

2019 North Dakota Welding Fabrication

This contest will take place on the NDSCS Fargo Campus

Contest Standards

PURPOSE:

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

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:

The Welding Fab Planning Committee will provide all necessary welding equipment, filler materials, shielding gases, and cutting equipment and gases. Every effort has been taken to ensure all teams will utilize identical welding and cutting equipment. In the event of unforeseen equipment failure, a suitable replacement will be provided. However, the equipment may or may not be identical.

Contestant Teams may bring/provide the following: (* Required)

1. Hearing and/or ear protection *
2. Welding helmet with appropriate filter plate/lens and protective cover plate/lens. Auto darkening shields are permissible. *
3. Oxy-fuel cutting face shield. Or automatic welding helmet for all cutting and grinding*
4. Spare spatter and filter lenses/plates for arc welding helmet and oxy-fuel Shield
5. Pencil or ball point pen
6. Soap stone and/or paint pen
7. Scribe
8. Compass or other circle drawing device
9. Combination square set
10. Framing Square
11. Center Punch
12. Hand file
13. Chipping Hammer
14. Ball-peen Hammer
15. Wire brush
16. Electric grinder, 3 cut-off discs, 1 hard stone disc
17. Tape measures for all team members
18. Crescent wrench
19. Slip Joint Pliers (1 Per Team Member)
20. Vise Gripping Pliers (Maximum of 3 per team) (Regular or C-Clamp type, short or long)
21. MIG Welding Pliers

CONTEST PROJECT THEME:

Each team shall design and construct an item of their choosing.

Specific Theme Parameters:

Open Concept Project

Bill of Materials:

Quantity	Description
3	2"x2"x1/8" Sheet steel
3	2"x1"x1/8" Sheet steel
2	1 1/2"x1 1/2" x1/8" angle iron 12" long
3	1/8" rod 12" long
3	2"x12"x1/8" Flat strap
3	1 1/2 "x12"x1/8" Flat strap

CONTEST GUIDELINES:

- The team will provide a technical drawing or print with title block, critical dimensions, tolerances, proper welding symbols, proper views required to fabricate the project, and sub assembly or detail drawings. The prints must be created with a computer aided design software The prints may be hand-drawn or computer aided design. All drawings, welding symbols, and welding terms must conform to the latest edition of the American Welding Society (AWS) standards.
- All cutting of materials will be done with the oxy-fuel equipment provided
- Contestants must correctly use both the planning committee welding equipment and the contestant supplied tools. Any member of the planning committee or volunteer judge may stop contestant's participation in the contest at any section of the contest if they deem the contestant's manner is hazardous to themselves, fellow contestants or others. A conference between two members of the planning committee will take place to determine if the stoppage will lead to disqualification or if the contestant will be allowed to return to the team and participate. A second stoppage by a judge or committee member will result in disqualification of the team.
- The teams will have 1 hour for written test and 5 hours to complete the project.
- The evaluation of the team-provided prints will be evaluated by the judges and a score assigned. The score will be incorporated into the overall contest scoring rubric.
- Final judging of the welded projects will be done by a volunteer committee of industry professionals. A standardized/uniform rubric will be provided to the judges. The judges can use any and/or all of the following to evaluate the project:
 - Dimensional accuracy
 - Fit up
 - Overall appearance- Square, Straight, etc.
 - Adherence to required welding process requirements (ex. Inches of SMAW welds)
 - Conformity to drawing
 - Weld Quality:

- Weld size
- Contour
- Penetration
- Visual examination of the weld appearance:
 - Cracks
 - Undercut
 - Overlap
 - Crater fill
 - Spatter
 - Arc strikes
 - Porosity
 - Convexity

Each Project MUST incorporate a minimum of the following welding process to be judged.

- SMAW welds with a minimum of 10" combined weld(s)*
- GMAW welds with a minimum of 10" combined weld(s)*
- Oxy-Fuel cuts with a minimum of 6" of material cut
 - Straight edges can be used to mark material, and used to guide the hand or torch

** The minimum of welds may be multiple welds of the same process that add up to the required inches.*

Filler Metals/Gases:

ER 70S-6 .035

ER 7018 3/32 and 1/8

Oxy/ Acetylene

75/25