



2018

# SCNC

SKILLS CANADA  
NATIONAL COMPETITION

# OCMT

OLYMPIADES CANADIENNES  
DES MÉTIERS ET  
DES TECHNOLOGIES



SkillsCompétences  
Canada  
Edmonton2018

CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

# SHEET METAL WORK TÔLERIE

POST- SECONDARY /  
NIVEAUX POSTSECONDAIRE



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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:

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

These essential skills have been identified with in section 2.3 and/or 3.2 of your Contest Description. The top three Essential Skills for your area of competition have been identified on 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)	January, 2018

3.2 Tasks that may be performed during the contest.

#### Layout Skills<sup>7</sup>

- Simple layout
- Triangulation from plan and triangulation from elevation (side view)<sup>8</sup>
- 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)<sup>1</sup>
  - Offsets, Elbows, Y-Branches and Take-off

#### Methods of Fastening and Joining<sup>7</sup> (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
- 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 – <sup>1</sup>Numeracy <sup>7</sup>Thinking (Problem Solving) <sup>8</sup>Document Use*

## 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 (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
- 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
- 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
- Tinnens hammer
- Protractor
- Adjustable wrench
- Hacksaw
- Combination square

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 welding 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
<b>Measured</b>	
Critical Dimensions	25
Layout	15
Material Usage	5
<b>Judgement</b>	
MIG Welding	10
Seams, Edges and Fasteners	30
Overall Appearance	15

## 7 ADDITIONAL INFORMATION

### 7.1 Consecutive translation

If consecutive translation is required on site, 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 Tie Breakers

In the event of a tie, the competitor with the highest score in the Overall Appearance criteria will be declared the winner. If a second tie occurs, the competitor with the highest score in the Seams, Edges and Fasteners criteria will be declared the winner. If a third tie occurs, the competitors with the highest score in the Critical Dimensions 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

Please refer to the [competition rules](#) of the Skills Canada National Competition.

## 8 NATIONAL TECHNICAL COMMITTEE MEMBERS

Member Organization	Name
Yukon	Nance Giordano
Manitoba	Bryan Lodge
Ontario	Jeffery Goheen
New Brunswick	Paul Lavigne
Alberta	James Fehr
British Columbia	Jud Martell
Saskatchewan- Chair	TJ King

Contact the Skills/Compétences Canada national secretariat for any questions or concerns: Marilou Leduc (mariloul@skillscanada.com).