TPC TRAINING

Live training onsite, online, or at a seminar near you.

HVAC Workshop
Air Conditioning & Boilers

"I would recommend anyone in the field should take this class."

Matthew B.

Air Conditioning

- Fundamentals of AC&R
- Regulation, Codes and Standards
- Compression Refrigeration Cycle
- Refrigerants
- Refrigerant Oils
- Major AC&R System Components
- Refrigeration Systems
- System Diagnostics, Servicing & Troubleshooting
- The EPA 608 exam

Boilers

- Boiler Types/Configurations
- Fundamentals of Combustion and Heat transfer
- Burner Operation, Control, and Testing
- Boiler Room Safety
- Operation Standards
- Controls and Safety Devices
- Inspection and Maintenance
- Boiler and Burner Efficiency
- Troubleshooting

A 4-Day Course for Building, Plant & Facility Maintenance

Get the maximum life out of your Air Conditioning and Refrigeration systems

Gain a comprehensive understanding of commercial, industrial and utility boiler systems

- Reserve your space now! **CALL 1-877-978-7246**
- Check us out online at live.tpctraining.com for a complete listing of all seminars coming to your area
- This seminar is also available as an **Online Simulcast** or can be brought **On-Site** to your facility

TPC TRAINING

Reserve Your Space Now!

Understanding Air Conditioning & Refrigeration™ Systems

WHAT YOU WILL TAKE HOME

- A laminated, full-color TPC Training Reference Guide detailing all the "must-know" information covered in the class. Keep this with you while on the job for immediate knowledge recall.
- Comprehensive classroom materials
- A Personalized Training Certificate with 0.8 TPC Training Continuing Education Units for each day attended, 1.6 for both days.
- All the information you need from asking our instructors specific questions about your own unique equipment or facility.

CONTINUING EDUCATION

For simulcasts and classroom instructor-led, live courses, the student will receive a three-star certification of completion showing 8 classroom hours (.8 TPC Training CEUs) per day attended. Most employers and many government agencies accept TPC Training CEUs to fulfill their continuing education requirements. TPC Training also offers CEUs toward state license renewal, which are accepted by over 90 electrical, water, HVAC, and professional engineering state licensing agencies. CEU availability and the CEUs earned per course varies by each state licensing agency. For more information about live CEUs and state licensing agencies, call 303-867-5039.

FREE EPA CERTIFICATION TESTING

Testing for EPA section 608 certification is optional. 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. While we cover material relevant to the test and make every attempt to help our students pass this exam, we cannot guarantee individual success. We recommended that students who want to take the test attend both days and plan time to study beforehand.

SEMINAR OVERVIEW

The goal of this two-day Air Conditioning and Refrigeration course is to provide a broad introduction to air conditioning and refrigeration systems, including everyday operation & important refrigerant safety practices. The course is a great overview for maintenance technicians, multi-craft tradespeople, building managers, HVAC technicians, or anyone seeking to improve their AC&R operation and maintenance skills.

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.

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

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.

Boiler Operation Maintenance & Safety™

SEMINAR OVERVIEW

In most facilities, the boiler is the device with the most potential for disaster making boiler operation training a key part of any facility's overall safety. This two-day Boiler Operation, Maintenance & Safety course provides students with the practices and procedures to eliminate that potential. It offers a great overview for maintenance technicians, multi-craft tradespeople, building managers, stationary engineers, or anyone seeking to improve their boiler maintenance and operation skills. The goal of this course is to ensure the student gains a comprehensive understanding of commercial, industrial and utility boiler systems. Boiler inspections, operating controls testing and general troubleshooting tips will all be discussed. Overall, this program is designed to help maximize safety, dependability, and efficiency, thus extending boiler life, improving boiler efficiency, saving energy costs for the employer, and establishing a culture of safe work practices among the employees.

DISCUSSION TOPICS

Boiler Types and Configurations
- Firetube Boilers
- Watertube Boilers
- Cast Iron Boilers
- High Pressure Boilers
- Low Pressure Boilers
- Steam Boilers
- Hydronic Boilers

Fundamentals of Combustion and Heat transfer
- Theory of Combustion
- Thermodynamics
- Steam Tables

Burner Operation and Control
- Gas Train
- Oil Train
- Standard Burner
- High Turndown Burner
- Burner Controls

Boiler Operation and Testing / Standard Operating Procedures
- Start-Up and Shut-Down
- Normal Operation
- Boiler Blowdowns
- Water Quality Analysis and Treatment
- Valve Types
- Safety Valves
- Low Water Cutoff Controls

Boiler Room Safety
- Boiler Accidents
- Cause and Effect

Cause and Effect Case Study
- Safety Valves
- Confined Spaces
- Lockout/Tagout

Operation Standards
- ASME Codes
- NFPA Codes
- NBIC Code

Controls and Safety Devices for Automatically Fired Boilers
- Water Level Control
- Temperature Control
- Pressure Control
- Fuel Trains

Inspection and Maintenance of Commercial and Industrial Boilers
- Fireside
- Waterside
- Burner
- Auxiliary Equipment

Boiler and Burner Efficiency
- Heat Exchanger Efficiency
- Combustion Efficiency
- Efficiency Tests
- Condensate Return
- Steam Traps

Troubleshooting
- Burner
- Controls
- Additional

BRING THE TRAINING ON-SITE TO YOUR FACILITY

live.tpctraining.com/on-site

TPC Training conducts hundreds of on-site trainings at customer facilities each year. Every public seminar class in our Course Catalog can be conducted on-site, with the same expert instructors. To arrange an on-site training, call or email us at onsite@tpctraining.com.

