

Learning Objectives:

- Fundamentals of boiler operations and system heat transfer
- The different boiler types
- Identification and purpose of primary and auxiliary boiler system components
- Safe start-up and shut-down procedures
- Maintain safe operating pressures and temperatures
- Combustion essentials – the fuel and air mixture
- Hazards with boiler operation and ways to avoid them
- Boiler codes and standards as applied to your boiler
- How to prepare for a boiler inspection
- Conducting boiler inspections and efficiency tests
- How to create a preventive maintenance program
- Increase boiler efficiency
- How to use combustion efficiency equipment
- Proper water treatment
- How to give your boiler a “tune-up”
- Troubleshooting and fixes for common boiler problems
- Looking for signs of and preventing boiler failure

Boiler Operation Maintenance & Safety™

Ideal for Workers in Multi-Craft Environments!

A 2-Day Boiler Training Course for Everyday Building, Plant & Facility Maintenance



“One of the best courses I have attended on boilers over the last 25 years.”

Gary Danielson – Stationary Engineer
California Department of Corrections

Day 1 - Fundamentals, Operation & Safety

Day 2 - Maintenance, Inspection, Testing & Efficiency

- This seminar can also be presented at your facility for larger groups
- Reserve your space now! **CALL 1-877-978-7246**
- Check us out online at **www.TPCTrainco.com** for a complete listing of all seminars coming to your area

► **“Outstanding presentation.
No sleeping in this class!”**

Tom Onuschak - Eastwood Printing

Boiler Operation Maintenance & Safety™

for Everyday Building, Plant & Facility Maintenance

PURPOSE OF SEMINAR

This course was created to bring students up to speed in boiler operation and maintenance practices as quickly and safely as possible. It was designed to help take the mystery out of wondering if your boiler is safe and operating efficiently, and provides maintenance technicians and others the confidence and comfort level needed for operating and maintaining their own boilers. For the novice technician needing a well-rounded education to the experienced stationary engineer who needs a refresher course for continuing education, this training program provides a no-nonsense, practical and real world approach for boiler operation, maintenance and safety.

Overall, this program is designed to extend boiler life, improve boiler efficiency, and save energy costs for the employer, while establishing a culture of safe work practices among the employees.

WHO SHOULD TAKE THIS COURSE?

This course is designed for anyone who needs to understand fundamental boiler operation in order to improve efficiencies and safety at their industrial plants or large building facilities. Individuals involved with residential hot water systems will also find this course extremely valuable.

This course typically gets attendees come from a wide variety of industries, skill levels, company sizes, and job titles. So everybody who has an interest in boilers fits in.

- All building maintenance personnel
- All plant & facility maintenance technicians
- Building engineers
- Building managers & superintendents
- Plant & facility managers
- Environmental health & safety personnel
- Apprentice and experienced boiler technicians
- Stationary engineers
- Energy management personnel
- Multi-craft & cross training personnel
- Mechanical engineers
- Any person needing a basic course in boiler systems!

TRAINING OUTCOMES

We have analyzed the work of the boiler technician extensively to create a course that attendees are certain to find useful the minute they get back to their jobs.

1. The fundamentals of boiler operations and system heat transfer
2. The different boiler types: firetube, watertube, sectional, condensing
3. The identification of and purpose of primary and auxiliary boiler system components
4. Safe start-up and shut-down procedures
5. How to maintain safe operating pressures and temperatures
6. Combustion essentials – the fuel and air mixture
7. The major hazards associated with boiler operation and ways to avoid them
8. Boiler codes & standards as applied to your boiler
9. How to prepare for a boiler inspection
10. How to conduct boiler inspections and efficiency tests
11. How to create a preventive maintenance program
12. How to increase boiler efficiency
13. How to use combustion efficiency equipment and what the readings mean to your cost
14. Proper water treatment for your boiler
15. How to give your boiler a “tune-up”
16. Troubleshooting and fixes for common problems
17. Looking for signs of and preventing boiler failure

WHAT YOU WILL TAKE HOME

- A laminated, full-color ATMT® Reference Guide detailing all the “must-know” information covered in the class. Keep this with you while on the job for immediate knowledge recall.
- A comprehensive Study Guide for additional reference and preparation for optional ATMT® Testing and Certification
- A Personalized Training Certificate with 0.8 TPC Trainco 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.

