

2018 CA SkillsUSA Regional Welding Fabrication Contest

Mobile Tool Rack

This project involves the construction of a mobile tool rack suitable for shop use. Now is the time to use your creativity to brainstorm, design and practice your project to be built. You will have three hours to build this project. Effort should be made to utilize as much of the materials provided as possible.

Project Theme:

Mobile Tool Rack

Project Requirements:

- Must drill 4 holes
- Must be able to fold flat
- Must use all hardware for intended purpose
- Must use at least 4' of chain
- Must be able to hang two 4" grinders

Materials Provided:

- (1) 1" x 1" x 1/8" x 20' angle iron
- (1) 1" x .090 wall x 20' square tubing
- (1) 4' x 4' x 12 gauge sheet steel
- (2) 3" Rigid Casters
- (1) 5' Chain
- (4) 1/4" x 1 1/2 bolts with matching nuts and washers
- (2) 1/4" x 1 bolts with matching nuts and washers

Minimum Project Weld Requirements:

5 Individual SMAW Welds of 3" or greater (Two 3G/F vertical up welds required)

5 Individual GMAW Welds of 3" or greater (Two 3G/F vertical up welds required)

5 Individual GTAW Welds of 3" or greater (Two 3G/F vertical up welds required)

5 Individual FCAW Welds of 3" or greater (Two 3G/F vertical up welds required)

5 Individual OFC Cuts of 5" or greater

80% of Total Weight of Material is required for project

Judging Categories:

- Safety
- Welding Skills
- Cutting Skills
- Teamwork

- Fabrication Accuracy
- Blueprint minimum requirements
 - Title block
 - Proper Critical Dimensions
 - No tolerances are acceptable
 - Proper Welding Symbols
 - Proper Finishing Symbols
 - Proper views needed to fabricate the project
- Verbal Project Description of Design: 2-5 minute description of your project design that will be given to the judges before you compete

Items that must be supplied by Teams:

- All Personal Protective Equipment
- Hearing and/or ear protection
- 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
- Stainless steel wire brush
- **A CD containing all electronic file(s) must be turned in at orientation:**
 - A (.pdf) file and a (.dxf) file is preferred.
- **(2)Printed 11”x 17”Copies of Project Print(s) : 1 set for team, 1 set for judges**
- One-page, typewritten résumé or turned in at orientation
- **Students are permitted to bring grinders, a drill and a 12” chop saw.**
- **Templates are not acceptable.**
- Teams may bring own hand tools but are not needed to complete the project.
- **Official Contest Attire:** 100% cotton khaki colored long sleeved shirt and pants
- **All leather work boots** must be worn (steel-toe not required).

Tools Supplied by Committee to each team:

- Welding Machines
 - Miller Electric XMT 350 power source used for **All** welding processes and/or Lincoln Electric Invertec 350 (or equivalent at site)
 - Voltage Sensing Suitcases may be used for GMAW/FCAW
 - Smith OFC Torch and/or Harris OFC Torch
- Materials from Bill of materials

Other Information

- When fabricating, sometimes parts and/or steel pieces are not supplied with the correct dimensions. If the dimensions are different than your prints, “on the job” corrections must be made. Notify the judges if materials are not the correct dimensions prior to any material prep. The judges will take that into consideration when judging.
- There may be a potential acetylene supply shortage this year. Teams should practice with alternate fuel gases such as propylene and propane in the event that acetylene is unavailable for the contest.
- **NEW THIS YEAR: Teams are allowed to bring their own 12” chop saws. Chop saws will not be provided but are allowed in the contest.**

Safety:

- Face shields must be worn while grinding
- Helmets or oxyacetylene goggles must be worn while cutting
- Welding jackets must be worn while welding
- Safety glasses must be worn at all times
- Only one grinder and one welding machine may be used at a time due to close proximity of teammates
- Grinding sparks on the welding equipment or other people will result in a deduction in points

Personal Protective Equipment (PPE) OSHA Approved:***Not Provided by Committee**

- Safety Glasses
- Hearing Protection
- Leather Work Boots
- Welding Gloves
- Welding Jacket
- Face Shield
- OFC cutting goggles or glasses