# Competency Task List – Secondary Component

# Plumbing Technology/Plumber CIP 46.0503

# High School Graduation Years 2023, 2024, 2025

## 100 Safety

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
|  | RESERVED (101-112) |  |  |
| 113 | Practice Occupational Safety and Health Administration (OSHA) safety standards as they relate to the industry. |  |  |

## 200 Reserved

## 300 Blueprints and Sketching of Pipe Systems

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 301 | Interpret types of drawings. |  |  | |
| 302 | Interpret various lines used on drawings. |  |  | |
| 303 | Interpret specifications and dimensions. |  |  | |
|  | RESERVED (304) |  |  | |
| 305 | Interpret piping systems according to color-coding. |  |  | |

## 400 Pipe Specifications and Systems

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 401 | Install pipe and connections according to manufacturer specifications. |  |  | |
| 402 | Follow plumbing standards, codes, and specifications. |  |  | |
|  | RESERVED (403) |  |  | |
|  | RESERVED (404) |  |  | |
| 405 | Research the effects and corrective measures for thermal expansion in a piping system. |  |  | |
| 406 | Install various types of pipe insulation. |  |  | |
|  | RESERVED (407) |  |  | |

## 500 Hand and Power Tools

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 501 | Use and maintain hand tools. |  |  | |
| 502 | Use and maintain power tools and equipment. |  |  | |
| 503 | Operate laser or transit level for sitework. |  |  | |

## 600 Valves

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 601 | Use backflow prevention devices |  |  | |
| 602 | Use types of valves that start and stop flow. |  |  | |
| 603 | Use valves that regulate flow. |  |  | |
| 604 | Use valves that relieve pressure. |  |  | |
|  | RESERVED (605) |  |  | |
| 606 | Disassemble and assemble various types of valves, e.g., gate valve, globe valve, flushometer. |  |  | |

## 700 Copper Piping Operations

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 701 | Join, cut, and bend various types of copper pipe tube, e.g., solder, compression, flare, swage, press fit, brazing. |  |  | |
|  | RESERVED (702-704) |  |  | |

## 800 Plastic Pipe and Tubing

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 801 | Measure, cut and assemble Polyvinyl Chloride (PVC), ChlorinatedPolyvinylChloride (CPVC), and Acrylonitrile-Butadiene-Styrene (ABS). |  |  | |
| 802 | Measure, cut and assemble cross-linked Polyethylene (PEX) plastic tubing and Polyethylene (PE). |  |  | |
|  | RESERVED (803) |  |  | |
|  | RESERVED (804) |  |  | |

## 900 Pipe Hangers and Supports

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 901 | Use hangers to secure horizontal and vertical pipe to masonry, metal, and wood. |  |  | |
| 902 | Layout and explain various fixture carriers. |  |  | |

## 1000 Water Distribution Lines

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
|  | RESERVED (1001) |  |  | |
| 1002 | Rough-in water supply lines for residential and commercial fixtures according to manufacturer spec sheet. |  |  | |
|  | RESERVED (1003) |  |  | |

## 1100 Steel Pipe Operations

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1101 | Thread steel pipe with an adjustable die, power threading machine, and hand threader. |  |  | |
| 1102 | Measure, cut, ream, and assemble various types of steel piping. |  |  | |
| 1103 | Adapt steel pipe to other piping materials. |  |  | |
| 1104 | Assemble black steel pipe with mega press fittings. |  |  | |
| 1105 | Assemble Corrugated Stainless-Steel Tubing (CSST) pipe and fittings. |  |  | |

## 1200 Cast Iron Pipe Operations

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1201 | Use tools for working with cast iron pipe. |  |  | |
| 1202 | Measure and cut cast iron soil pipe with various cutting methods. |  |  | |
| 1203 | Assemble cast iron with No Hub, Fernco, and rubber gasketed joints. |  |  | |
| 1204 | Research lead joints. |  |  | |

