

# RESIDENTIAL HVAC



## One-Year Embedded Technical Diploma

### 31-601-1

This embedded diploma is designed to prepare completers for entry-level employment in the area of residential heating, ventilation, and air conditioning (HVAC) employment. The diploma covers print reading and code, air conditioning fundamentals, refrigeration fundamentals, electrical fundamentals, computerized HVAC and refrigeration design, heating systems, motors and motor controls, air conditioning and refrigeration piping, charging methods, customer service essentials, trade mathematics, and communications.

Pathway Certificates and Embedded Technical Diplomas are part of a larger model of BTC's Career Pathways that link related academic programs in sequence. Each program offers direct job preparation and a path to the next level of academic programming.

Service HVAC/R Systems

Troubleshoot HVAC/R Systems

Evaluate HVAC/R System Design

Semester 1		Credits
804-306	Shop Mathematics I	2
601-116	A/C Safety, Tools, Thermal Dynamics and HVAC Terminology	1
601-117	A/C Components, Refrigeration Cycle and Refrigeration Gauges	1
601-118	Air Flow Fundamentals	1
601-121	Electrical Safety, Meter Usage and Ohm's Law	1
601-122	Parallel Circuits, Combination Circuits and Capacitors	1
601-123	Electrical Services, Wire Sizing and Electrical Diagrams	1

601-128	Print Reading for HVAC/R	1
601-129	Mechanical Code	1
601-131	Access Valves, Compressors and Condensers	1
601-132	Evaporators, Metering Devices and Accessories	1
601-133	Heat Transfer Principles and Manual J	1
601-134	Wrightsoft Load Calculations and RESCheck	1

**Credits 14**

### Semester 2

601-136	Split Phase Motor Identification, Testing and Replacement	1
601-137	Variable Speed Motors, Current Relays, Potential Relays and PTC Relays	1
601-138	Transformers, Contactors, Relays and Motor Starters	1
601-141	Gas Pipe Sizing, Gas Regulators and Gas Valves	1
601-142	Residential Gas Furnaces	1
601-143	Electric Heat and Air-to-Air Residential Heat Pump Systems	1
601-146	Flaring, Swagging and Soldering Copper Pipe	1
601-147	Air Acetylene and Oxy-Acetylene Brazing Copper Pipe	1
601-148	Refrig Recov, Deep Evac and Charging of Residential, Light Commercial, Geothermal and Ice Mach Equip	1

---

601-149	Refrig Recovery, Triple Evacuation and Charging of Heat Pumps and Refrig Equipment and EPA Test	1
462-322	Human Relations in the Industrial Setting	2
<b>Credits</b>		<b>12</b>
<b>Total Credits</b>		<b>26</b>

---