



Idaho's 2023 WELDING FABRICATION

Theme

The Welding Fabrication event for Idaho's SkillsUSA State contest will be a "Weld Coupon Bender". Each team will have 3 hours to complete their Weld Coupon Bender **AND REMEMBER WE RESERVE THE RIGHT TO ALTER THE BLUE PRINT PRIOR TO THE DAY OF THE COMPETITION.**

SMAW, GTAW and GMAW welds will be on the project and teams will be required to perform OFC or plasma cutting during the competition.

Preparation/General Rules

The SkillsUSA Idaho welding fabrication contest will be held at the CWI Micron Center welding lab on Thursday, April 6th. The contest will start at 8 am with orientation and a written test followed by the skills test.

This project will be "cut heavy" To prepare students for the contest I suggest they receive additional instruction/practice on OFC on 1" thick material in both straight lines and circles. We plan on having the "die set" pre-cut so minimal trimming only will be required if at all. Students should also be proficient at reading blueprints and weld symbols. Also be aware that this first drawing is a concept only. The project at the state contest will be very similar, but different.

If desired, teams may bring a plaque, no larger than 1/4"x12"x12", pre-cut with school logo, design, or project slogan in it. The plaque may be welded to the top of the project (neither the plaque or the welds joining it to the top of the project will be judged)

All welds will be left in the as welded condition (no grinding or sanding of the welds). The grinder may be used to prep the project to be welded. You may clean the project and welds with wire wheels. Grinding on OFC or plasma cut edges may preformed after judges have graded the cuts.

PURPOSE

To evaluate each contestant's preparation for employment, and to recognize outstanding students for excellence and professionalism in the field of welding fabrication.

CLOTHING REQUIREMENT

Clean 100% cotton work clothes, leather work shoes, and safety glasses with side shields or goggles. (Prescription glasses can be used only if they are equipped with side shields. If not, they must be covered with goggles.)

ELIGIBILITY

Open to active SkillsUSA members enrolled in programs with welding as the occupational objective. This is a team event. Each Team will be comprised of three student members from the same school and training program.

EQUIPMENT AND MATERIALS:

1. Supplied by the technical committee:

- All necessary welding equipment
- All Oxy-fuel torches
- Chop Saws

2. Supplied by the contestant Team as needed:

- *****We Currently Have A Sponsor for ALL of The Materials...However be prepared to bring some parts if sponsors fall through*****... We usually do end up with sponsors, I'll let you know a week prior to the week of the competition if there is anything you need to bring.
*******If there are tools that are not on the list that your team would like to use, please let know and I may approve additional tools.*******
- Hearing and/or ear protection
- Safety Glass with side shields (Z87 approved)
- Welding and cutting gloves
- Welding helmet with appropriate filter
Plate/lens and protective cover plate/lens in a Flip or slide front. Auto darkening shields are permissible.
- Spare spatter and filter lenses/plates for arc welding helmet and oxyacetylene goggles
- Pocket calculator
- Lead pencil and/or ballpoint pen
- Soap stone with holder
- Scribe with magnet
- Combination square set
- Fillet weld gauge
- Wrap a round
- Speed square
- Tape measure and steel rulers
- Straight edge
- Hammer
- Vise grips
- C grips, C clamps, or pipe clamps
- Channel locks
- Crescent wrench 12"
- Protractor or angle finder
- Angle bevel

- Files any size or shape
- 50' power cord (120 V)
- Corded or cordless drill and drill bits
- Tap & Dies and oil
- 4 1/2" grinder with wheels (Cut off wheels, grinding wheels, and sanding disk, ect)
- Wire wheels
- Clear face shields (for grinding and buffing)
- Center punches
- Chipping hammer with or without wire brush
- wire brushes
- Knee pads
- Striker for OFC
- Sand paper or emery cloth

SCOPE OF THE CONTEST

Knowledge Performance

The contest will include assessments of the practical knowledge of welding, including safety, measurement and blueprint reading. Other common fabrication operations will also be assessed such as saw operation, drilling, grinding, and material handling.

Committee Identified Academic Skills

The technical committee has identified that the following academic skills are embedded in this contest.

Math Skills

- Use fractions to solve practical problems
- Measure angles
- Construct three-dimensional models

Science Skills

- Recognition of solids, liquids and gases
- Knowledge of principles of electricity and magnetism

Contest Guidelines/Build Requirements

1. Contestants must correctly use the welding equipment during the contest. The contest chairman and contest coordinator may stop a contestant at any time of the contest if they deem a contestant's manner to be hazardous to either themselves or others. Such stoppage shall disqualify the participant for that section of the contest. If the contestant is warned a second time, he or she will be disqualified as a contest participant.

2. While the contest is in progress, there shall be no communication between the contestants and their instructors, other teams or anyone else, except as directed by a judge, contest coordinator or contest chair. It is expected that team members will communicate with each other.
3. Time limits will be established on the contest **(3 hours)**
4. Welding and cutting operation instructions will be specified in drawings
5. Welding equipment used in the contest may be obtained from a variety of manufacturers and may include transformers, rectifiers and/or inverters.
6. Filler metals will be compatible with the metals being welded and will be detailed on the contest procedure sheet. Instructions to the contestants will define more specifically the filler metals that may be used.
7. Tack welds may be made with any process.
8. Welds will be evaluated visually utilizing a rating system as established by the SkillsUSA technical committee. Nondestructive tests may be used to complete the project evaluation.
9. Final judging of the welded projects will be evaluated per the difficulty of the assigned task and by utilizing the following visual inspection criteria: dimensional accuracy, including distortion; conformity to drawing requirements.

BILL OF MATERIALS

- 3) 1"x13"x13" plates
- 4) 1"x 28" cold rolled rounds
- 1) 1-1/2" die set

WELDING CONSUMABLES SUPPLIED BY COMMITTEE

- .035" ER 70S-6 (GMAW)
- 3/32" ER 70S-2 (GTAW TIG Rod)
- 3/32"/1/8" 7018 SMAW Electrodes
- 3/32"/1/8" 6010 SMAW Electrodes