



CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

WELDING SOUDAGE

SECONDARY AND POST-SECONDARY /
NIVEAU SECONDAIRE ET 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 2017 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 with in section 2.4 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 role(s) or occupation(s).

<http://skillscompetencescanada.com/en/careers/construction/welding/>

2.2 Purpose of the challenge

Assess the contestant's ability in the trade of welding. Contestants must demonstrate their knowledge in reading plans and interpreting welding symbols, and their mastery of the main welding processes used in today's industry.

2.3 Contest duration

12 hours: spread over two days, 6 hours a day.

2.4 Skills and knowledge to be tested

The assembly and welding work will be assessed based on the technical plans and welding processes specified in the projects.

3 CONTEST DESCRIPTION

3.1 The documents that will be provided and the dates when they will become available to the competitors.

DOCUMENT	DATE POSTED ON THE WEB SITE
Test Project	January, 2017

3.2 Tasks that the competitors may have to perform during the contest.

THEORETICAL ELEMENTS

The contest's theoretical portion is limited to the knowledge required to execute the practical work. These elements are integrated into the contest for evaluation purposes, and include the following skills:

- Interpretation of plans (engineering drawings)⁸
- Interpretation of welding symbols⁸
- Knowledge of base metals and filler metals
- Adjustment of welding machines¹
- Workplace safety rules⁵

Essential Skills – ¹Numeracy, ⁵Reading Text, ⁸Document Use.

Notes:

All measurements are shown in metric.

All instructions and plans will be provided in English and French.

PRACTICAL TASKS

Secondary

- Shielded metal arc welding (SMAW, mild steel))
- Gas metal arc welding (GMAW, mild steel)

Post-secondary

- Shielded metal arc welding (SMAW, mild steel)
- Gas metal arc welding (GMAW, mild steel)
- Flux cored arc welding (FCAW, mild steel)
- Gas tungsten arc welding (GTAW, mild steel, stainless steel and aluminum)

TASKS:

The following types of joints and positions **may** be included.

Secondary	Post-secondary
Assemble and weld mild steel structures:	
SMAW , GMAW	SMAW, GMAW, FCAW
Plate: 1G, 2G, 3G, Fillet Weld: 1F, 2F, 3F,4F, 5F	Plate: 1G, 2G, 3G, 4G Fillet Weld: 1F, 2F, 3F, 4F, 5F Pipe: 1G, 2G, 3G, 5G,6G
	Assemble and weld stainless steel, carbon steel and aluminum structures: GTAW
	Plate: 1G, 2G, 3G, 4G Fillet: 1F, 2F, 3F, 4F, 5F Pipe: 1G, 2G, 3G, 5G,6G

4 EQUIPMENT, MATERIALS, CLOTHING

4.1 Equipment and materials provided by Skills/Compétences Canada

- Measuring tape, millimetres - Stanley/Dewalt
- Crescent wrench - Stanley/Dewalt model: SKU 87-473 UPC 076174874736
- Side cutters - Stanley/Dewalt model: SKU 84-105 UPC 076174841053
- Angle grinder 4 1/2" 10 amp' - Stanley/Dewalt model: DWE4011
- Cordless drill - Stanley/Dewalt model: DCD710S2
- Grinding disc 1/4", 1/8", 3/32" - Stanley/Dewalt
- Welding machines and accessories for Post Secondary competition: Lincoln Electric Square Wave TIG 200 AC/DC, with foot pedal control and Power Wave 350MP Multi Process.
- Welding machines and accessories for Secondary competition: Power Wave 350MP Multi Process Units. All equipment can be view at www.lincolnelectric.ca

Secondary materials

- Low carbon steel
- Plate thickness: 3 – 9.5 mm
- Pipe wall thickness: 3.56 – 6.02 mm
- Pipe Diameter: 42.2 – 114.3 mm
- Filler materials
 - SMAW = E4918, 2.4 and 3.2 mm
 - SMAW = E4310, 3.2 mm or E4311, 3.2 mm
 - GMAW = ISO B-G49A SC G6 (ER49S-6), 0.9 mm
- Shielding gas
 - GMAW = 75% Ar + 25% CO₂

