Provincial Scope Document

WELDING (Secondary)2008

Contest Length: 5 hrs

Check in time Heat 1: 6:15 (contest area) Contest start: 6:30
Check in time Heat 2: 11:00 (lobby) Contest start: 11:45 a.m.

We may need to accommodate some students from 6:30am to 11:30 am depending on the number of contestants. These students will be notified of their start time in advance of the competition date. Registration for this contest will be at the contest site(first heat only).

Students and advisors competing in the afternoon session will be disqualified if they are found in the Welding contest area prior to 11:30 a.m.

Contest Sponsor: BOC Gasses

Purpose of the Challenge:

Assess the contestant's ability in the field of welding. Contestants 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.

Skills & Knowledge to be Tested:

Based on technical drawings and welding processes, contestants will be assessed on the assembly and welding of projects in all positions, and on cutting exercises.

PRACTICAL

Secondary
Oxy-Acetylene Cutting (OAC).
Shielded Metal Arc Welding (SMAW).
Gas Metal Arc Welding (GMAW).

NOTE: THE FLAME CUTTING EXERCISES ARE TO BE PERFORMED FREEHAND.

THEORY

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

• reading drawings;	• adjusting welding machines;
• interpreting welding symbols;	• safety regulations.
• knowledge of basic metals and filler metals;	

Note:

All measurements are shown in Metric (mm) and Imperial (inches).
All orientations, instructions and drawings are to be given in English

Students will be expected to:

- Start and use the welding equipment supplied by the organizer, following the appropriate safety regulations.
- Check that the dimensions of the materials are in accordance with the material list and the prints/drawings.
- Prepare the materials by filing where appropriate
- Assemble the materials in accordance with the drawings provided.
- Utilize their practical skills in drawing interpretation, Oxy-fuel cutting, fitting and welding.
- Demonstrate an ability to read blueprints and interpret welding symbols.
- Have a working knowledge of electrode classification and identification.
- The practical and theoretical components for post secondary students are based on sections from C Level training, including OFC, SMAW, and GMAW.

Contest Description:

TASKS:

Secondary

Oxy-Acetylene cutting and
Welding on Mild steel structures:

SMAW: 1G pipe or 2G or 3G plate,
Root: E41010 (E6010) 3.2mm (1/8”),
Fill and cap: E48018 (E7018)

2.4, and 3.2mm (3/32 and 1/8")
Fillets: 2F, 3F, E48018 (E7018)
3.2 and 4.0mm (1/8 and 5/32")
GMAW: 2F, 3F, and 5F (vertical up/down)

JOINTS CAN BE PLATES AND/OR PIPE OR BOTH

Basic Materials:

Secondary

Low- carbon steel:
Plate thicknesses: 6.4 - 9.5mm (1/4 - 3/8")

Pipes: Sch 40 or Sch 80
Diameter: 50 to 100mm (2" to 4")

FILLER MATERIALS

SMAW = E41010 (E6060), 3.2 and 4.0mm, (1/8" and 5/32")
E48018 (E7018) 2.4, 3.2 and 4.0mm
(3/32", 1/8" and 5/32")
GMAW = ER480S6 (ER70S6) 0.9mm (0.035")

SHIELDING GASES

GMAW= 75% Ar + 25% CO_2

Safety Requirements:

Safety awareness/requirements will be maintained within W.C.B. standards at all times. A contestant will not be allowed to compete without the safety equipment noted on this scope document.

Clothing / Equipment / Tools / Materials

Clothing (to be provided by the contestant):

- appropriate work clothes;
- CSA-approved steel-toed boots;
- welding gloves;
- safety goggles;
- ear plugs or protectors;
- cutting goggles, # 4 or #5 lens;
- helmet, #10 and/or #11 and/or #12 lens.
- speed lenses are permitted

Note

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

Provided by the organizing committee

- Welding machines and accessories
- Mobile OA cutting stations
- Drawings and instructions
- All basic materials required to complete projects
- Scrap plate
- All filler materials

Provided by the contestant and is <u>limited</u> to the following tools:

• Protective gear listed previously	• Chipping hammer
• Measuring tape, millimetres and inches	• Steel wire brush
• Soap stone	• dividers
• Lead pencil	• Ball peen hammer
• Centre punch	• All-purpose pliers/side cutter
• Cold chisel	• Vice grips (standard)
• 12" Combination square (45˚ / 90˚)	• Magnet(s)
• Fillet weld gauge	• 10 inch mill file, bastard cut
• OA tip cleaner	• Toolbox to contain the above items
• OA striker	

Judging / Distribution of Marks:

EVALUATION

Secondary	100%
OA CUTTING	10%
SMAW	30%
GMAW	30%
GENERAL WORKMANSHIP	15%
SAFETY	15%

Judges shall be from industry and educational institutions, however they will not have a student participating in the contest.

<u>ADDITIONAL INFORMATION WILL BE PROVIDED DURING CONTEST ORIENTATION</u>

Advisors, instructors, etc. are not permitted to speak to their contestants during the competitions.

ALL CONTEST MATERIALS, INCLUDING DRAWINGS MUST REMAIN AT THE CONTEST SITE FOR THE DURATION OF THE CONTEST.

Technical Committee:

Ron Mckeown BC Technical Chair, National Committee Ron.McKeown@kwantlen.ca
Bruce Hickey, Rod Walters,
Tony Sull, John Little,
Eric Sukkel, Al Wood

Gold medal winners at the BC Skills Competition are eligible to compete at the Canadian Skills Competition May 25-28, 2008, Calgary, Alberta.

Skills Canada BC reserves the right to update contest information. Please check the website for changes.