessories. The project may include the testing, evacuation, charging, troubleshooting, and commissioning of a system, component, or circuit.

#### **4. Number of Stations / Allocations**

There will be a maximum of eight (8) spaces, allotted as follows:

NSCC Ivany – 2- (Year 1 & Year 2)

NSCC Marconi Campus – 1

NSCC Lunenburg Campus – 1

NSCC Cumberland Campus – 1

Registered Refrigeration Apprentice – 3

Competitors from NSCC campuses should consult with their faculty and obtain approval prior to registration with Skills Canada Nova Scotia. Campus level competitions may be used to determine qualification for the Provincial competition. A waitlist will be maintained. Spaces will be filled based on the above list until registration closes. The waitlist will be evaluated after the registration deadline to see if additional competitors can be added.

#### **5. Skills & Knowledge to be Tested**

- Knowledge of the refrigeration cycle and refrigerant handling procedures.
- Knowledge of safe work procedures associated with RAC system installations.
- Knowledge of and compliance with current industry codes and safety regulations.
- Knowledge of typical controls used in refrigeration and air-conditioning systems – including mechanical, electrical, and electronic components.
- The ability to use specialized RAC trade tools and equipment.
- The ability to use specialized RAC pipe working and joining tools and equipment.
- The ability to use precision electrical test equipment and meters.
- The ability to develop and draw electrical and piping diagrams.
- The ability to design and install electrical and piping circuits.
- The ability to troubleshoot and commission RAC equipment controls and components.

#### **6. Prerequisites**

SCNS Prerequisites

- Post-Secondary competitors must meet the following criteria in the current school year:

- Be enrolled in a community college, university, private school OR be a registered apprentice with the Department of Labour and Advanced Education (Apprenticeship Agency);
- Be registered as a competitor with Skills Canada – Nova Scotia;
- The competitor cannot be a certified journey-person;
- Possess Canadian citizenship or Permanent Resident (Landed Immigrant) status and be a resident of Nova Scotia; or be a registered International Student. Competitors are responsible for verifying this information if requested;
- Have been earning post-secondary credits in a sector relevant to the one in which they wish to compete (i.e. to compete in carpentry, the student would be earning credits in any construction-related trade) at 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 Skills Canada – Nova Scotia.
- Have completed and submitted a signed release form

NEW 2024: Eligible post-secondary competitors will have the opportunity to join Team Nova Scotia and compete in a maximum of three Skills Canada National Competitions in a single contest area. After reaching this maximum, individuals are no longer eligible to compete at the provincial level in that contest area.

### **7. Equipment & Clothing**

#### **a) What Will Be Supplied**

- Trainers and shop materials.
- Torches and regulators, if required.
- Leak detection equipment, if required.
- Tube forming tools such as benders, expanders, and flaring equipment, if required.
- Temperature meters and probes, if required.
- Evacuation, charging and recovery equipment, if required.

#### **b) What Competitors Must Supply (Note: Variations must be approved)**

- Set of screwdrivers/nut-drivers including pocket screwdriver
- Adjustable wrenches. (6" and 10")
- Wire strippers

## Contest Description Refrigeration and Air Conditioning Post-Secondary

- Linesman pliers
- Side cutter pliers
- Needle nose pliers
- Slip-joint pliers
- Tubing cutter. (1-1/8")
- Reaming tool. (Pen type)
- Inspection mirror
- Tape measure. (no digital tapes)
- Pens, pencils, ruler, notepad.
- Refrigeration ratchet valve wrench
- Gauge manifold (3 port/2 valve)
- Electrical Test Meter
- Clamp on Ammeter
  
- PPE is required and must be supplied by the competitor:
  - Clear Safety Glasses only.
  - Mechanic Style Gloves.
  - CSA Safety Footwear.

**Please note:** Competitors are required to supply their own CAT III or better electrical test meter. No additional meters will be available. All tests & verification on this equipment must be completed prior to competition day. No additional time will be permitted for testing, calibrating, or repairing personal tools or test equipment on the day of competition.

Mandatory orientation will be at **8:00 am** on the morning of the competition, **April 11, 2025** at Sydney Waterfront Campus.

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

### 8. Evaluation & Judging Criteria

Competitors will be graded on their knowledge and ability to install, assemble, pipe, wire, commission, troubleshoot and adjust a RAC system.

### 9. Additional Information

## Contest Description

### Refrigeration and Air Conditioning Post-Secondary

- While in the Competition work area, contestants must always wear all Personal Protective Equipment (PPE).
- Judges may be industry representatives (preferred) and/or non-Faculty Provincial Technical Committee (PTC). Remaining 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 provided standard marking sheet.
- No ties are permitted. Fastest time will determine the winner in the event of a tie.

#### 10. PTC Contact Information

Name	Employer	Email
Brian Nicholl	NSCC Ivany Campus	<a href="mailto:brian.nicholl@nsc.ca">brian.nicholl@nsc.ca</a>
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