







Unit/Standard Number	 <p style="text-align: center;">Plumbing Technology/Plumber CIP 46.0503 Task Grid</p>	LEA Task # Alignment
Secondary Competency Task List		
100	DEMONSTRATE PERSONAL SAFETY IN THE TRAINING LABORATORY	
101	Follow rules for fire safety.	
102	Follow rules for housekeeping safety.	
103	Follow shop rules.	
104	Follow rules for material handling safety.	
105	Follow rules for eye protection.	
106	Follow rules for hearing protection.	
107	Follow rules for respiratory protection.	
108	Follow rules for hand tool safety.	
109	Follow rules for power equipment safety.	
110	Follow rules for portable electric hand tool safety.	
111	Follow rules for M.S.D.S. Safety.	
112	Follow safety rules as they relate to E.C.P. (Exposure Control Procedures: blood borne pathogens, etc.).	
113	Follow OSHA (Occupational Safety Health Act) regulations	
200	DEMONSTRATE JOB SITE SAFETY PRACTICES	
201	Discuss provisions, inspections and citations of OSHA.	
202	Demonstrate compliance to EPA regulations for handling refrigerants.	
203	Demonstrate knowledge of EPA job site requirements NARI	
300	READ BLUEPRINTS AND SKETCHING OF PIPE SYSTEMS	
301	Identify types of drawings.	
302	Identify the various lines used on drawings.	
303	Interpret specifications, and dimensions.	
304	Identify the three basic views of a drawing.	
305	Create isometric drawings.	
306	Identify piping systems according to color-coding.	
400	DEMONSTRATE KNOWLEDGE OF PIPE SPECIFICATIONS AND SYSTEMS	
401	Identify pipe and components according to specification	

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402	Demonstrate knowledge of pipefitting standards, codes and specifications	
403	Read and interpret pipefitting specifications	
404	Identify and explain the types of piping systems	
405	Identifying piping systems according to color-coding	
406	Explain the effects and corrective measures for thermal expansion in piping system	
407	Explain types and applications of pipe insulation	
408	Identify various metals and specification process used in the plumbing and heating industry.	
500	DEMONSTRATE USE OF HAND AND POWER TOOLS	
501	Identify basic hand tools, state their uses, and use them in the trade.	
502	Identify power tools, safety and use and maintenance	
600	IDENTIFY AND INSTALL VALVES	
601	Identify usage and installation of backflow prevention devices	
602	Identify types of valves that start and stop flow.	
603	Identify types of valves that regulate flow.	
604	Identify valves that relieve pressure.	
605	Identify valves that regulate the direction of flow.	
606	Explain the factors that influence valve selection.	
700	DISSASSEMBLE AND ASSEMBLE VALVES	
701	Disassemble and assemble various types of valves (such as grade valve, globe valve, and flush valve)	
800	DEMONSTRATE SKILL IN WORKING WITH COPPER PIPE	
801	Demonstrate skills in joining, cutting and bending various types of copper tubing: solder, compression, flare, swage, press fit.	
802	Prepare and braze a joint.	
803	Perform tests on all soldered and brazed joints.	
900	DEMONSTRATE SKILL IN VARIOUS TYPES OF PLASTIC PIPE AND TUBING	
901	Measure , cut and assemble PVC, CPVC, ABS,	
902	Measure, cut and assemble PEX and PE	
903	Measure, cut and assemble HDPE	

