



21ST ANNUAL **TERRITORIAL COMPETITION**

CONTEST DESCRIPTION DOCUMENT

10 - WELDING

Secondary & Post-Secondary Level

(NOTE: Scope may change without notice)

PURPOSE OF THE CHALLENGE

DURATION: 6 HOURS

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

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.

Tasks that may be performed 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 drawing)⁸
- Interpretation of welding symbols⁸
- Knowledge of base metals and filler metals
- Adjustment of welding machines¹
- Workplace safety rules⁵
- 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)

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 carbon steel structures:
	Plate: 1G, 2G, 3G, 4G Filet: 1F, 2F, 3F, 4F, 5F Pipe: 1G, 2G, 3G, 5G,6G

ESSENTIAL SKILLS

Essential skills are used in nearly every job to varying degrees. They provide a foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change. Good Essential Skills will help you

understand and remember concepts introduced in technical training. The level of Essential Skills required for most trades is as high or higher than for many office jobs.

Of the nine skills that have been identified and validated as key essential skills for the workplace, this contest involves the following:

- | | | | | | |
|-------------------------------------|---------------------|-------------------------------------|--------------------|--------------------------|---------------------|
| <input type="checkbox"/> | Continuous Learning | <input checked="" type="checkbox"/> | Numeracy | <input type="checkbox"/> | Thinking |
| <input type="checkbox"/> | Digital | <input type="checkbox"/> | Oral Communication | <input type="checkbox"/> | Working with Others |
| <input checked="" type="checkbox"/> | Document Use | <input checked="" type="checkbox"/> | Reading Text | <input type="checkbox"/> | Writing |

EQUIPMENT, TOOLS, SUPPLIES, AND CLOTHING

Note:

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

Provided by the organizing Committee:

- Plans and instructions
- Set or practice materials
- All basic materials required to complete projects
- All filler materials
- Angle grinder 4 1/2" 10 amp'
- Grinding disc 1/4", 1/8", 3/32"
- Welding machines and accessories for Post Secondary competition:
 - Power Wave 350MP Multi Process.
- Welding machines and accessories for Secondary competition:
 - Power Wave 350MP Multi Process Units.

All equipment can be viewed at www.lincolnelectric.ca

- Competitor can use any function on the machines.
- Competitor will be orientated on the basic capability of the machine.
- * *Welding machine can change at any time**

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

- o 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
- 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
- Shielding gas
 - GMAW / FCAW = 75% Ar + 25% CO₂

Provided by the Contestant:

- 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
- Grinders are not permitted
- Hacksaw
- Measuring tape metric
- Metric ruler
- Magnetic work light
- Trigger clamps

- Picks

Grinders will be provided in a grinding booth

COMPETITORS WILL BE REQUIRED TO USE THE MATERIAL AND EQUIPMENT PROVIDED BY Skills Canada NWT. ALL OTHER MATERIAL AND EQUIPMENT WILL BE REMOVED FROM THE SKILL AREA.

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 the section above 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.

Required clothing (Provided by the competitor)

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

SAFETY REQUIREMENTS

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.

Personal protective equipment (PPE) provided by Skills Canada NWT

- Hearing protection – McCordick
- Safety glasses – McCordick
- Clear face shield - McCordick

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

POINT BREAKDOWN / 100 TOTAL

POINT BREAKDOWN	/100
SECONDARY	
Day 1 - Drawing	100

POST-SECONDARY	
Day 1- Drawing	100

Total mark out of: 100%

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

ADDITIONAL INFORMATION

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.

Ties

Tiebreaker: The competitor with the highest mark in the open groove weld or welds on day 1 project will be declared the winner.

Test Project change at the Competition

Where the Test Project has been circulated to Competitors in advance, the Technical Committee shall change a maximum of 30% of the work content. Please refer to the Competition Rules

Competition rules

Refer to the Competition rules of the Skills Canada National Competition which can be found on our website

TECHNICAL COMMITTEE MEMBERS - JUDGES

Doug Wourms, Tech Chair

Kimberlite Career & Technical Centre, YCS, Yellowknife

Doug.wourms@ycs.nt.ca