



**COLORADO STATE UNIVERSITY**  
**EXTENSION**

## Metalworking

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**Project units are designed for members 8-18 years old**

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Inspiring youth to:

- Understand the proper personal protective equipment for welding
  - Be able to identify the different weldable metals and the different shapes of metal stock
  - Identify the five different types of welding joints
  - Understand the various methods to cut, bend and shape metal
  - Understand the three most common welding processes
  - Construct a project of metal using the information and skills learned
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# Metalworking

## Exhibit Tips:

- Select the Unit that best fits your experience, skills and abilities to produce an exhibit project
- Basic Requirements:
  - Unit 1
    - Produce 3 sample welded joints
    - Build a project 3'x3'x7', under 50 lbs.
  - Unit 2
    - Build a project 3'x3'x7', under 100 lbs.
  - Unit 3
    - Build a Project 3'x3'x7', under 150 lbs.
  - Units 1 - 3
    - Photos of the project construction
      - Four photos of the prep work (cutting, torching, bending, fitting, etc.)
      - Four photos of actual welds (individual welds)
      - Four photos of finished work (no painting, no oil, no seasoning, front view, side view, top view, best overall view)
- Unit 4
  - Exhibit is larger than 3'x3'x7' or over 150 lbs:
    - A 4' wide by 3' tall display board of your completed project with the following minimum information
      - Title or description of exhibit project
      - Left Side - Four photos minimum of the prep work
      - Right Side - Four photos minimum of completed welds
      - Center - Four photos of minimum finish project
      - All project photos must be 5"x 7" minimum
      - Captions for each photo
- Calculating weights for the project is required. A resource can be found at: [www.sss-steel.com/public/pdf/reference-book.pdf](http://www.sss-steel.com/public/pdf/reference-book.pdf)
- The project will be evaluated on the quality of the information in the e-Record and the quality of the exhibit

## Resources:

- Exhibit & Judging Requirements
  - Record Books
  - Manual Information
- Located at: [Colorado4h.org](http://Colorado4h.org)



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**Beyond  
Ready**

# Metalworking Industry Careers



### Safety

Provide oversight and educational awareness to those involved in the metalworking industry



### Regulation & Inspection

Ensure safe products and structures that involve metalwork



### Education

Opportunity to teach others about metalworking and uses and design



Fabrication & Repair  
Create and design products



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### **Degrees/Certifications:**

Occupational Health & Safety Administration (OSHA) Safety Certifications

Certified Associate Welding Inspector  
Welding Technology College Degrees  
Certified (Pipe Welder, Ironworker, Boilermaker, Robotic Technician Welder, Welding)



### Supervision & Management

Provide oversight of projects and builds and staff support



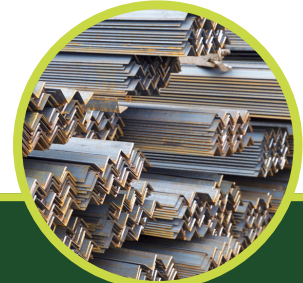
### Research

Test out products, designs, and methods; Work with consumer safety and support



### Information Technology

Support individuals and businesses as they provide services utilizing technological advances



### Retail

Provide sales of products at different retail levels to support the metalworking industry