

Competency Task List – Secondary Component Welding Technology/Welder CIP 48.0508 High School Graduation Years 2022, 2023, 2024

100 Occupational Orientation and Safety

- 101 Complete time or job sheet, reports, or records.
- 102 Perform housekeeping duties daily.
- 103 Follow verbal instructions to complete work assignments and rules.
- 104 Follow written instructions to complete work assignments and rules.
- 105 Inspect and use Personal Protection Equipment (PPE) daily.
- 106 Maintain proper organization and operation of work area.
- 107 Demonstrate proper use of ventilation equipment.
- 108 Discuss proper hot work operation.
- 109 Demonstrate knowledge of proper work actions for working in confined spaces.
- 110 Identify Safety Data Sheets (SDS) and precautionary labeling.
- 111 Inspect welding and thermal cutting equipment for safe operation.
- 112 Display familiarity with industrial and OSHA safety standards.
- 113 Identify oxyfuel safety procedures.
- 114 Identify arc welding/cutting safety procedures.
- 115 Follow emergency action plan.
- 116 **Operate fire extinguishers (type A,B,C,D).**
- 117 **Identify power tool accessories**
- 118 **Perform basic CAD operations**

200 Principles of Welding

- 201 Identify major types of metals (ferrous and nonferrous) used in welding.
- 202 Describe the basic principles of heat, expansion, and contraction as they relate to metals.
- 203 Select appropriate welding technique, equipment and supplies for a given metal or process.
- 204 Describe the industry accepted welding codes, standards, and procedures and their use.
- 205 Identify various joint designs (joint geometry).
- 206 Clean and prepare materials for welding and/or cutting, **and grind finishing.**
- 207 Demonstrate proper use of hand tools.
- 208 Demonstrate proper use of standard measuring and layout tools.
- 209 Demonstrate proper use of power equipment.

300 Welding, Drawing, and Weld Symbol Interpretation

- 301 Interpret basic elements of a drawing or sketch.
- 302 Interpret welding symbol information.
- 303 Fabricate parts from a drawing or sketch (class project).
- 304 Identify structural materials used in the metal fabrication field, **by size and weight.**
- 305 Perform basic metric conversion, **using metric measures**

400 Visual Examination, Inspection, and Testing

- 401 Evaluate cut surfaces and edges of prepared base metal parts for testing.
- 402 Identify and evaluate weld discontinuities as per accept/reject criteria.
- 403 Perform visual inspection, destructive, and non-destructive testing.

500 Shielded Metal Arc Welding (SMAW)

- 501 Perform safety inspections of SMAW equipment.
- 502 Make minor external repairs to SMAW equipment.
- 503 Set up and operate SMAW equipment.
- 504 Make Fillet Weld in all positions (**Flat; Horizontal; Vertical-Up; Vertical-down; and Overhead**).
- 505 Make groove welds in all positions. (**Flat; Horizontal; Vertical-up; Vertical-down; and Overhead**).
- 506 Pass performance test in all positions.
- 507 Perform qualification test.
- 508 Pass fillet weld performance test in flat position.
- 509 Pass fillet weld performance test in horizontal position.
- 510 Pass fillet weld performance test in vertical position.
- 511 Pass fillet weld performance test in overhead position.
- 512 Pass groove weld performance test in flat position.
- 513 Pass groove weld performance test in horizontal position.
- 514 Pass groove weld performance test in vertical position.
- 515 Pass groove weld performance test in overhead position.

600 Gas Metal Arc Welding (GMAW)

- 601 Perform safety inspections of GMAW equipment.
- 602 Make minor external repairs to GMAW equipment.
- 603 Set up and operate GMAW equipment.
- 604 Make fillet welds in all positions. (**Flat; Horizontal; Vertical-up; Vertical-down; and Overhead**).
- 604a **Make welds on non-ferrous metals in all positions. (Flat; Horizontal; Vertical-up; Vertical-down;**
- 605 Make groove welds in all positions. (**Flat; Horizontal; Vertical-up; Vertical-down; and Overhead**).
- 606 Pass performance test.
- 607 Pass fillet weld performance test in flat position.
- 608 Pass fillet weld performance test in horizontal position.
- 609 Pass fillet weld performance test in vertical position.
- 610 Pass fillet weld performance test in overhead position.
- 611 Pass groove weld performance test in flat position.
- 612 Pass groove weld performance test in horizontal position.
- 613 Pass groove weld performance test in vertical position.
- 614 Pass groove weld performance test in overhead position.

