

Welding/Fabrication Competency Profile



SAFETY AND HOUSEKEEPING

- Wear protective face shields and/or goggles in accordance with job requirements
- Wear safety shoes
- Maintain a clean and safe work station
- Follow emergency procedures
- Follow established procedures for the handling of compressed gases

MATERIALS SCIENCE/INSPECTION/TESTING

- Identify materials
- Test welds
- Control distortion

BLUEPRINTS

- Interpret blueprints
- Interpret welding procedures
- Use measuring devices

WELDING FABRICATION

- Demonstrate knowledge of basic hand tools
- Demonstrate knowledge of power metalworking machinery
- Determine welding sequences
- Fabricate parts
- Fit-up parts
- Weld according to procedures
- Inspect weldments against print specifications
- Evaluate quality of welds

SHIELDED METAL ARC WELDING (SMAW)

- Set up SMAW equipment
- Weld steel structural shapes in all four positions using predetermined welding procedures
- Weld mild steel plate using predetermined welding procedures

THERMAL CUTTING

- Identify the types of fuels and their applications
- Attach regulators to oxygen and fuel gas cylinders
- Attach torch to regulators
- Select proper tip size for job requirements
- Perform system start up procedures
- Light OFC torch using a spark lighter
- Adjust flame for proper cut
- Shut down/secure cutting equipment
- Cut metals using plasma arc cutting (PAC) processes
- Cut metals using carbon arc cutting processes
- Cut metals using manual OFC cutting process
- Pierce holes
- Demonstrate knowledge of the characteristics and functions of CNC plasma cutting systems

GAS METAL ARC WELDING (GMAW)

- Set up GMAW equipment
- Weld steel structured shapes in all four positions using predetermined welding procedures
- Weld mild steel using predetermined welding procedures

GAS TUNGSTEN ARC WELDING (GTAW)

- Set up GTAW equipment
- Weld stainless steel using predetermined welding procedures
- Weld mild steel using predetermined welding procedures
- Weld aluminum using predetermined welding procedures
- Demonstrate knowledge of the characteristics and functions of pulse arc GTAW systems
- Identify GTAW requirements for specialty metals

FLUX CORE ARC WELDING (FCAW)

- Set up FCAW equipment
- Weld mild steel using predetermined welding procedures
- Weld steel structural shapes using predetermined welding procedures