April 10, 2025
27th ANNUAL SKILLS MANITOBA COMPETITION
CONTEST DESCRIPTION

CONTEST NAME: Welding

CONTEST NO: 10

LEVEL:

Secondary / Post Secondary

CONTEST LOCATION:

Welding Shop

Manitoba Institute of Trades and Technology

130 Henlow Bay

NOTE:

Secondary level: Maximum 1 competitor per school.

Post-Secondary level: Maximum 2 competitors per school

CONTEST START TIME AND DURATION:

8:00 AM – 2:00 PM

- 6 hour competition time
- Mandatory lunch break during competition

PURPOSE OF CHALLENGE:

Assess the competitor's competence in the welding trade. Competitors must demonstrate their ability to read plans, interpret welding symbols and display their mastery of the manual welding processes and procedures commonly used in industry.

SKILLS AND KNOWLEDGE TO BE TESTED:

Relying on technical drawings, contestants will be assessed on the assembly and welding procedures based on various projects in all positions using multiple processes.

Practical Component of projects:

Secondary

- Shielded metal arc welding (SMAW).
- Gas metal arc welding (GMAW)
- Blueprint reading

Post-secondary

- Shielded metal arc welding (SMAW).
- Gas metal arc welding (GMAW).
- Gas tungsten arc welding (GTAW).
- Blueprint reading

Theory component:

The theory portion of the contest is limited to the knowledge required to complete the practical element of assembly and welding. The knowledge requirements are included in the contest for assessment purposes and involve the following aspects:

-Interpret drawings;
-Interpret welding symbols;
-S.M.A.W welding;
-G.M.A.W welding;

-G.T.A.W welding;

-Knowledge of basic and auxiliary metals;

-Set up of welding machines;

-Demonstrate the use of hand tools;

-Safety regulations;

Materials and processes to be used

Secondary

Mild steel (SMAW and GMAW)

Post-secondary

Mild steel (SMAW, GMAW, and GTAW)

Stainless steel (GTAW)

Aluminum (GTAW)

Tasks:

Secondary- May consist of some or all of the following processes and procedures

GMAW /SMAW - 1G, 2G, 3G, 4G, 5G pipe, plate or tubing (vertical up/down)

GMAW /SMAW - 1F, 2F, 3F, 4F, 5F pipe, plate or tubing (vertical up/down)

Root: E-6010/6011 - 1/8” electrode

Fill and cap: E7018 – 3/32" -1/8" (2.4 and 3.2) electrodes

Fillets: 1F, 2F, 3F, 4F, 5F – 3/32" -1/8" (2.4 and 3.2) various electrodes

Fillets: 1F-2F E7024 –3/32" -1/8" (2.4 and 3.2) electrodes

Above criteria applies unless otherwise noted on blueprint

Basic Materials- Secondary

Low-grade carbon steel

Thicknesses:

Plate: 3.18 mm - 9.5 mm (1/8" - 3/8")

Round or square Pipe and tubing: 3.18 mm - 6.35 mm (1/8” – 3/8")

Diameters: 50 mm – 100 mm (1" to 4")

Filler Materials

SMAW

E48018 (E7018) 2.4 and 3.2 (3/32" - 1/8")

E41010 (E6010) 2.4 and 3.2 (3/32” - 1/8”)

E41011 (E6011) 2.4 and 3.2 (3/32” -1/8”)

E41024 (E7024) 2.4 and 3.2 (3/32" - 1/8")

GMAW

ER480S-6 (ER70S-6) 0.9mm (.035)

Basic Materials- Post Secondary

Low-grade carbon steel

Thicknesses:

Plate: 3.18 mm - 9.5 mm (1/8" - 3/8")

Round or square Pipe and tubing: 3.18 mm - 6.35 mm (1/8” – 3/8")

Diameters: 50 mm – 100 mm (1" to 4")

Stainless Steel 308L

Thickness: 1/16 “- 1/8”

Aluminum 5356

Material thickness: 14gauge - 10 gauge

Filler Materials

SMAW

E48018 (E7018) 2.4 and 3.2 (3/32" - 1/8")

E41010 (E6010) 2.4 and 3.2 (3/32” - 1/8”)

E41011 (E6011) 2.4 and 3.2 (3/32” -1/8”)

E48024 (E7024) 2.4 and 3.2 (3/32”-1/8”)

GMAW

ER480S-6 (ER70S-6) 0.9mm (.035)

GTAW

R480S-3 (R70S-3) 1.6 and 2.4 (1/16" and 3/32")

ER308L or ER316L (1/16” and 3/32”)

5356 (1/16 or 3/32”)

Tasks:

Post-Secondary- May consist of some or all of the following processes and procedures

GMAW /SMAW/GTAW - 1G, 2G, 3G, 4G, 5G pipe, plate or tubing (vert. up/down)

GMAW/ SMAW /GTAW- 1F, 2F, 3F, 4F, 5F pipe, plate or tubing (vert. up/down)

Root: E6010/6011 - 1/8” electrode

Fill and cap: E7018 – 3/32” or 1/8” electrode

Fillets: 1F, 2F, 3F, 4F and 5F - 3/32” or 1/8” electrode

Fillets: 1F-E7024 - 3/32” or 1/8” electrode

Above criteria applies unless otherwise noted on blueprint

Pre-requisites

Contestants entered in this competition must have mastered the fundamentals of manual welding procedures and processes commonly used in industry. They must also possess an extensive comprehension of reading blueprints and the ability to interpret welding symbols.