COURSE OVERVIEW

- How and when to schedule preventive maintenance procedures
- Important differences when working with high pressure and low pressure boilers
- Differences between firetube & watertube boilers
- The primary boiler components, how they work and what they do
- Operating pressures and temperatures of cast iron boilers
- Important differences when working with steam boilers and hot water boilers
- Applications and service of electric boilers
- Four major safety perils associated with boilers
- Common accidents and how to avoid them
- Causes and prevention of furnace explosions
- Dangers of low water and other poor water conditions
- How to properly inspect your own boiler
- How to conduct your own efficiency tests
- How to troubleshoot & fix common problems
- How to conduct waterside and fireside maintenance
- Boiler design, construction codes and standards
- How to safely and efficiently operate your boiler
- Burner operations & combustion control systems

ATMT CERTIFICATION® TESTING

An optional ATMT® Certification exam is available for this and some of our electrical courses. Students may take it online or as a written test any time after the class is over. Please visit ATMT® Testing and Certification for more information.

CONTINUING EDUCATION

Upon completion of this seminar, the student will receive a Certification of Completion and .8 TPC Trainco CEUs per day attended. Most employers and many government agencies accept TPC Trainco CEUs to fulfill their continuing education requirements. If the student needs CEUs to renew a state license, please contact us at 303-867-5035 to ensure the state licensing board has approved the seminar. If we are currently not approved by your state licensing board, we are happy to begin the process as long as we receive your request at least one month before the training date.

C O U R S E O V E R V I E W

Day 1

Day 1 of this program has been designed to give the student a broad introduction to boilers, including every-day operation & important safety practices. The course is a great overview for maintenance technicians, multi-craft tradespeople, building managers, stationary engineers or anyone who wants to improve their boiler maintenance and operation skills. Understanding basic boiler operation & safety is the goal of the first day of this training course.

DISCUSSION TOPICS

Boiler Fundamentals

- Firetube Boilers
- Watertube Boilers
- Cast Iron Boilers
- High Pressure Boilers
- Low Pressure Boilers
- Steam Boilers
- Hydronic Boilers

Fundamentals Of Combustion & 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

- Operator Licensing and Certification
- Start-Up and Shut-Down
- Normal Operation
- 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

Day 2

Day 2 is designed for people who have already taken day one, or already have a good foundation in boiler operation and safety. In this second day, students will learn about important inspection, maintenance and burner efficiency practices for their commercial, industrial and utility boiler systems. Construction design standards, boiler inspections, operating control testing and general troubleshooting tips will all be discussed. The second day of this program is designed to help you get the maximum life out of your boiler while keeping it running as efficiently and safely as possible.

DISCUSSION TOPICS

Construction and Design 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

SEMINAR AGENDA

7:30 am	Registration
8:00 am	Class Begins
12:00 -1:00 pm	Lunch (on your own)
4:30 pm	Class Ends

SEMINAR FEE

\$550 Each Day
\$1100 Both Days

NO RISK REGISTRATION & MONEY-BACK GUARANTEE

If you're not yet sure you'll be able to attend this seminar, we can still hold a spot for you in the class. While payment is due prior to the start of the seminar, you may choose a full refund or credit for cancellations made at least 24 hours in advance. Substitutions are also freely allowed. Please register early!

IN-HOUSE TRAINING

TPC Trainco offers an extensive list of courses available for convenient, in-house training at your facility. We can provide the same expert air conditioning, boilers, HVAC, facility and plant management, fluid hydraulics, piping, and electrical training courses at your facility that we offer in public seminars.

Advantages of On-Site Training

1. Modify the content to your specific needs
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5. Instructors can discuss your specific equipment
6. Problems can be openly discussed
7. Flexible scheduling
8. Increased price savings as the groups get larger
9. Promote teamwork & camaraderie among workers
10. More comfortable learning environment

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or Online at www.TPCTrainco.com

▶ *"...I am returning to my factory with a wealth of new knowledge."*

Richard D. Phillips - Delphi Delco

▶ *"Excellent overview of boiler operations and maintenance. Instructor is very knowledgeable."*

Greg Knecht - Applied Engineering



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PLEASE HELP OUR LOGISTICS TEAM AND REGISTER EARLY. CANCEL UP TO 24 HOURS IN ADVANCE WITHOUT PENALTY.

ATTENDEE NAME	ATTENDEE EMAIL	COURSE TITLE	DATE(S)	CITY/STATE	PRICE
		Boiler Operation, Maintenance and Safety			

(*See Public Seminar Pricing Schedule on Previous Page)

TOTAL \$ _____

AUTHORIZING PERSON / SUPERVISOR:

Name _____

Title _____ Company Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____ Email _____

(Needed for Confirmation & Sending Pre-Reading Materials)

BILL TO: *(If Different than Authorizing Person)*

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(Needed for Confirmation & Sending Pre-Reading Materials)

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PUB BO-GEN

QUESTIONS & HOW TO REGISTER

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Send by Mail: TPC Trainco, P.O. Box 3397, Englewood, CO 80155