## 1300 Reserved

## 1400 Drains, Stacks and Sewers

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1401 | Lay out and establish grade/slope for drain lines. |  |  | |
| 1402 | Explain backwater prevention. |  |  | |
|  | RESERVED (1403) |  |  | |
|  | RESERVED (1404) |  |  | |
| 1405 | Rough-in drain lines for residential and commercial fixtures according to manufacturer specification sheet. |  |  | |

## 1500 Fixtures

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1501 | Install gravity, pressure assist, or flush valve type water closets. |  |  | |
| 1502 | Install bathtubs. |  |  | |
| 1503 | Install wall mounted fixtures. |  |  | |
|  | RESERVED (1504) |  |  | |
| 1505 | Install kitchen sinks. |  |  | |
| 1506 | Install prefabricated shower base drains. |  |  | |
| 1507 | Install lavatories. |  |  | |
|  | RESERVED (1508) |  |  | |
| 1509 | Install fixture traps. |  |  | |

## 1600 Appliances

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1601 | Install a dishwasher. |  |  | |
| 1602 | Install electric and gas water heater. |  |  | |
|  | RESERVED (1603) |  |  | |
| 1604 | Install a clothes washing machine. |  |  | |
| 1605 | Install specialty water heaters (oil, tankless, indirect, or heat pump). |  |  | |
| 1606 | Install a water re-circulating pump. |  |  | |
| 1607 | Install a garbage disposal unit. |  |  | |
| 1608 | Install a sump pump. |  |  | |
| 1609 | Research a sewage ejector pump. |  |  | |

## 1700 Vents

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1701 | Apply principles and purposes of venting, e.g., common, individual, wet vent. |  |  | |
|  | RESERVED (1702) |  |  | |
| 1703 | Explain vent termination. |  |  | |
| 1704 | Explain air admittance valves. |  |  | |

## 1800 Plumbing Systems Maintenance

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 1801 | Clear obstructions from lavatory drains. |  |  | |
| 1802 | Clear obstructions from main drain lines. |  |  | |
| 1803 | Clear obstructions from water closets. |  |  | |
| 1804 | Repair/replace leaking water faucets or valves. |  |  | |
|  | RESERVED (1805-1807) |  |  | |
| 1808 | Research methods to thaw frozen pipes. |  |  | |
|  | RESERVED (1809) |  |  | |
|  | RESERVED (1810) |  |  | |
| 1811 | Replace all components in a gravity and/or pressure assist toilet tank. |  |  | |
| 1812 | Research sewer camera(s) for pipe inspection. |  |  | |

## 1900 Tests on Systems

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
|  | RESERVED (1901-1903) |  |  | |
| 1904 | Perform tests according to local plumbing and mechanical codes (air, hydrostatic, head pressure, etc.) |  |  | |

## 2000 Advanced Pipe Fabrication

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 2001 | Calculate simple piping offsets. |  |  | |
| 2002 | Calculate three-line, 45° equal-spread offsets around a vessel. |  |  | |
| 2003 | Calculate three-line, 45° unequal-spread offsets. |  |  | |
| 2004 | Convert center, back throat, and/or face measurement to an end measurement. |  |  | |

## 2100 Pressure Boilers

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 2101 | Research various near boiler fittings, controls, and accessories. |  |  | |
| 2102 | Research various types of boilers and fuel sources. |  |  | |
|  | RESERVED (2103-2105) |  |  | |
| 2106 | Research the operation of water and steam boilers and their various controls. |  |  | |
|  | RESERVED (2107) |  |  | |
|  | RESERVED (2108) |  |  | |

## 2200 Hydronic Heating System

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 2201 | Research piping for a hydronic heating system. |  |  | |
| 2202 | Research a primary and secondary piping system. |  |  | |
| 2203 | Research a radiant system. |  |  | |

## 2300 Ladders and Scaffolds

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| --- | --- | --- | --- |
| Item | Task | (X) Indicates Proficiency 1 | Secondary Course Crosswalk |
| 2301 | Use different types of ladders and scaffolds. |  |  | |
| 2302 | Set up and inspect stepladders, extension ladders, and scaffolding. |  |  | |

1 Student Demonstrated Entry-Level Industry Proficiency as Indicated by (X)

Secondary CTE Instructor Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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