Note: All measurements are shown in Standard

PLEASE NOTE

All contestants must be entered in or have completed an approved welding course consisting of at least 8 welding credits as set out from Manitoba Education. Any competitor not meeting these requirements will not be permitted to participate

POINT BREAKDOWN (1000 POINTS)

Secondary

Project 1 – 1000 points

Post-Secondary

Project 1 – 250 points

Project 2 – 750 points

EQUIPMENT, TOOLS, SUPPLIES AND CLOTHING:

Clothing (to be provided by the contestant)

- CSA-approved steel-toed boots;
- Leather welding jacket;
- Welding gloves (2 categories, G.T.A.W and G.M.A.W)
- Safety glasses;
- Ear plugs or protectors;
- Welding helmet, #10 #11 and/or #12 lens

Note:

Contestants who do not have the required protective gear will not be allowed to participate in the contest. Safety glasses and steel toed boots must be worn at **ALL** times. Fume extractors must be used at all times when welding.

Tools and accessories (to be provided by the contestant)

- Tool box
- Measuring tape (standard)
- Soap stone (chalk)
- Lead pencil, felt or other markers.
- Centre punch
- Cold chisel
- 12” square - combination
- Fillet weld gauge
- Chipping hammer
- Steel wire brush
- Needle point compass
- 16 ounce ball peen hammer
- adjustable wrench
- All-purpose pliers (for G.M.A.W)
- Vice grips
- Files
- Magnets

All other personal hand tools must first be approved by the organizing committee.

Materials provided by the organizing committee

- Welding machines and accessories
- Instructions, welding plans and procedures
- All basic materials required to complete projects
- Set of practice materials
- Electrodes, filler rods, welding wire, and welding gas

Additional notes:

- JUDGES SHALL BE FROM INDUSTRY AND EDUCATIONAL INSTITUTIONS
- JUDGES CANNOT HAVE ONE OF THEIR STUDENTS IN THE CONTEST THEY ARE EVALUATING
- ADDITIONAL INFORMATION WILL BE GIVEN DURING CONTEST ORIENTATION
- CONTEST DRAWINGS (isometric only) WILL BE AVAILABLE FROM SKILLS MANITOBA AFTER FEB 20, 2025.
- ADVISORS, INSTRUCTORS, ETC., ARE NOT PERMITTED IN THE WELDING SHOP AND CAN NOT TALK TO THEIR CONTESTANTS DURING THE COMPETITIONS. FAILURE TO FOLLOW THIS INSTRUCTION WILL LEAD TO COMPETITOR DISQULIFICATION.
- THE USE OF CELLULAR PHONES, TEXTING OR ANY OTHER COMMUNICATION DEVICES IS STRICKLY PROHIBITED DURING COMPETITION, ANYONE CAUGHT USING SUCH A DEVICE WILL BE AUTOMATICALLY ELIMINATED FROM THE CONTEST.
- I-PODS, MP3 PLAYERS OR ANY OTHER KIND OF MUSIC DEVICE ARE PROHIBITED DURING COMPETITION.
- BLUE PRINT MAY BE SUBJECT TO CHANGE UP TO 30% ON DAY OF COMPETITION. ANY ALTERATIONS WILL BE NOTED DURING ORIENTATION ON COMPETITION DAY.
- JUDGES DECISIONS ARE FINAL

NATIONAL COMPETITION ELIGIBILITY:

- A mark of **70% or higher** must be scored by the gold medalist in each contest in order to attend the Skills Canada National Competition

THE IMPORTANCE OF SKILLS FOR SUCCESS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY;

In response to the evolving labour market and changing skill needs, the Government of Canada has launched the new Skills for Success (former Essential Skills) model defining nine key skills needed by Canadians to participate in work, in education and training, and in modern society more broadly. SCC is currently working with Employment and Social Development Canada (ESDC) to bring awareness of the importance of these skills that are absolutely crucial for success in Trade and Technology careers. Part of this ongoing initiative requires the integration and identification of the Skills for Success in contest descriptions, projects, and project documents. The following 9 skills have been identified and validated as key skills for success for the workplace: 1.Numeracy, 2.Communication, 3.Collaboration, 4.Adaptability, 5.Reading, 6.Writing, 7.Problem Solving, 8.Creativity and Innovation, 9.Digital

FOR MORE INFORMATION PLEASE CONTACT TECHNICAL COMMITTEE MEMBERS:

Ryan Koltalo — Manitoba Institute of Trades and Technology
PTC Chair
Ph. 204-989-6544

Chris Hassel — Manitoba Institute of Trades and Technology
NTC Co-chair
Ph. 204-750-3012