Post-secondary materials

- Low carbon steel
 - Plate thickness: 3 mm - 9.5 mm
 - Pipe wall thickness: 3.56 mm – 6.02 mm
 - Diameter: 42.2 mm – 114.3 mm
- Stainless steel: 1.6 mm -3.2 mm
- Aluminum: 3.2 mm
- Filler materials
 - SMAW = E4918, 2.4 mm and 3.2 mm
 - SMAW = E4310, 3.2 mm or E4311, 3.2 mm
 - GMAW = ISO B-G49A SC G6 (ER49S-6), 0.9 mm
 - FCAW = E491T-9-CH, 1.2 mm
 - GTAW = ISO B-G49A SC G3 (ER49S-3), 2.4 and 3.2 mm
 - GTAW = ER308, 2.4 and 1.6 mm
 - GTAW = ER4043, 2.4 and 3.2 mm
- Shielding gas
 - GMAW / FCAW = 75% Ar + 25% CO₂
 - GTAW = Argon
- Tungsten:
 - Competitors may bring their own tungsten, .
 - Cerium, E3 and zirconium types electrodes, cups and collets also
 - gas lenses will be provided: 2.4 and 3.2 Ø mm. Tungsten sharpener
 - will be provided.
- Plans and instructions
- Set or practice materials
- All basic materials required to complete projects
- Foot control (pedal) for the GTAW process
- All filler materials
- Aluminum solvent (cleaner) will be provided

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 materials that must be provided by the competitor.

- Helmet, #10, 11 or 12 lens
- Speed lenses (optional)
- Soap Stone / markers
- Centre punch
- Scriber
- Cold chisel
- 12" combination square (45° / 90°)
- Welding gauge
- Chipping hammer
- Steel and stainless steel wire brushes
- Dividers
- Protractor gauge
- Digital level
- Ball peen hammer
- All-purpose pliers / side cutters
- Vice grip AND C-CLAMPS
- Magnet bracket
- Files/ with handles
- Wedges
- Water spray bottle (e.g. Windex bottle)
- Wrap-A-Round
- Grinders are not permitted
- Hacksaw blade
- **Grinders will be provided in a grinding booth**

4.3 Required clothing (Provided by the competitor)

- Appropriate work clothes (no synthetics clothing's or hoodies)

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 environment rules, may be required to undertake a second safety workshop, this will not affect the Competitor's competition time.

5.2 Personal protective equipment (PPE) provided by Skills/Compétences Canada

- Hearing protection – McCordick
- Safety glasses – McCordick
- Rubber gloves – McCordick
- Leather work gloves – McCordick
- Clear face shield - McCordick

5.3 Personal protective equipment (PPE) provided by competitors:

- CSA approved safety shoes
- Welding helmet
- Welder's gloves

Note: Contestants who do not have the required protective gear will not be allowed to participate in the contest

6 ASSESSMENT

6.1 Point breakdown

POINT BREAKDOWN	/100
SECONDARY	
Day 1 - Drawing: Aircraft - 6 hours	50
Day 2 - Drawing: CS – 1a - 6 hours	50
POST-SECONDARY	
Day 2 - Drawing: Alum GTAW - 2 hours	17
Day 2 - Drawing: S.S GTAW - 2 hours	16.5
Day 2 - Drawing: Mild Steel GTAW - 2 hours	16.5
Day 1 - Drawing: CPS 2a - 6 hours	50

7 ADDITIONAL INFORMATION

7.1 Consecutive interpretation

If consecutive interpretation services are required on site, the provincial or territorial offices must notify the Skills/Compétences Canada National Secretariat at least one month before the competition or these services cannot be guaranteed.

7.2 Tie (No ties are allowed)

In the event of a tie, the competitor with the highest score in the day one, project one, will be declared the winner. If a tie still exists the competitor with the highest mark in the (open groove weld or welds on day 1 project) 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 Contest rules

Refer to the Competition rules of the Skills Canada National Competition.

7.5 Skill area specific rules

- No electronic devices in competition area

8 MEMBERS OF THE NATIONAL TECHNICAL COMMITTEE

Member Organization	Name	E-mail
Alberta - Chair	Dan Lynge	danl@nait.ca
Northwest Territories	Doug Wourms	
Prince Eduard Island	Kent Morrison	
Québec	Martin Daignault	
New Brunswick	Adam Stead	
Saskatchewan	Devin Milligan	
Manitoba	Toby Punton	
Yukon	Ed Bergeron	
Nova Scotia	Stephen Stewart	
British Colombia	Pat McGurk	