

Competency Task List – Secondary Component

Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician CIP 47.0201 High School Graduation Years 2025, 2026, 2027

100 Introduction to HVAC/R

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
101	Identify HVAC/R systems.		HVC1/HVC2
102	Locate career opportunities in the HVAC/R profession.		HVC1/HVC2
103	Demonstrate the duties and responsibilities of an HVAC Technician.		HVC1/HVC2
	RESERVED (104)		
105	Use customer service skills to communicate information to the client.		HVC1/HVC2

200 Basic Safety

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
	RESERVED (201-202)		
203	Identify and use personal protection equipment.		HVC1
204	Apply OSHA regulations to identify hazards and measures to prevent job site accidents from occurring.		HVC1
205	Use stepladders, extension ladders, and scaffolding.		HVC1

300 Tools for HVAC/R

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
301	Identify, use, and maintain basic hand tools used in the trade.		HVC1/HVC2
302	Identify, use, and maintain basic power tools used in the trade.		HVC1/HVC2

400 Blueprint Reading

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
401	Compare types of blueprint plans.		HVC1/HVC2
402	Read and interpret blueprint plans.		HVC1/HVC2

500 Piping Practices

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
501	Identify piping materials.		HVC1
502	Select, measure, cut, ream, swage, and flare piping and tubing projects.		HVC1
503	Cut, ream, thread, and assemble steel piping projects and pressure test.		HVC1
504	Assemble non-metallic pipe and fittings and pressure test.		HVC1
505	Assemble copper tubing projects and pressure test.		HVC1
506	Solder copper tubing.		HVC1
507	Braze ACR tubing.		HVC1
	RESERVED (508-509)		
510	Assemble corrugated stainless steel gas tubing (CSST) projects.		HVC1
	RESERVED (511)		

600 Basic Electricity

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
601	Explain the basic concepts of electricity.		HVC1/HVC2
602	Calculate basic electrical quantities using Ohm's law.		HVC1/HVC2
603	Explain how magnetism is used in different HVAC components.		HVC1/HVC2
604	Implement safe electrical practices.		HVC1/HVC2
605	Interpret and draw various types of electrical schematics and symbols.		HVC1/HVC2

606	Practice industry standard wiring techniques.		HVC1/HVC2
607	Analyze components of energized and de-energized circuits using the appropriate test meters and instrumentation.		HVC1/HVC2
608	Wire series circuit, parallel circuit, and series/parallel circuit.		HVC1/HVC2
609	Size and install electric disconnects, circuit breakers, and fuses.		HVC1/HVC2
610	Classify and test various types of capacitors.		HVC1/HVC2
611	Identify electrical motors and their applications.		HVC1/HVC2
612	Differentiate between motor control protection and start devices.		HVC1/HVC2
613	Apply relevant electrical codes.		HVC1/HVC2
614	Determine transformers ratings and their applications.		HVC1/HVC2
	RESERVED (615)		

700 Introduction to Cooling

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
701	Measure temperature and pressure of a cooling system.		HVC2
702	Calculate superheat and subcooling.		HVC2
703	Locate and describe components of the basic refrigeration cycle.		HVC2
704	Evaluate refrigerants using temperature and pressure charts for various refrigerants.		HVC2
705	Analyze and test the operations of various compressors.		HVC2
706	Analyze and test the operations of various condensers.		HVC2
707	Analyze and test the operations of various evaporators.		HVC2
708	Analyze, test, and adjust the operations of various metering devices.		HVC2
709	Identify secondary components used in the air conditioning and refrigeration industry.		HVC2
710	Evaluate effects of airflow on cooling system performance.		HVC2
711	Categorize and manipulate service valves.		HVC2

800 Introduction to Heating

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
801	Describe the principles of combustion.		HVC1
802	Evaluate temperatures and pressures of various heating systems.		HVC1
803	Identify components and fuel properties of various heating systems.		HVC1
804	Perform maintenance on a gas furnace.		HVC1
	RESERVED (805)		
806	Identify oil heating equipment.		HVC1
807	Install and adjust oil, gas (condensing and non-condensing), and electric heating equipment.		HVC1
808	Perform maintenance on oil fired equipment.		HVC1
	RESERVED (809)		
810	Identify and size electric heating equipment.		HVC1
811	Install heating/air conditioning thermostats.		HVC1
	RESERVED (812)		
813	Perform combustion analysis on oil and gas fired equipment.		HVC1
814	Identify the sequence of operations of various warm air furnaces.		HVC1

900 Air Distribution Systems

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
901	Identify and design different types of duct systems.		HVC1
902	Identify and describe the different types of duct system components.		HVC1
903	Test velocity, static pressures, temperature, humidity, and volume in a duct system.		HVC1
	RESERVED (904-905)		
906	Compare, identify, and fabricate using various duct materials.		HVC1
907	Perform basic installation practices, including duct sealing and leak testing.		HVC1

908	Identify and compare the application of air distribution secondary accessories to increase air quality and comfort.		HVC1
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1000 Introduction to Hydronic Systems

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
1001	Identify and compare various hot water heating system components, piping schemes, and their applications.		HVC1/HVC2
1002	Service and maintain hydronic systems.		HVC1/HVC2

1100 Leak Detection, Evacuation, Recovery, and Charging

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
1101	Locate refrigerant leaks using common types of leak detectors.		HVC2
1102	Perform refrigerant recovery.		HVC2
1103	Perform system evacuation and dehydration.		HVC2
1104	Determine when to charge with liquid versus vapor.		HVC2
1105	Weigh in correct system charge when appropriate.		HVC2
1106	Charge systems using superheat method when appropriate, e.g., fixed restriction.		HVC2
1107	Charge systems using subcooling method when appropriate, e.g., TXV, AXV.		HVC2
1108	Apply knowledge of EPA Section 608 regulations.		HVC2
1109	Identify pump down applications and perform system pump down operations.		HVC2
1110	Demonstrate industry-aligned procedures when handling existing and developing refrigerants. Such as CFCs, HCFCs, HFCs, HFOs (A2Ls), HCs, and any others that may be implemented into the industry.		HVC2

1200 Troubleshooting Heating

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
1201	Perform gas burner flame proving tests.		HVC1
1202	Troubleshoot gas heating equipment.		HVC1
1203	Troubleshoot oil fired equipment.		HVC1

1300 Troubleshooting Cooling

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
1301	Identify control system components.		HVC2
1302	Troubleshoot and service cooling equipment.		HVC2
1303	Troubleshoot electrical components.		HVC2

1400 Heat Pumps

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
1401	Explain heat pump modes of operation.		HVC2
1402	Identify and describe heat pump components.		HVC2
1403	Install heat pump systems.		HVC2

1500 Computer Fundamentals

Item	Task	(X) Indicates Proficiency ¹	Secondary Course Crosswalk
	RESERVED (1501)		
1502	Utilize the Internet for research.		HVC1
1503	Use HVAC computer and mobile applications.		HVC1

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

Secondary CTE Instructor Signature _____ Date _____

Student Signature _____ Date _____