Framework for an Apprentice Enrolled in a 6000 Hour Program

Not less than 250 hours of study

100 hours of 522 CMR 9.00 Refrigeration and Air Conditioning Systems

To include at a minimum:

-Fundamentals of Refrigeration and Basic Refrigeration Cycles
-Components and Systems (Piping-Types and understanding joining methods, Ducting-Sizing and Pump and Fan Laws)
-Types of Systems including Roof Top and Heat Pumps
-Massachusetts General Law Chapter 146, and Title 528 of the Code of Massachusetts Regulations
-ASHRAE Code (15-Safety Standards for Refrigeration Systems, 34-Disignation and Safety Classification of Refrigerants)
-Troubleshooting Techniques
-Equipment Room Standards (ASHRAE 15)
-Refrigerants and Oils (Retrofitting, Compatibility, Flammability, Environmental Considerations)
-Charging, Evacuation, and Leak Detection
-Cooling Tower Theory and Bio Hazards
-Ammonia Use and Safety

150 hours of 527 CMR 12.00 Massachusetts Electrical Code

To include at a minimum:

-Basic Electricity, Electrical Safety, Arc Flash Protection
-Massachusetts Electrical Code
-Meters and Tools
-Components, Relays, Solenoids, and Wiring
-Control Systems, Components, Wiring, Testing

EPA Section 608 Universal Certification

Other suggested areas of study outside of the requirements:

-OSHA Safety Certification (OSHA 10)
-Hazardous, Flammable, and Combustible Materials Handling and Storage (OSHA Hazard Communication Standard)
-Lock Out / Tag Out (LOTO)
-Hot-work Requirements and Local Permit Requirements

Framework for an Apprentice Enrolled in a 4000 Hour Program

Not less than 500 hours of study

250 hours of practical shop related work

To include:

-OSHA Safety Certification (OSHA 10)
-Hazardous, Flammable, and Combustible Materials Handling and Storage (OSHA Hazard Communication Standard)
-Lock Out / Tag Out (LOTO)
-Hot-work Requirements and Local Permit Requirements

The balance being 250 hours of education:

100 hours of 522 CMR 9.00 Refrigeration and Air Conditioning Systems

To include at a minimum:
-Fundamentals of Refrigeration and Basic Refrigeration Cycles
-Components and Systems (Piping-Types and understanding joining methods, Ducting-Sizing and Pump and Fan Laws)
-Types of Systems including Roof Top and Heat Pumps
-Massachusetts General Law Chapter 146, and Title 528 of the Code of Massachusetts Regulations
-ASHRAE Code (15-Safety Standards for Refrigeration Systems, 34-Disignation and Safety Classification of Refrigerants)
-Troubleshooting Techniques
-Equipment Room Standards (ASHRAE 15)
-Refrigerants and Oils (Retrofitting, Compatibility, Flammability, Environmental Considerations)
-Charging, Evacuation, and Leak Detection
-Cooling Tower Theory and Bio Hazards
-Ammonia Use and Safety

100 hours of 527 CMR 12.00 Massachusetts Electrical Code

To include at a minimum:
-Basic Electricity, Electrical Safety, Arc Flash Protection
-Massachusetts Electrical Code
-Meters and Tools
-Components, Relays, Solenoids, and Wiring
-Control Systems, Components, Wiring, Testing

EPA Section 608 Universal Certification

Framework for an Apprentice Enrolled in a 2000 Hour Program

Not less than 1000 hours of study

700 hours of practical shop related work

To include:
-OSHA Safety Certification (OSHA 10)
-Hazardous, Flammable, and Combustible Materials Handling and Storage (OSHA Hazard Communication Standard)
-Lock Out / Tag Out (LOTO)
-Hot-work Requirements and Local Permit Requirements

The balance being 300 hours of education:

100 hours of 522 CMR 9.00 Refrigeration and Air Conditioning Systems

To include at a minimum:
-Fundamentals of Refrigeration and Basic Refrigeration Cycles
-Components and Systems (Piping-Types and understanding joining methods, Ducting-Sizing and Pump and Fan Laws)
-Types of Systems including Roof Top and Heat Pumps
-Massachusetts General Law Chapter 146, and Title 528 of the Code of Massachusetts Regulations
-ASHRAE Code (15-Safety Standards for Refrigeration Systems, 34-Disignation and Safety Classification of Refrigerants)
-Troubleshooting Techniques
-Equipment Room Standards (ASHRAE 15)

-Refrigerants and Oils (Retrofitting, Compatibility, Flammability, Environmental Considerations)
-Charging, Evacuation, and Leak Detection
-Cooling Tower Theory and Bio Hazards
-Ammonia Use and Safety

100 hours of 527 CMR 12.00 Massachusetts Electrical Code

To include at a minimum:

-Basic Electricity, Electrical Safety, Arc Flash Protection
-Massachusetts Electrical Code
-Meters and Tools
-Components, Relays, Solenoids, and Wiring
-Control Systems, Components, Wiring, Testing

EPA Section 608 Universal Certification