





Unit/ Standard Number	 pennsylvania <small>DEPARTMENT OF EDUCATION</small> <p style="text-align: right;"><u>High School Graduation Years 2013, 2014 and 2015</u></p> <p style="text-align: center;">Welding Technology/Welder CIP 48.0508 Task Grid</p>	Proficiency Level Achieved: (X) Indicates Competency Achieved to Industry Proficiency Level
	Secondary Competency Task List	
100	OCCUPATIONAL ORIENTATION AND SAFETY	
101	Prepare and mark 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	Demonstrate proper use and inspection of Personal Protection Equipment (PPE).	
106	Demonstrate proper work area operation.	
107	Demonstrate proper use of ventilation equipment.	
108	Discuss proper Hot Zone operation.	
109	Understand proper work actions for working in confined spaces.	
110	Understand MSDS sheets and precautionary labeling.	
111	Demonstrate proper use and inspection of equipment used for each required welding and thermal cutting process.	
112	Display familiarity with industrial and OSHA safety standards.	
113	Demonstrate knowledge of oxyfuel safety procedures.	
114	Demonstrate knowledge of arc welding safety procedures.	
115	Demonstrate emergency action plan (all inclusive).	
200	PRINCIPLES OF WELDING	
201	Identify major types of metals (ferrous and non-ferrous) used in welding.	
202	Describe the basic principles of heat, expansion and contraction as it relates 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.	
207	Demonstrate proper use of hand tools and power equipment.	
208	Demonstrate proper use of standard measuring and layout tools.	

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209	Demonstrate proper use of one 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 metals used in the Metal Fabrication field.	
305	Demonstrate knowledge of basic metric conversion.	
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	Demonstrate visual inspection and destructive and non destructive techniques.	
500	SHIELDED METAL ARC WELDING (SMAW)	
501	Perform safety inspections of SMAW equipment and accessories.	
502	Make minor external repairs to SMAW equipment and accessories.	
503	Set up and operate SMAW equipment.	
504	Make fillet welds in all positions.	
505	Make groove welds in all positions.	
506	Pass performance test in all positions.	
507	Perform qualification test.	
600	GAS METAL ARC WELDING (GMAW)	
601	Perform safety inspections of GMAW equipment and accessories.	
602	Make minor external repairs to GMAW equipment and accessories.	
603	Set up and operate GMAW equipment.	
604	Make fillet welds in all positions.	

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605	Make groove welds in all positions.	
606	Pass performance test.	
700	FLUX CORED ARC WELDING (FCAW)	
701	Perform safety inspections of Flux Cored Arc equipment and accessories.	
702	Make minor external repairs to Flux Cored Arc equipment and accessories.	
703	Set up and operate FCAW equipment.	
704	Make fillet welds in all positions.	
705	Pass performance test.	
706	Demonstrate a groove weld in all positions.	
800	GAS TUNGSTEN ARC WELDING (GTAW)	
801	Perform safety inspections of GTAW equipment and accessories.	
802	Make minor external repairs to GTAW equipment and accessories.	
803	Set up and operate GTAW equipment.	
804	Make fillet welds, in all positions, on ferrous materials.	
805	Pass performance test on ferrous materials.	
806	Set up and operate GTAW on nonferrous materials.	
807	Make fillet welds on nonferrous materials.	
808	Pass performance test on nonferrous materials.	
900	MANUAL OXYFUEL GAS CUTTING (OFC)	
901	Perform safety inspections of OFC equipment and accessories.	
902	Make minor external repairs to OFC equipment and accessories.	
903	Set up for manual OFC operations on steel.	
904	Operate manual OFC equipment.	
905	Perform straight cutting operations on steel.	
906	Perform shape cutting operations on steel.	

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907	Perform bevel cutting operations on steel.	
908	Perform piercing operations on steel.	
1000	MECHANIZED OXYFUEL GAS CUTTING (OFC)	
1001	Perform safety inspections of mechanized OFC equipment and accessories.	
1002	Make minor external repairs to mechanized OFC equipment and accessories.	
1003	Set up and operate OFC equipment on steel.	
1004	Perform straight cutting operations on steel.	
1005	Perform bevel cutting operations on steel.	
1100	MANUAL PLASMA ARC CUTTING (PAC)	
1101	Perform safety inspections of PAC equipment and accessories.	
1102	Make minor external repairs to PAC equipment and accessories.	
1103	Set up and operate manual PAC operations on ferrous and nonferrous materials.	
1104	Perform shape cutting operations on ferrous and nonferrous 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	BRAZING AND SOLDERING	
1301	Set up and operate silver oxyfuel brazing and silver soldering equipment.	
1302	Perform brazing and silver soldering operations.	