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904	Fabricate a crimp joint connection	
905	Fabricate a tubing type joint	
1000	INSTALL PIPE HANGERS AND SUPPORTS	
1001	Use hangers to secure horizontal and vertical pipe lines to masonry, metal and wood	
1002	Layout, anchor, install various carrier fixture	
1100	BUILD WATER DISTRIBUTION LINES	
1101	Make water pressure tests on water supply systems.	
1102	Rough-in water supply lines for bathtubs, wall mounted urinals, water closets, clothes washer, kitchen sink, lavatories	
1103	Demonstrate knowledge of a whirlpool tub instillation	
1104	Demonstrate knowledge of a bidet instillation	
1200	DEMONSTRATE SKILL IN WORKING WITH STEEL PIPE	
1201	Thread steel pipe with an adjustable die, power threading machine, non-adjustable die	
1202	Measure, cut, ream, thread, assemble, and test various types of steel piping.	
1300	DEMONSTRATE SKILL IN WORKING WITH CAST IRON PIPE	
1301	Identify and use cast iron tools.	
1302	Measure and cut cast iron soil pipe with a chain cutter.	
1303	Assemble cast iron to various pipe types with no hub, Fernco, rubber gasket joints	
1400	FABRICATE THREADED PIPE	
1401	Construct various types and sizes of steel pipe projects using end to end, end to center, center to throat, and overall improvements	
1500	DEMONSTRATE TRANSIT OPERATIONS	
1501	Identify and set up a level and/or transit.	
1502	Set up the level and/or transit; shoot elevations, and grade pipe.	
1600	BUILD DRAINS	
1601	Lay out and establish grade/slope for drain lines.	
1602	Install backflow prevention valves.	
1603	Water or air test a drain.	
1604	Install air admittance valves.	
1605	Rough-in waste lines and vents for bathtubs, lavatories, dishwashers, water closets, showers, bidets and urinals.	

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1606	Install a grease interception trap in waste lines.	
1607	Install garbage disposal units.	
1608	Install sump pumps.	
1609	Install a sewerage pump.	
1700	INSTALL FIXTURES	
1701	Install shower/bath accessories in ceramic tile.	
1702	Install tank-type water closets.	
1703	Install bathtubs.	
1704	Install wall mounted lavatories.	
1705	Install wall mounted urinals.	
1706	Install kitchen sink.	
1707	Install prefabricated shower base drains.	
1708	Install built-in lavatories.	
1709	Install flush valve-type water closets.	
1710	Install traps and cleanouts.	
1800	INSTALL APPLIANCES	
1801	Install dishwashers.	
1802	Install electric water heaters.	
1803	Install gas water heaters.	
1804	Install clothes washing machines.	
1805	Install oil-fired water heater	
1806	Install water re-circulating pumps.	
1807	Install garbage disposal units.	
1808	Install sump pumps.	
1809	Install a sewerage pump.	
1900	INSTALL VENTS	
1901	Install soil or waste back vents	
1902	Install soil or waste loop vents.	
1903	Install vent terminals (roof-flashing).	
2000	MAINTAIN PLUMBING SYSTEMS	
2001	Clear obstructions from lavatory drains.	

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2002	Remove obstructions from main drain lines.	
2003	Remove obstructions from water closets	
2004	Repair/Replace lavatory trap drains, and leaking water faucets or valves	
2005	Repair leaking shower valves.	
2006	Repair water flush valves on water closets.	
2007	Replace a section of galvanized water supply line.	
2008	Explain how to thaw frozen pipes.	
2009	Disassemble "P" traps to clear lavatory drains.	
2010	Repair /replace any type of water closets.	
2100	PERFORM TESTS ON PIPING SYSTEMS	
2101	Perform head pressure tests.	
2102	Perform hydrostatic tests.	
2103	Perform leak tests on gas supply lines.	
2200	PERFORM ADVANCED PIPE FABRICATION	
2201	Calculate simple piping offsets.	
2202	Calculate three-line, 45° equal-spread offsets around a vessel.	
2203	Calculate three-line, 45° unequal-spread offsets.	
2300	WORK WITH PRESSURE BOILERS	
2301	Identify and explain various boiler fittings and accessories, including thermo expansion devices.	
2302	Discuss the various types of boilers.	
2303	Identify and explain various boiler, steam, and hot water fittings and piping.	
2304	Identify and explain feed water accessories.	
2305	Identify and explain steam and hot water accessories.	
2306	Explain the operation of a boiler and its various controls	
2307	Explain the operation of the draft controls.	
2308	Identify and explain boiler safety.	
2400	WORK WITH HYDRONIC HEATING SYSTEM	
2401	Describe and design a hydronic heating systems:	
2402	Describe and design a primary and secondary loops	
2403	Calculate lay-out and design a radiant floor system	
2404	Explain operation of 3-way or 4-way mixing valve, injection pump, tempering valve accessories/ controls of system	

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2500	DEMONSTRATE SAFE USE OF LADDERS AND SCAFFOLDS	
2501	Identify the different types of ladders and scaffolds used on a worksite.	
2502	Describe how to use ladders and scaffolding safely.	
2503	Properly set up, inspect, and use stepladders, extension ladders, and scaffolding.	