



CONTEST DESCRIPTION

Sheet metal work

POST-SECONDARY

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

SCC is currently working with Employment and Social Development Canada (ESDC) in order to bring awareness to the importance of Essential Skills that are absolutely crucial for success in the workforce. Part of this ongoing initiative requires the integration and identification of Essential Skills in contest descriptions, projects, and project documents. The next phase and very important aspect of our Essential Skills (ES) initiative is to provide an ES report card to each competitor at the Skills Canada National Competition. The purpose of the ES report card is to inform the competitor about their current level of essential skills based on their competition scores. With this knowledge, the competitor will be made aware which essential 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 essential skills for the workplace in the legend below:

¹Numeracy, ²Oral Communication, ³Working with Others, ⁴Continuous Learning, ⁵Reading Text, ⁶Writing, ⁷Thinking, ⁸Document Use, ⁹Digital

These essential skills have been identified in your Contest Description and if applicable, in your Project and all other supporting project documents.

2 CONTEST INTRODUCTION

2.1 Description of the associated work roles(s) or occupation(s)

<http://skillscompetencescanada.com/en/careers/construction/sheet-metal/>

2.2 Purpose of the Challenge.

To enable students to demonstrate their skills 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.

3 CONTEST DESCRIPTION

3.1 List of documents produced and timeline for when competitors have access to the documents.

DOCUMENT	DATE OF DISTRIBUTION VIA WEBSITE
Test Project (orthographic drawings)	November 2020

3.2 Tasks that may be performed during the contest.

- Standards and abilities are expected to be to the Sheet Metal Harmonized RSOS Level 2 at a minimum.⁷
- Layout Skills⁷
 - Simple layout
- Triangulation from plan and triangulation from elevation (side view)⁸
 - Simple radial line development with parallel openings
- 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)¹
 - Offsets, Elbows, Y-Branched and Take-off
- Methods of Fastening and Joining⁷ (any of the following):
 - Rivets
 - Pop and Solid
 - Sheet metal screws
 - Nuts and bolts
 - Welding
 - MIG and Spot (Resistance)
 - Grooved seams
 - Single and double seams
 - Standing Seams
 - Lap and spot
 - Hammerlock (Round or rectangular)
 - BE – SE slip
 - Pittsburgh (Irish) lock
 - Slip and drive
 - Standing “T” or C.P.R.
 - Elbow seam
 - Wired edge

*Essential Skills – ¹Numeracy ⁷Thinking (Problem Solving, Significant use of memory)
⁸Document Use*

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Competences Canada.

- MIG welders c/w 0.025" wire and 25% CO2 / 75% Argon (1 for 4 comp.)
- Welding Curtains
- Flat metal table for welding and grinding (1 for 4 comp.)
- Welding helmets (1 for 4 comp.)
- Scrap Metal Bin
- Brooms (2)
- Standard hand brake – (1 for all comp.)
- Box and pan brake – (1 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 and guns (2 for all comp.)
- 30" x 72" work surface (1 per comp.)
- Stake holders (2 for all comp.)
- 20 - 16 gauge CR Steel
- 26 to 16 gauge galvanized iron
- 16 oz. cooper and/or brass
- Wire brush
- Drafting Tables
- 36" T-square
- Drafting Equipment package (1 per competitor)
- Rulers 48"
- Framing Squares
- Locking Grip "C" Clamp Pliers
- Locking Grip Needle Nose Pliers
- Locking Vise Grip
- 20v cordless drills
- 4 1/2" angle grinder and grinding disks
- Cutting discs
- Flapper disc
- 1/4" drill bits
- 3/16" drill bits
- 1/8" drill bits

- Measuring Tape 25'
- Rivet Gun

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)
- Trammel points
- 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
- Center punch
- Scratch awl
- Mallet
- Body hammer
- Tinnerns hammer
- Protractor
- Adjustable wrench
- Hacksaw
- 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.

4.3 Required clothing provided by the competitor.

- Proper working attire (i.e. Long sleeves and pants)

5 SAFETY REQUIREMENTS

5.1 Safety workshop.

Upon arrival at the Skill area, 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 competitors

- CSA approved Safety shoes

5.3 List of required personal protective equipment (PPE) provided by Skills/Compétences Canada (SCC)

- Face Shield
- Hearing protection
- Safety Glasses

6 ASSESSMENT

6.1 Point breakdown

POINT BREAKDOWN	/100
Measured	
Critical Dimensions	25
Layout	15
Material Usage	5
Judgement	
MIG Welding	10
Seams, Edges and Fasteners	30
Overall Appearance	15

7 ADDITIONAL INFORMATION

7.1 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 might not be guaranteed.

7.2 Ties

- Tiebreaker #1: The competitor with the highest score in the Seams, Edges and Fasteners criteria will be declared the winner.
- Tiebreaker #2: The competitor with the highest score in the Critical Dimensions criteria will be declared the winner.
- Tiebreaker #3: The competitors with the highest score in the Overall Appearance criteria will be declared the winner.

7.3 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.

7.4 Competition rules

Refer to the [competition rules](#) of the Skills Canada National Competition which can be found on our website.

8 NATIONAL TECHNICAL COMMITTEE MEMBERS

Member Organization	Name
Yukon	Ignazio (Nance) Giordano
Manitoba	Bryan Lodge
Ontario – Co-Chair	Jeffery Goheen
New Brunswick	Josh Dufour
Alberta	Jason Wright
British Colombia	Jud Martell
Saskatchewan - Chair	TJ King
Nova Scotia	Willie DeBay

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