



Job Ready Assessment Blueprint

Welding



Test Code: 4072 / Version: 01

“Measuring What Matters”

Specific Competencies and Skills Tested in this Assessment:

Safety

- Apply general welding safety practices
- Display familiarity with industrial and OSHA safety standards
- Demonstrate knowledge of oxyfuel safety procedures
- Demonstrate knowledge of arc welding and cutting safety procedures

Welding Symbols and Blueprint Reading

- Interpret welding symbols
- Read and interpret blueprints and sketches

Oxyfuel Cutting (OFC)

- Cut and form metal with oxyfuel equipment
- Assemble and disassemble oxyfuel equipment
- Handle and store compressed gas cylinders



Arc Cutting Process (Carbon Arc and Plasma Arc)

- Identify arc cutting process principles
- Properly use arc cutting equipment
- Exhibit understanding of arc cutting consumables
- Cut materials with arc cutting processes

Physical Characteristics and Mechanical Properties of Metals

- Identify metals by physical characteristics and shapes
- Explain the preheat process and identify preheat temperatures

Specific Competencies and Skills continued:**Weld Fit-up and Quality**

- Identify various joint designs (joint geometry) and welding positions
- Clean and prepare materials for groove and fillet welds
- Identify welding defects and/or discontinuities
- Test welds using various techniques
- Demonstrate proper and safe use of hand tools and power equipment
- Use standard measuring and layout tools
- Display familiarity with welding procedure specifications (WPS)
- Calculate materials lists and costs

Shielded Metal Arc Welding (SMAW)

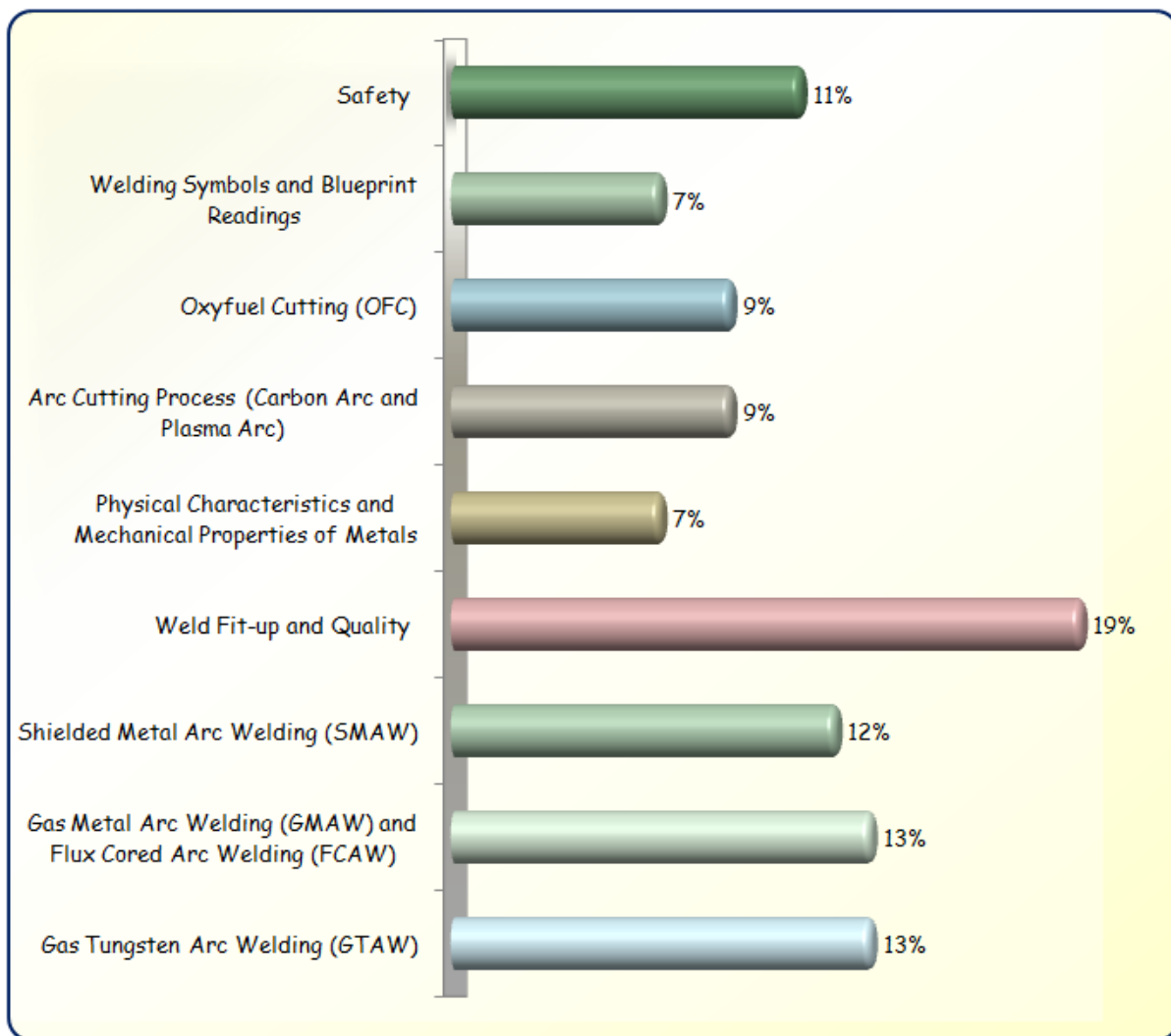
- Demonstrate understanding of the principles of SMAW
- Use and maintain SMAW equipment
- Exhibit understanding of SMAW consumables
- Perform fillet and groove welds on plate in all positions

