



22nd ANNUAL SKILLS CANADA PROVINCIAL COMPETITION

Contest Description (Scope Document)

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| COMPETITION DATE: Wednesday February 27, 2019 | CONTEST AREA NAME: Welding |
| CONTEST AREA NUMBER #: 10 | LEVEL: Post-Secondary |
| DURATION OF CONTEST: 6 hours | LOCATION: College of the North Atlantic, Port aux Basques Campus |

CONTEST INTRODUCTION

-Purpose of the Challenge

To assess competitor's ability in the field of welding

-Skills and Knowledge to be tested

Competitors must demonstrate their knowledge in reading drawings and interpreting welding symbols and mastery of the main welding and cutting processes used in today's industry. Assembly and welding work will be assessed based on the technical plans and welding processes specified in the projects.

CONTEST DESCRIPTION

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

| DOCUMENT | DATE OF DISTRIBUTION VIA WEBSITE |
|--------------------|----------------------------------|
| Welding- Project 1 | |
| Welding- Project 2 | |
| Welding- Project 3 | |

-Tasks that may be performed during the contest

The contests 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
- Interpretation of welding symbols

- Knowledge of basic metals and filler materials
- Adjustment of welding machines
- Workplace safety rules

NOTES: All project drawing measurements are shown in metric.

PRACTICAL TASKS

- 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, stainless steel and aluminum)

The following types of joints and positions may include:

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| Assemble and Weld on mild steel structures |
| SMAW, GMAW, FCAW, GTAW |
| Plate: 1G, 2G, 3G, 4G Fillet: 1F, 2F, 3F (vertical up and vertical down), 4F, 5F Pipe: 1G, 2G, 5G, 6G |
| |
| GTAW |
| Pipe: 1G, 2G, 5G, 6G Sheet: 1G, 2G, 3G, 4G Fillet: 1F, 2F, 3F, 4F, 5F |
| Welding on stainless steel and aluminum structures |

EQUIPMENT, MATERIAL, CLOTHING

-Equipment and Material supplied by Skills Canada-Newfoundland and Labrador

- Welding machines and accessories, Lincoln Electric power wave 355M with foot peddle control for amperage only with power feed 10M wire feeders, Miller Dynasty 200 with foot peddle control (for aluminum project)
- Low carbon steel: 6-9.5mm (1/4-3/8")
- Aluminum plate: (5052 grade) 3.2 (1/8")
- Stainless steel: (304 grade) 3.2 (1/8")

- Pipe thickness: 4.8-9.5mm (3/16-3/8")
- Diameters: 50-100mm (2" to 4")
- Filler materials:
 - SMAW = E4918 (E7018) 2.4, 3.2 (3/32", 1/8")
E4310 (E6010) 3.2mm (1/8") or E4311 (E6011) 3.2mm (1/8")
 - GMAW = ER49S-6 (ER70S-6) 0.9mm (0.035")
 - FCAW = E491T-9-CH (E71T-1) 1.2 mm (0.045")
 - GTAW = ER480S-3 (R70S-3) 2.4mm and 3.2mm (1/8" and 3/32")
 - GTAW = ER308 or ER316, 1.6mm and 2.4mm (1/16" and 3/32")
 - GTAW = ER4043 2.4mm (3/32")
- Shielding gases
 - GMAW/ FCAW = 75% Ar + 25 CO₂
 - GTAW – Argon
- Tungsten: size 2.4 (3/32)
 - Competitors may bring their own 2.4 (3/32) tungsten (except thoriated type). Cerium and Zirconium will be provided.
- Plans and instructions
- All basic materials required to complete projects
- Set of practice materials
- All filler materials

-Equipment and Material Competitor must supply:

- Helmet, #10, 11 or 12 lens
- Speed lenses (optional)
- Measuring tape, millimeters
- Soap stone
- Centre punch
- Cold chisel
- 12" combination square (45 degrees/90 degrees)
- Weld gauge
- Magnet(s)
- Chipping hammer
- Steel and stainless-steel wire brushes
- Dividers

- Ball peen hammer
- All-purpose pliers/side cutters
- Vise grip and c-clamps
- Files
- Face shield
- Grinder (to be used for preparation and cleaning of full penetration welds on the mild steel project only)

Required clothing (Provided by competitor)

- Appropriate work clothes, preferred 100%, closely woven cotton or fire-retardant coveralls

SAFETY REQUIREMENTS

The health, safety and welfare of all individuals involved with Skills Canada NL are of vital importance. Safety is a condition of participation and shall not be sacrificed for the sake of expediency. At the discretion of the judges and technical committees, any competitor can be denied the right to participate should they not have the required proper safety equipment and/or act in an unsafe manner that can cause harm to themselves or others.

PLEASE INDICATE WHAT EACH COMPETITOR MUST WEAR DURING THE COMPETITION

- | | |
|---|--|
| <input type="checkbox"/> Safety Glasses | <input type="checkbox"/> CSA approved Safety shoes |
| <input type="checkbox"/> Safety Gloves | <input type="checkbox"/> Welding helmet |
| <input type="checkbox"/> Hard Hat | <input type="checkbox"/> Welding gloves |
| <input type="checkbox"/> Hearing protection | |

Note: Competitors will not be allowed to compete if the above items are not brought and used.

EVALUATION/JUDGING CRITERIA

| POINT BREAKDOWN | /1000 |
|-----------------|-------|
| Project 1 | 50 |
| Project 2 | 25 |
| Project 3 | 25 |

ADDITIONAL INFORMATION

-Tie (No ties are allowed)

In the event of a tie, time will be used to determine the winner. The competitor who finished the competition in the least amount of time will be named the winner.

-Competition rules

Please refer to the competition rules for all general SCPC information.

Planning Committee Members

| NAME | EMAIL ADDRESS |
|--------------------------|--|
| Mike Penney-CNA Lab West | mike_j.Penney@cna.nl.ca |
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