

## **HVAC Level 1**

### **APPLYING SAFE STANDARDS AND ORIENTATION**

Identify Job Opportunities  
Gain An Understanding Of The Responsibilities And Duties Required In HVAC  
Demonstrate Safe Shop Habits  
Discuss Ways Of Showing Respect For The Customer And Fellow Workers  
Demonstrate The Skills Needed To Deal Effectively With Customers

### **PREFORM COPPER PIPE SOLDERING, BRAZING AND FLARING**

Flare Copper Tubing  
Join Copper Pipe By Soldering  
Join Copper Pipe By Brazing  
Join Plastic Pipe With PVC Glue  
Bend Copper Tubing

### **OBTAIN A KNOWLEDGE OF THE COMPRESSION REFRIGERATION CYCLE**

Describe The Basic Physical, Chemical And Engineering Principles Which Apply  
Explain The Physical Laws Which Apply  
Explain The Gas Laws Which Apply  
Describe The Components Of A Refrigeration System  
State The Five Thermal Laws Relating To The Compression Refrigeration Cycle  
Identify Refrigerant Types And Their Properties

### **COMPREHENDING THE MECHANICS OF COMPRESSORS**

Describe The Function And Types Of Compressors  
Identify Common, Run, And Start On Compressor Motor  
Describe Compression Ratio  
Describe The Procedures For Systematically Checking A Compressor  
Describe The Procedures For Changing-Out A Compressor  
Describe The Effects Voltage Variation Has On Compressors  
Describe Effects Inadequate Lubri./Air Flow/Refrig.Chg Have On Compressors

### **UNDERSTANDING THE ROLE OF CONDENSERS AND EVAPORATORS**

Identify The Function And Types Of Condensers  
Describe Subcooling And How To Measure It  
Describe The Effects Of Ambient Temperature On Condensers  
Identify The Function And Types Of Evaporators  
Describe The Boiling Temperature Within The Evaporator  
Describe What Is Superheat, Why It Is Important And How Is It Measured  
Describe The Function Of A Pressure Temperature Chart And How It Is Used

### **METERING DEVICES**

Identify The Different Types Of Expansion Devices And Their Function  
Describe External And Internal Equalization Of The TXV  
Describe The Positioning Of The TXV Bulb Sensor

### **COMPREHENDING ELECTRICITY**

Describe Types Of Electricity  
Describe The Difference Between Direct And Alternating Current  
Identify Parallel Circuits  
Identify Series Circuits  
Use Various Electrical Formulas For Problem Solving  
Identify Electrical Symbols Use On Wiring Diagrams And Blueprints

### **MEASUREMENT OF ELECTRICAL COMPONENTS**

Measure Voltage In An Electrical Circuit  
Measure Amperage In An Electrical Circuit  
Measure Resistance Of Different Components In An Electrical Circuit  
Measure Capacitance Of A Capacitor  
Troubleshoot A Solid-State Control Board

### **UNDERSTANDING ELECTRIC MOTORS**

Describe The Different Types Of Motors And Their Function  
Identify The Various Types Of Motor Drive Mechanisms  
Disassemble, Inspect, Clean and Reassemble A Split-Phase Motor

### **COMPREHENDING RESIDENTIAL AIR CONDITIONING SYSTEMS**

Identify The Mechanical Components Of An Air Conditioning System  
Identify The Electrical Components Of An Air Conditioning System  
Properly Weighting In A Charge Of Refrigerant In An Air Conditioning System  
Troubleshooting An Air Conditioning System With Various Complaints  
Perform Preventive Maintenance On An Air Conditioning System

### **UNDERSTANDING AND READING WIRING DIAGRAMS**

Identify The Different Types Of Wiring Diagrams  
Identify The Symbols Used In Wiring Diagrams  
Troubleshoot Circuits Using Wiring Diagrams

### **Complete Portfolio**

### **Complete Mock Job Interview**

### **PERSONAL QUALITIES**

Work Effort  
Safety Habits  
Work Area Organization  
On Task Behavior  
Responsibility  
Initiative  
Team Work  
Respect  
Interpersonal Skills  
Neat, conscientious, careful