**Gas Metal Arc Welding (GMAW) and Flux Cored Arc Welding (FCAW)**

- Explain principles of GMAW and FCAW
- Use and maintain GMAW and FCAW equipment
- Exhibit understanding of GMAW and FCAW consumables
- Perform fillet and groove welds on plate in all positions

Gas Tungsten Arc Welding (GTAW)

- Explain principles of GTAW
- Use and maintain GTAW equipment
- Exhibit understanding of GTAW consumables
- Perform fillet and groove welds on ferrous and nonferrous metals in all positions

Written Assessment:**Administration Time:** 3 hours**Number of Questions:** 138**Areas Covered:**

Sample Questions:

The danger involved in welding a sealed container is due to

- A. expansion
- B. contraction
- C. pollution
- D. evaporation

The gap produced after an oxyacetylene cut is made is referred to as the

- A. drag
- B. line of cut
- C. lag
- D. kerf

Tensile strength is the resistance a metal has to being

- A. bent
- B. compressed
- C. pulled apart
- D. twisted

Which condition would cause an electrode holder to overheat?

- A. loose connection
- B. excessively long cable
- C. insufficient current flow
- D. low voltage

The majority of GTAW on ferrous metals is done using

- A. DC electrode positive
- B. DC electrode negative
- C. AC electrode positive
- D. AC high frequency



Performance Assessment:

Administration Time: 2 hours and 55 minutes

Number of Jobs: 5

Areas Covered:

24% Oxyfuel Cutting

Safety, equipment set-up, length and width of cut, bevel cut, location of hole center, hole diameter, corner radius cut, kerf faces smooth, clean off slag, and time to complete Job 1.

19% SMAW Vertical Groove

Safety, equipment set-up, weld appearance, and time to complete Job 2.

19% GMAW Horizontal Fillet

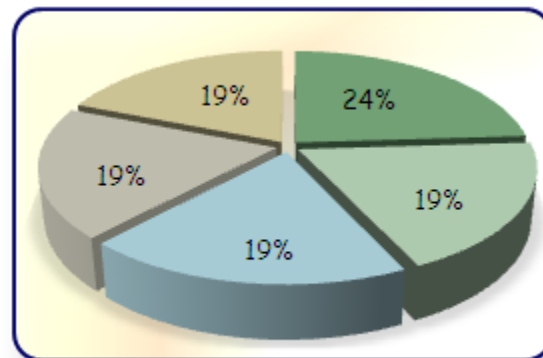
Safety, equipment set-up, weld appearance, and time to complete Job 3.

19% Aluminum GTAW Horizontal Fillet

Safety, equipment set-up, weld appearance, and time to complete Job 4.

19% Stainless Steel GTAW Horizontal Fillet

Safety, equipment set-up, weld appearance, and time to complete Job 5.



Sample Job: Oxyfuel Cutting

Maximum Time: 30 minutes

Participant Activity: The participant will lay out the project according to the diagram provided and flame cut to specified dimensions. Participant must demonstrate knowledge of safety standards and practices.



The Association for Career and Technical Education (ACTE), the leading professional organization for career and technical educators, commends all students who participate in career and technical education programs and choose to validate their educational attainment through rigorous technical assessments. In taking this assessment you demonstrate to your school, your parents and guardians, your future employers and yourself that you understand the concepts and knowledge needed to succeed in the workplace. Good Luck!

