

TPC – Air Conditioning and Refrigeration – Virtual and In-Person Syllabus

DESCRIPTION

Students are taught common practices and some "tricks-of-the-trade" for general operation and maintenance of their AC&R systems. They will learn about maintenance schedules and servicing, system diagnostics, troubleshooting, and fine-tuning to gain maximum efficiency. The course also covers an introduction to commercial and industrial chillers, regulatory laws and energy conservation. Overall, we will help you get the maximum life out of your Air Conditioning and Refrigeration systems while keeping it up and running as efficiently and consistently as possible.

COURSE OUTLINE

Day One - Discussion Topics

Fundamentals of AC&R

- Air Conditioning versus Refrigeration
- Laws of Thermodynamics and Heat Transfer

Regulation, Codes and Standards

- New Energy Efficiency Standards (S.E.E.R.)
- EPA Section 608 of the Clean Air Act
- ASHRAE, ASME
- Technician Licensing, Testing and Certification

Compression Refrigeration Cycle

- Saturation, Superheat, and Subcool
- Basic System Design
- Follow-the-Heat™

Refrigerants

- CFCs, HCFCs, HFCs, Inorganics
- Zeotropic and Azeotropic Refrigerant Mixtures
- Refrigerant Safety Including R-410a

Refrigerant Oils

- MO, AB, POE, PAG, PAO Oils & Properties
- Maintaining Oil Quality in Your AC&R System

Major AC&R System Components

- Evaporator
- Compressor
- Condenser
- Metering (Expansion) Device

Day Two - Discussion Topics

Auxiliary System Components

- Crankcase Heater
- Suction Accumulator
- Receiver
- Filter-Drier
- Sight Glass with Moisture Indicator
- Oil Separator
- Service Valves
- Muffler
- Refrigerant Controls

Refrigeration Systems

- Air, Water, and Ground-Source Heat Pumps
- Commercial Refrigeration
- Other specialty refrigeration systems

System Diagnostics, Servicing & Troubleshooting

- Service Tools and Equipment
- Manifold Gauge Set
- Recovery Machine
- Vacuum Pump
- Micron Gauge
- Leak Detection Equipment
- Recovering Refrigerant
- Charging the AC&R System
- Diagnosis, Common Failures, and Remedies
- Energy Conservation & Operating Efficiency

The EPA 608 exam is available to be taken at the conclusion of the class.

EPA 608 Technician Certification Testing

Section 608 of the Federal Clean Air Act requires that all persons who maintain, service, repair or dispose of appliances that contain regulated refrigerants be certified in proper refrigerant handling techniques by passing the EPA 608 Technician Certification exam. The EPA 608 exam is included in this course and is administered virtually after completing the training. Attendees are not required to take the exam for the successful completion of the course. While we cover material relevant to the test over the course of the training, this course is not designed to specifically prepare you to take the exam. We highly recommend that attendees who want to take the exam attend both days of training and take time to study beforehand. We will email out the EPA 608 study guide to all course registrants the day after registration to give you ample time to prepare. You can also request a copy of the study guide by sending an email to testing@tpctraining.com

[Click here for more information on the EPA 608 Technician Certification Exam](#)