



# Troy Boiler Works invites you to join us!

## Our 2023 Boiler Training Class Schedule

Dates	Location	Click For More Info
January 10 & 11	Fishkill, NY	<a href="#">Fishkill Class Registration</a>
January 24 & 25	Troy, NY	<a href="#">Troy Class Registration (January)</a>
March 7 & 8	Utica, NY	<a href="#">Utica Class Registration</a>
April 18 & 19	Rochester, NY	<a href="#">Rochester Class Registration</a>
May 9 & 10	Ithaca, NY	<a href="#">Ithaca Class Registration</a>
June 6 & 7	Auburn, NY	<a href="#">Auburn Class Registration</a>
July 17 & 18	Buffalo, NY	<a href="#">Buffalo Class Registration</a>
August 15 & 16	Troy, NY	<a href="#">Troy Class Registration (August)</a>
September 12 & 13	Plattsburgh, NY	<a href="#">Plattsburgh Class Registration</a>

***This is a two-day boiler training course for anyone interested in learning about steam fundamentals, boilers, high temp hot water generators, burners, combustion, boiler controls, steam system auxiliaries, and more.***

***The course fee is \$1100 per person, which includes all course materials, and a light breakfast, lunch, & beverages.***

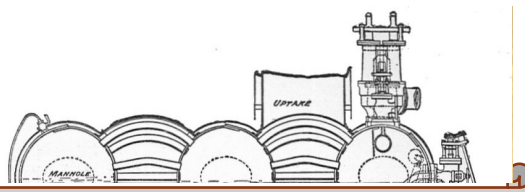
**To register, simply click on the location course link above.**

**For more course details, information on tuition assistance programs, or help with registration, please call us at 518-**

**274-2650, email us at [training@troyboilerworks.com](mailto:training@troyboilerworks.com), or**

**visit the training page on our website at**

**[troyboilerworks.com](http://troyboilerworks.com).**



# Boiler Training Course Description and Details

***Why should you take this course?*** - We looked at the evaluations from our 2020 training classes for feedback from the over 80 attendees participating this year. When asked if “this training will be beneficial to me in the performance of my job”, 100% of those respondents either agreed or strongly agreed.

Our Goal – Providing high quality training on boilers and boiler operations to benefit those involved in boiler operations. Our students universally agree that we have met this goal!

## Course Content

- Fundamentals of Steam
- Fundamentals of Combustion
- Boiler Types & Construction
- Burner Types & Construction
- High Temp Hot Water Generators
- Boiler Operating Procedures
- Boiler Safety Systems
- Deaerator & Feedwater Systems
- Water Treatment Principles
- Burner Systems & Controls
- ASME & NFPA Boiler Codes

## Suggested Attendees

- New Boiler Operators
- Experienced Operators
- Operations Supervisors
- Powerhouse Managers
- Facilities Engineers
- Maintenance Personnel
- EHS Staff
- Consultants
- Design Engineers
- Anyone interested in learning more about the fundamentals of steam generation.



## Boiler Training Course Outline

1. Welcome & Introduction
2. Steam Generation Basics
  - a. History of Steam Generation
  - b. Fundamentals & Properties of Steam
  - c. Introduction to the Steam Cycle
3. Boiler Types & Construction
  - a. Definitions & Design Parameters
  - b. Power Boilers & Heating Boilers
  - c. Boiler Types & ASME Code
  - d. Firetube Boilers
  - e. Watertube Boilers
  - f. Sectional Cast Iron Boilers
  - g. High Temp Hot Water Generators
4. Fuel Types & Characteristics
5. Boiler Room Systems & Equipment
  - a. How the Steam Cycle Works
  - b. Makeup Water Treatment Systems
  - c. Condensate Return Systems
  - d. Deaerator Functions & Operation
  - e. Feedwater Pumps & Systems
  - f. Principles of Centrifugal Pumps
  - g. Boiler Blowdown Systems
  - h. Steam Distribution Systems
  - i. Fuel Supply Systems
6. Water Treatment – A Detailed Look
  - a. Types of Impurities Found in Water
  - b. How Water Treatment Works
  - c. Types of Water Treatment
  - d. Consequences of Improper Treatment
  - e. Principles of Boiler Blowdown
  - f. Review of Typical Water Treatment
7. The Boiler Operator
  - a. Roles & Responsibilities
  - b. Typical Operating Procedures
8. Boiler Safety
  - a. History of Boiler Safety
  - b. Role of Codes & Standards
  - c. Jurisdiction & Boiler Safety
  - d. ASME Codes & Boiler Safety
  - e. NFPA 85 & Boiler Safety
  - f. NYS Law & Boiler Safety
  - g. Systems, Equipment, & Procedures
  - h. General Boiler Room Safety
9. Burners & Combustion
  - a. Definitions & Design Parameters
  - b. Burner & Combustion Fundamentals
  - c. Fuel & Air Mixtures
  - d. Boiler Flue Gas Emissions
10. Burner Systems & Controls
  - a. Boiler Drum Pressure Control
  - b. Fuel & Air Control System Types
  - c. Boiler Drum Level Control
  - d. Oxygen Trim Systems
  - e. Flue Gas Recirculation
  - f. Steam Flow Metering
  - g. Meters, Transmitters, & Actuators
  - h. Burner Management Systems
  - i. Burner Management Sequences
  - j. Flame Scanners & Detectors
  - k. Fuel Shutoff Valves
11. Summary & Recap

