



CONTEST DESCRIPTION

Sheet Metal Work

POST-SECONDARY

Table of Contents

| | | |
|----------|--|----------|
| 1 | THE SKILLS FOR SUCCESS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY | 2 |
| 2 | CONTEST INTRODUCTION..... | 2 |
| 3 | CONTEST DESCRIPTION..... | 2 |
| 4 | EQUIPMENT, MATERIAL, CLOTHING..... | 3 |
| 5 | HEALTH AND SAFETY | 5 |
| 6 | ASSESSMENT..... | 6 |
| 7 | CONTEST SPECIFIC RULES..... | 7 |
| 8 | ADDITIONAL INFORMATION | 7 |
| 9 | NATIONAL TECHNICAL COMMITTEE MEMBERS..... | 7 |

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 2.4 and/or 3.2 (to be completed by SCC) 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/sheet-metal-work/

2.2 Purpose of the Challenge

To enable students to demonstrate their skilled work with sheet metal.

2.3 Duration of contest

12 hours

2.4 Skills and Knowledge to be tested.

Sheet metal layout and fabrication skills will be tested.^{1,5,7}

Skills for Success - ¹Numeracy, ⁵Reading, ⁷Problem Solving.

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 |
|-----------------------------------|----------------------|
| Test Project (isometric drawings) | December 2023 |

3.2 Tasks that may be performed during the contest^{1,5,7}.

- Layout, welding and fabrication Skills
- Parallel line development
- Triangulation from plan and triangulation from elevation (side view)
- Radial line development of right cones
- Square, polygon or round rain caps
- 90° round on round tees
- Round elbows and offsets (Non reducing except for BE – SE)
- Any of the following rectangular fittings (All changes in size must occur on the cheeks)
- Offsets
- Elbows
- Y-Branches
- Take-off

Methods of Fastening and Joining (any of the following):

- Rivets-Pop and or Solid
- Sheet metal screws
- Nuts and bolts
- Welding- MIG and/or Spot (Resistance)
- Grooved seams
- Single and double seams
- Lap and spot
- Hammer/Fish/Clinch lock (Round or rectangular)
- BE – SE slip
- Pittsburgh (Irish) lock
- Slip and drive
- Standing “T” or C.P.R.
- Elbow seam
- Wired edge
- Coffin Lock
- Dovetail

Skills for Success - ¹Numeracy, ⁵Reading, ⁷Problem Solving

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

- MIG welders c/w 0.025” wire and 25% CO₂ / 75% Argon (3 of)

- Fume extractor (3 of)
- Welding Curtains (10 of)
- Flat metal table for welding and grinding (3 of)
- Foot shear
- Notcher
- Face shields for grinding (3 of)
- Scrap Metal Bin (1 of)
- Brooms (2)
- Standard hand brake – (1 for all comp.)
- Box and pan brake – (2 for all comp.)
- Blowhorn stakes (2 for all comp.)
- Hollow mandrel stakes (2 for all comp.)
- Rotary combination machines (Burring, Turning, Elbow, Beading) (1 per 2 comps.)
- 2" x 36" rolls (1 for all comp.)
- Hand groovers
- Pop rivet guns (1 per comp.)
- Min. 8 sq. ft. work surface (1 per comp.)
- Stake holders (2 for all comp.)
- 4 ½" angle grinders c/w flexible pads and discs (2 for all comp.)
- Cordless drills c/w drill bits (1 per comp.)
- Framing squares (1 per comp.)
- 20 - 16-gauge CR Steel
- 26-to-16-gauge galvanized iron
- pop rivets
- 16 oz. copper and/or brass (.0200)
- Wire brush
- Drafting Kit (1 per comp.)
- Drafting Table (1 per comp.)
- T-square (1 per comp.)

Note: Some equipment listed above may not be available

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.

- Screwdrivers (Standard and Robertson)
- Aviation snips (left and right cutting)
- Combination snips
- Dividers (2 sets)

- Marking gauge
- Tape measure
- Hand seamers (folding pliers)
- C-clamp vice grips (2 sets)
- Standard vice grips (2 sets)
- Flat file
- Markers
- Half round file
- 12" rule
- Centre punch
- Scratch awl
- Mallet
- Body hammer
- Tinner's hammer
- Protractor
- Adjustable wrench
- Combination square
- Calculator

These hand tools are recommended as a basic set. This list may be augmented by the competitor but certain specialized tools or other products may be subject to approval by the National Technical Committee and therefore may not be allowed for use in competition. 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.

- Proper welding attire (i.e., Non synthetic long sleeves and pants)

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

- Welding helmet (1 for each competitor)
- Welding gloves (1 for each competitor)
- Welding jackets (1 for each competitor)

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

- CSA approved Safety shoes

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 |
|----------------------------|------|
| Objective | |
| Critical Dimensions | 22 |
| Drafting/Layout | 15 |
| Material Usage | 6 |
| Subjective | |
| MIG Welding | 15 |
| Seams, Edges and Fasteners | 26 |
| Overall Appearance | 16 |

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 and mobile phones | No use of cell phones, no touching or measuring of demonstration project |
| Tools | Specialty tools will be required to be shared or else removed from the competition |

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: Material Usage
- Tiebreaker #2: Critical Dimension
- Tiebreaker #3: Drafting/Layout

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 |
|---------------------|-------------------------|
| New Brunswick | Paul Lavigne – Co-Chair |
| Ontario | Jeff Goheen - Chair |
| Manitoba | Bryan Lodge |
| Saskatchewan | TJ King |
| Alberta | Brent Rogoski |
| British Columbia | Jud Martell |
| Yukon | Dilan Parker |
| Quebec | Fabien Dirian |



SkillsCompétences
Canada
Québec2024

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