Skills Compétences Canada
Vancouver2020

CONTEST DESCRIPTION / DESCRIPTION DE CONCOURS

WELDING
SOUDAGE

SECONDARY AND POST-SECONDARY /
NIVEAUX SECONDAIRE ET POSTSECONDAIRE

SCNC / OCMT
2020
VANCOUVER

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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:

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

These essential skills have been identified in section 2.4 and/or 3.2 of 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 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	December 2019

3.2 Tasks that may be performed during the contest.

3.2.1 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 drawing)[8]
- Interpretation of welding symbols[8]
- Knowledge of base metals and filler metals[7]
- Adjustment of welding machines[1]
- Workplace safety rules[5]
- Notes
  - All measurements are shown in metric
  - All instructions and plans will be provided in English and French.

3.2.2 Practical tasks

3.2.2.1 Secondary

- Shielded metal arc welding (SMAW, mild steel))
- Gas metal arc welding (GMAW, mild steel)
- Flux core (FCAW)
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3.2.2.2 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)

3.2.3 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 Pipe may or may not be included	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 / GTAW Pulse
	Plate: 1G, 2G, 3G, 4G Filet: 1F, 2F, 3F, 4F, 5F Pipe: 1G, 2G, 3G, 5G,6G

Essential Skills – [1]Numeracy, [5]Reading Text, [7]Thinking (significant use of memory) [8]Document Use.

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and materials provided by Skills/Compétences Canada

- Cerium
- E3 and zirconium types electrodes
- Cups and collets
- Gas lenses will be provided: 2.4 and 3.2 Ø mm.
- Tungsten sharpener
- 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
- Angle grinder 4 1/2" 10 amp' - Stanley/Dewalt model: DWE4011cordless
- 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 MIG 360 Multi Process.
- Welding machines and accessories for Secondary competition: Power MIG 360 MP Multi Process Units.
- All equipment can be view at www.lincolnelectric.ca
- Competitor can use any function on the machines. Competitor will be orientated on the basic capability of the machine.

4.1.1 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% CO_2

4.1.2 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 and 2.5 mm or E4311, 3.2 and 2.5 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),1.6 and 2.4 and 3.2 mm
  - GTAW = ER308, 2.4 and 1.6 mm and
  - GTAW = ER4043, 2.4 and 3.2 mm
- Shielding gas
  - GMAW / FCAW = 75% Ar + 25% CO2
  - GTAW = Argon

4.2 Equipment and materiel provided by the competitor

- Tungsten
- 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 or 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
- Hacksaw (Stanley 20-807W mini)
- Measuring tape metric
- Metric ruler
- Magnetic work light.
- Trigger clamps
- Picks
- Flashlight
- **Grinders are not permitted**: **Grinders will be provided in a grinding booth**

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.

4.2.1 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 items in section 4.2 only. There is no exception to this rule. If the Competitor brings other tools, they will be removed and will not be used during the competition.

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 – Project (6 hours)	50
Day 2 – Project (6 hours)	50
POST-SECONDARY	
Day 2 – Project and Aluminum (3 hours)	26
Day 2 – Project and Stainless Steel (3 hours)	24
Day 1 – Project (6 hours)	50

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 competitors orientation.

TOPIC/TASK	CONTEST SPECIFIC RULE
Use of technology - personal laptops, tablets and mobile phones	• Competitors are not allowed to bring personal laptops tablets or mobile phones into the skill area

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 might not be guaranteed.

8.2 Ties

- Tiebreaker #1: The competitor with the highest score in the first project, will be declared the winner.
- Tiebreaker #2: The competitor with the highest mark in the open grove weld or welds on day 1 project will be declared the winner.
- Tiebreaker #3: The Competitor with the highest score on second project will be declared the winner.

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
Alberta - Chair	Dan Lynge
Northwest Territories	Doug Wourms
Prince Edward Island - Co-Chair	Patrick Cheverie
Québec	Martin Daignault
Ontario	Robbie Duncan
New Brunswick	Adam Stead
Saskatchewan	Devin Milligan
Manitoba	Toby Punton
Yukon	Sky Pearson
Nova Scotia	Stephen Stewart
British Colombia	Pat McGurk
Newfoundland and Labrador	Mike Penney

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