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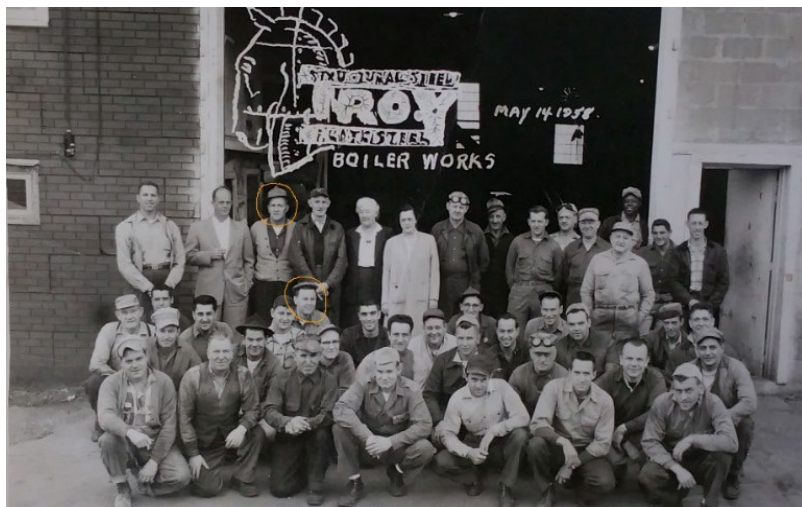


*About your instructor* – Beginning his boiler room career as an operator on an aircraft carrier in 1975, John Foote’s work in steam generation has spanned over four decades. After graduating from Clarkson College with a degree in Mechanical Engineering, his boiler career continued on to include field service, equipment startups, heat recovery systems engineering, boiler operations support, combustion tuning & service, control systems & flame safety system design, forensic boiler accident investigations, and detailed design engineering for entire boiler room & steam system installations. As a Senior Engineer at Troy Boiler Works, John is also the lead instructor for our Boiler Training Course and a strong believer in the value of high-quality training for operators and engineers

*About Troy Boiler Works* – Troy Boiler Works is an ASME code shop with a long history of serving the metal fabricating and repair needs of New York, Vermont, Massachusetts, and beyond. Our boiler company has recently shipped fabricated equipment to Europe and the Middle East. Since 1947 we have been producing pressure vessels, heat exchangers, hoppers, piped skids, holding tanks, stacks, breaching, and a large variety of other vessels and structural fabrications for industrial and commercial end users and resellers. With our ASME Code Qualification, we service and repair all types of boiler and heat recovery systems throughout the Northeast.

To better serve our customers, we are continually looking to improve our capabilities and have recently expanded our engineering support in the areas of combustion control systems, burner management, and combustion tuning.

We welcome you to attend our course, meet our engineers, and learn more about boilers and steam generation.



#### *Some Quotes From Our Students –*

- “Excellent instructors, venue, and course content.”
- “Very organized and good overview of all aspects of the boiler system as a whole.”
- “Course was very thorough. Concepts and systems were explained well.”
- “Great Course! “
- “I was very impressed with the overall quality of the training.”
- “The instructors were able to keep the course interesting and convey useful information.”
- “Broad range of interesting topics covered. Easily understandable for all.”
- “Loved this course.”
- “I highly recommend other boiler operators to take this course.”
- “Well-presented and very helpful for my particular system/operation.”