

# DACUM Research Chart for HVAC Technician

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Duties		← Tasks →				
<b>A</b>	<b>Maintain Tools, Vehicle, and Supplies</b>	A-1 Clean service vehicle	A-2 Perform maintenance on tools and test equipment	A-3 Replenish stock of supplies in vehicle	A-4 Secure vehicle cargo	A-5 Perform vehicle maintenance
		<b>B</b>	<b>Maintain Customer Relations</b>	B-1 Project self confidence and competence	B-2 Clarify customer problem(s)	B-3 Explain actual problem to customer
<b>C</b>	<b>Install HVAC Equipment and System</b>	C-1 Identify job specifications	C-2 Verify field locations and measurements	C-3 Fabricate duct work	C-4 Obtain specified equipment	C-5 Deliver material to job site
		C-12 Install primary wiring	C-13 Install fuel piping	C-14 Install condensate drain piping	C-15 Mount supply and return air terminals	C-16 Seal structural penetration
<b>D</b>	<b>Remove Existing HVAC Systems</b>	D-1 Remove refrigerant and biohazards	D-2 Lock out/tag out energy sources	D-3 Disconnect electrical wiring from equipment		D-4 Disconnect vent piping from equipment
<b>E</b>	<b>Perform HVAC Performance and/or Diagnostic Tests</b>	E-1 Check HVAC equipment electrical characteristics		E-2 Verify gas pressure at equipment	E-3 Verify water supply to equipment	E-4 Verify design CFM
		E-12 Measure relative humidity	E-13 Calculate sensible and latent capacities	E-14 Define BTUH output capacity	E-15 Verify calibration of control system(s)	E-16 Measure micro-amp signal
<b>F</b>	<b>Conduct Preventative Maintenance on HVAC Equipment</b>	F-1 Inspect HVAC system components	F-2 Clean HVAC coils	F-3 Clean heat exchangers	F-4 Clean burners	F-5 Clean blower assembly
<b>G</b>	<b>Repair HVAC Equipment</b>	G-1 Obtain replacement part(s)	G-2 Replace motors	G-3 Replace compressors	G-4 Replace refrigeration dryers	G-5 Replace valves
<b>H</b>	<b>Perform Documentation Tasks</b>	H-1 Complete tool log(s)	H-2 Complete OSHA forms	H-3 Complete EPA forms	H-4 Complete DOT forms	H-5 Complete service invoice(s)
<b>I</b>	<b>Pursue Professional Development</b>	I-1 Attend trade school(s)	I-2 Attend distributor/factory sponsored school(s)		I-3 Participate in professional organizations (e.g., ACCA, RSES)	

B-6 Explain equipment operation and function	B-7 Suggest future enhancements	B-8 Inform office of outcome of customer satisfaction				
C-6 Position HVAC equipment	C-7 Install duct system	C-8 Install flues	C-9 Install control wiring	C-10 Install refrigerant piping	C-11 Perform evacuation and dehydration of refrigerant systems	
C-17 Mount control systems						
D-5 Dis-connect fuel piping to equipment	D-6 Dis-connect duct work to equipment	D-7 Disconnect refrigerant piping to equipment		D-8 Dis-connect water piping to equipment	D-9 Remove HVAC equipment	D-10 Properly dispose of removed items
E-5 Measure external static pressure of system	E-6 Measure heating $\Delta T$	E-7 Identify condition of combustion chamber	E-8 Perform combustion analysis	E-9 Measure relative humidity	E-10 Verify refrigerant charge	E-11 Measure cooling $\Delta T$
E-17 Check all modes of operation	E-18 Perform refrigerant system acidity test	E-19 Measure motor rpm	E-20 Check for refrigerant leaks			
F-6 Clean air filters	F-7 Replace filters	F-8 Lubricate HVAC motors and bearings	F-9 Replace belts	F-10 Adjust belt alignment and tension		
G-6 Replace controls	G-7 Replace electrical parts	G-8 Replace heat exchangers	G-9 Replace coils			
H-6 Complete material list	H-7 Request materials	H-8 Complete warranty forms	H-9 Complete performance sheet(s)	H-10 Complete time cards		
I-4 Read trade publication(s)	I-5 Learn from peers	I-6 Obtain industry certification(s) (e.g., NATE, RSES)		I-7 Pursue self study course(s)	I-8 Attend trade show(s)	I-9 Participate in performance evaluation and goal setting

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## General Knowledge and Skills

Math  
Basic chemistry  
Practical physics  
Problem solving  
Mechanical aptitude  
Basic algebra  
Basic geometry  
Basic building construction  
Knowledge of thermodynamics  
Electronics

Basic electricity  
Welding  
Driving skills  
Communications  
Writing skills  
Read technical manuals  
Blue print reading  
Basic plumbing skills  
Computer literacy

## Worker Behaviors

Honest  
Loyalty  
Good listener  
Mechanically inclined  
Proud of his/her work  
Personable  
Self assured  
Confident  
Team player  
Safety conscious  
Focused on self improvement  
Flexibility (physical or mental)

Courteous  
Well groomed  
Tidy  
Role model  
Competent  
Respectful  
Responsible  
Teachable  
Open minded  
Emotionally stable  
Trustworthy

## Tools, Equipment, Supplies and Materials

Hand tools  
Drills  
Power tools  
Saws  
Grinders  
Vacuum pumps  
Recovery machines  
Scales  
Vacuum cleaner  
Multi-meter  
Clamp on amp meter  
Mega-meter  
Leak detectors  
Micron gauge  
Combustion analysis tools  
Air measurement tools  
Soldering iron  
Torch  
Refrigerant gauge  
Sheer

Pressure temperature measuring tools  
Tapes  
Brake  
Electrical supplies  
Fittings  
Roll former  
Soldering material  
Flare tools  
Plasma cutter  
Swedge  
Welder  
Tube bender  
Roll cutter  
Pipe threaders  
Tap and die tools  
Draft gauge  
Ladders  
Shovel  
Nitrogen tank

## Future Trends and Concerns

Existing competency levels  
Mold litigation  
Change in refrigeration technology  
Computerization  
Change in refrigerants  
Mandatory efficiencies  
Government regulations  
Shortage of technicians  
Utility company competition  
Retailers bypassing dealers  
Indoor air quality

## Acronyms

BTUH = British Thermal Unit Hour  
BTU = British Thermal Units  
CFM = Cubic Feet per Minute  
CO = Carbon Monoxide  
EVAC = Evacuation  
HVAC = Heating, Ventilation and Air Conditioning  
ERV = Energy Recovery Ventilator  
HRV = Heat Recovery Ventilator  
OSHA = Occupational Safety and Health Administration  
DOT = Department of Transportation

EPA = Environmental Protection Agency  
NATE = North American Technician Excellence  
 $\Delta T$  = Temperature Differential  
RH = Relative Humidity  
PM = Preventative Maintenance  
RPM = Revolution Per Minute  
ACCA = Air Conditioning Contractors of America  
RSES = Refrigeration Service Engineers Society  
PST = External Static Pressure