On-site training is also available in a Live Simulcast Seminar format, allowing teams in multiple facilities to join live training via a web connection. This is an excellent option for overseas facilities and geographically dispersed teams.

Advantages of On-Site Training

- Less Lecture – Our courses deliver targeted training tasks relevant to daily work.
- Cost Savings — The larger the group, the more you save. You also save time and travel costs by keeping workers onsite.
- Customized Content — The instructor can tailor the seminar to your facility, including discussion of your specific equipment.
- Flexibility — Our training can accommodate multiple shifts and different start and end times.
- Best Results — On-site training combines the knowledge retention of live training with the ability for workers to learn in their own environment.

Contact us if you have any questions and to get a no-obligation quote.

"I will be attending more training for sure!"

Eugene A. - Facilities Manager

"My Instructor went above and beyond!!! He is certainly one of the best instructors I have ever had."

Chris L. - Maintenance Mech

TPC TRAINING

"Learned a lot in the class and enjoyed attending it. The instructor was great!"

Derek N. - Engineering Technician

Daily Schedule

7:30 am Registration
8:00 am Class Begins
12:00 -1:00 pm Lunch
4:30 pm Class Ends

Is Live Training Right for You?

Our intensive courses, held in 100+ cities, on-site at our customers' facilities, and online via simulcast, are simply the best way to gain, refresh, and advance essential maintenance skills quickly and apply them in the workplace.

What makes our live training different?

1. Personalization – Our classrooms are dynamic environments with small class sizes, allowing students to discuss the needs, challenges, and equipment in their own workplace.
2. Expertise – Our team of more than 60 expert instructors is the most seasoned in the industry, with more than 200,000 classroom hours between them, plus deep field experience.
3. Participation – We employ demonstrations, problem-solving exercises, teaching aids, and in some courses, hands-on equipment to enhance engagement and practical skill acquisition.
4. Reliability – All of our seminars, on-sites, and simulcasts are backed by our Money Back Guarantee, so you can book with confidence that we'll deliver the training outcomes you need.

Training Philosophy

TPC Training's curriculum is designed to provide complete coverage of essential industrial maintenance skills, across a full range of electrical training, HVAC, plant management, and mechanical & industrial topics. Our "see, touch, do" instructional approach allows us to impart practical skills in an intensive format.

The most vital part of our seminar format is the coverage that goes beyond the course outline. Our small class sizes allow each instructor to tailor the course to address students' individual needs, concerns, and experience levels. Our instructors deliver content with hands-on exercises, demonstrations role-playing, visuals, and case study discussions.

About Our Instructors

Our team of 60 field-experienced instructors is the backbone of training seminar schedule, from HVAC certification and maintenance to PLC courses. Together they've logged more than 200,000 hours in the classroom — by far the deepest experience in the industry.

All of our instructors must meet three core requirements:

1. Relevant formal education in the seminar topic area
2. Documented hands-on work experience in their area
3. Specific experience as a maintenance training instructor

Many of our instructors' credentials extend even further, including experience as authors, speakers, and industry organization board members within their fields of expertise. And they stay current on technology and industry trends through their own ongoing education, field visits, and peer review meetings.

The result of our emphasis on instructor quality is a consistently high standard of delivery across all of our 2000+ annual seminars. Workers leave our seminars ready to apply what they've learned to make an immediate impact at their jobs.

No Risk Registration & Money Back Guarantee

Not sure whether you or your employees will be able to attend an upcoming seminar? You can reserve your space in the class at any time and cancel without penalty. Cancellations made more than 14 days prior to the seminar may be refunded or rescheduled. Cancellations made within 14 days may be rescheduled for any future topic and/or date.

Not sure which employees you'll send for training? You can also freely make substitutions among attendees up to the time of the seminar.

Phone: 1-877-978-7246
Website: live.tpctraining.com
Fax: (303) 531-4565
E-mail: customerservice@tpctraining.com
Mail: TPC Training, P.O. Box 3397, Englewood, CO 80155

Join our classroom seminars from virtually anywhere. Attend online:

live.tpctraining.com/simulcast

TPC Training is proud to extend our legacy in instructor-led maintenance training to web-based learning with our new, industry-first **simulcast** seminars. Our simulcast option allows students to connect to a live classroom seminar via a web link, with the ability to participate fully in the classroom dialogue, exercises, and Q&A. Online participants get all the benefits of the full classroom experience, plus the convenience of remote access.

Can't leave the worksite? We've got you covered. Can't find a classroom seminar that fits your location and schedule? A simulcast is ideal for you.

Features include:

- Two full days of live, interactive instruction from a TPC Training instructor
- All classroom materials in PDF format
- Certificate of completion for 16 hours of live training
- Full technical support to ensure your online experience is as rewarding as being in the classroom

Register now for:

- Air Conditioning and Refrigeration
- Basic Electricity for the Non-Electrician
- Boiler Maintenance and Safety
- Chilled Water Systems
- Arc Flash Electrical Safety NFPA 70E®
- General Maintenance
- Generators and Emergency Power
- High Voltage Electrical Safety Training
- HVAC Electrical Controls & Air Distribution
- Understanding and Troubleshooting Hydraulics
- Motors, Drives and Control Circuits
- National Electrical Code®
- Photovoltaic Solar Power
- Predictive Maintenance
- Effective Maintenance Planning and Scheduling
- Pump Repair and Maintenance
- Electrical Ladder Drawings, Schematics & Diagrams
- Troubleshooting Essentials

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