700 Flux Cored Arc Welding (FCAW)

- 701 Perform safety inspections of FCAW equipment.
- 702 Make minor external repairs to FCAW equipment.
- 703 Set up and operate FCAW equipment.
- 704 Make fillet welds in all positions. (**Flat; Horizontal; Vertical-up; Vertical-down; and Overhead**).
- 705 Pass performance test.
- 706 Demonstrate a groove weld in all positions. (**Flat; Horizontal; Vertical-up; Vertical-down; and Overhead**).
- 707a **Make a groove weld in all positions. (Flat; Horizontal; Vertical-up; Vertical-down; and Overhead)**.
- 707 Pass fillet weld performance test in flat position.
- 708 Pass fillet weld performance test in horizontal position.
- 709 Pass fillet weld performance test in vertical position.
- 710 Pass fillet weld performance test in overhead position.

- 711 Pass groove weld performance test in flat position.
- 712 Pass groove weld performance test in horizontal position.
- 713 Pass groove weld performance test in vertical position.
- 714 Pass groove weld performance test in overhead position.

800 Gas Tungsten Arc Welding (GTAW)

- 801 Perform safety inspections of GTAW equipment.
- 802 Make minor external repairs to GTAW equipment.
- 803 Set up and operate GTAW equipment.
- 804 Make fillet welds, in all positions (**Flat; Horizontal; Vertical-up; Vertical-down; and Overhead**).
- 805 Pass performance test on ferrous materials.
- 806 Set up and operate GTAW on nonferrous materials.
- 807 Make fillet welds, in all positions (**Flat; Horizontal; Vertical-up; Vertical-down; and Overhead**).
- 807a Make a groove weld in all positions. (**Flat; Horizontal; Vertical-up; Vertical-down; and Overhead**).
- 808 Pass performance test on nonferrous materials.
- 809 Pass fillet weld performance test in flat position on ferrous materials.
- 810 Pass fillet weld performance test in horizontal position on ferrous materials.
- 811 Pass fillet weld performance test in vertical position on ferrous materials.
- 812 Pass fillet weld performance test in overhead position on ferrous materials.
- 813 Pass fillet weld performance test in flat position on nonferrous materials.
- 814 Pass fillet weld performance test in horizontal position on nonferrous materials.
- 815 Pass fillet weld performance test in vertical position on nonferrous materials.
- 816 Pass fillet weld performance test in overhead position on nonferrous materials.

900 Manual Oxy-fuel Gas Cutting (OFC)

- 901 Perform safety inspections of OFC equipment.
- 902 Make minor external **consumable parts** repairs to OFC equipment.
- 903 Set up for **safe and accurate** manual OFC operations on steel.
- 904 Operate manual OFC equipment.
- 905 Perform straight **Line** cutting operations on steel.
- 906 Perform shape cutting operations on steel.
- 907 Perform bevel cutting operations on steel.
- 908 Perform piercing operations on steel.
- 909 **Perform chamfered cutting operations.**
- 910 **Perform 1 inch diameter hole cutting operations**

1000 Mechanized Oxy-fuel Gas Cutting (OFC)

- 1001 Perform safety inspections of mechanized OFC equipment.
- 1002 Make minor external **consumable parts** repairs to mechanized OFC equipment.
- 1003 Set up and operate **mechanized** OFC equipment on steel.
- 1004 Perform straight line mechanized OFC operations on steel.
- 1005 Perform bevel mechanized OFC operations on steel.

1100 Manual Plasma Arc Cutting (PAC)

- 1101 Perform safety inspections of PAC equipment.

- 1102 Make minor external **consumable part(s)** repairs to PAC equipment.
- 1103 Set up and operate manual PAC operations on ferrous and nonferrous materials.
- 1104 Perform shape PAC operations on ferrous and nonferrous materials.
- 1105 Perform gouging and scarfing PAC operations to remove base and weld metal on ferrous and non-
- 1106 **Perform straight line cutting operations on ferrous and non-ferrous materials.**

1200 Manual Air Carbon Arc Cutting (CAC-A)

- 1201 Perform safety inspections of CAC-A equipment and accessories.
- 1202 Make minor external repairs to CAC-A equipment and accessories.
- 1203 Set up and operate manual CAC-A gouging and cutting operations on steel.
- 1204 Perform gouging and scarfing operations to remove base and weld metal on steel.

1300 Reserved

- 1301 RESERVED
- 1302 RESERVED

