

**City of Hamilton
 Travel Authorization Form**

Travel Authorization #: 20

Authorization is requested by: Sam Peters DUU/WP
Employee Name Department

To attend (Course/Conference/Sponsor): Boiler Operation - maintenance and safety

Located at (City and State): Cincinnati, Ohio

Traveling From: 2014-05-21 through 2014-05-22
Date of Departure Date of Return

Please note, these are the dates that you will be leaving and returning from the trip. These should include the travel days in addition to the class/conference/meeting dates.

Registration Fee (Cost of Course/Conference/Meeting) **Basic Fee:** \$ 990.00
Other/Additional Fee: \$

Transportation Expenses
 Check the appropriate boxes and record the estimated miles or cost for each mode of transportation to be used. For personal car, only estimated miles are necessary

<input checked="" type="checkbox"/> City Vehicle	Miles	Estimated Cost
<input type="checkbox"/> Personal Car		\$
<input type="checkbox"/> Airplane	N/A	\$
<input type="checkbox"/> Rental Car	N/A	\$

Meal/Food Expenses
 Check the appropriate box; enter the number of days and the daily per diem amount. Per Diem rate table: M&IE Per Diem Rates

<input checked="" type="checkbox"/> In-town/Local	Cost Per Day	# of Days	Estimated Cost
<input type="checkbox"/> Overnight	\$		\$
	\$ 16.80	2	\$ 33.60

Lodging Expenses

Hotel/Motel Name	Cost Per Night	# of Nights	Estimated Cost
	\$		\$

Miscellaneous Expenses
 Check the appropriate boxes and record the estimated cost for all applicable miscellaneous expenses.

<input checked="" type="checkbox"/> Parking Costs	Amount	Amount
<input type="checkbox"/> Taxi Expenses	\$	\$
	\$ 30.00	\$
		<input type="checkbox"/> Tolls
		<input type="checkbox"/> Other

Account Number: 503 510 620 200 **Total Estimated Cost:** \$ 1,053.60

Signatures & Authorization

Sam Peters (3-7-14) Jing Petredn 3.13.14 3/17/14

Signature of Traveler and Date Department Head Approval & Date City Manager's Office Approval & Date



Boiler Operation, Maintenance & Safety

Purpose of Training:

Take the mystery out of wondering if your boiler is safe and operating efficiently. Learn what you can (and should) do on your own and when to back off and get help from an expert.*

Being able to service your own boiler is one thing. Being able to do it safely is another. This seminar will teach you to do both. After attending this seminar you will have the increased confidence and comfort level you need for operating and maintaining your own boilers.

*Boiler operating licensing requirements vary by state and locality. While this course is not intended to replace these requirements, it can help students prepare for licensing exams, meet continuing education requirements, and provide increased maintenance and safety knowledge for already licensed or approved individuals. Please check with your local authorities to understand licensing laws that may affect you.

What You will Learn:

- How/when to schedule maintenance procedures
- Important differences when working with high pressure and low pressure boilers
- Difference between firetube & watertube boilers
- Primary boiler components and what they do
- Operating pressures and temperatures of boilers
- Important differences when working with steam boilers and hot water boilers
- Electric boiler applications and maintenance
- Four major safety perils associated with boilers
- Common boiler accidents and how to avoid them
- Causes and prevention of furnace explosions
- Dangers of low water and other water conditions
- How to properly inspect your own boiler
- How to conduct your own efficiency tests
- How to troubleshoot & fix common boiler problems
- How to conduct Waterside and Fireside maintenance
- Boiler design and construction codes and standards
- How to safely and efficiently operate your boiler
- Burner operations and combustion control systems

Who should Attend?

This course is designed for all personnel responsible for boilers at their facility or anyone who needs a basic understanding of boiler operation, maintenance and safety. Our instructors have broad industrial and commercial knowledge so students come from a large variety of industries, skill-levels, company sizes and job titles. Mechanics, Technicians, Facility and Building Managers, HVAC personnel, Boiler Operators, and even Engineers and Electricians who are in Cross-Training or Multi-craft programs will benefit from this class.

Training Outcomes

1. Understand the fundamentals of boiler operations
2. Identify boiler components and know what they do properly startup and shutdown boilers
4. Operate boilers normally at safe and proper pressures & temperatures
5. Understand the major perils associated with boilers and how to avoid boiler accident and explosions

6. Understand and apply boiler Codes and Standards
7. Conduct boiler inspections and efficiency tests
8. Implement preventive maintenance practices
9. Give their boilers a tune up
10. Troubleshoot, fix and avoid boiler problems

Discussion Topics

DAY 1 - FUNDAMENTALS, OPERATION, & SAFETY

Understanding basic boiler operation & safety is the goal of Day 1. Students receive a broad introduction to boilers, including combustion and heat transfer fundamentals, basic burner control & operation, operator licensing and important safety practices.

Fundamentals of Steam and Hot Water Boilers

- Boiler Types and Pressures
- Firetube, Watertube, Cast Iron Sectional Condensing and Pulse Boiler Technology
- High and Low Pressure Systems

Steam System Auxiliary Equipment

- Deaerators
- Economizers and Heat Exchangers
- Steam Traps

Hot Water System Auxiliary Equipment

- Expansion and Compression Tanks
- Air Separators and Vents

Thermodynamics

- Heat Transfer Principles
- Sensible and Latent Heat
- Reading The Steam Table

Combustion Fundamentals

- Air and Fuel Mixture
- Perfect, Complete, and Incomplete Combustion
- The "3 T's" of Combustion

Gas and Oil Boiler Burners

- Fuel Trains
- Burner Design and Operation
- Burner Controls

Boiler Room Safety & Operator Responsibilities

- Normal Operating Water Level (NOWL)
- The Importance of Boiler Log Sheets
- Testing Controls and Safety Devices

Boiler Codes and Standards

- ASME Pressure Vessel Construction
- National Board Inspection Code
- NFPA Fuel Gas and Fuel Oil Codes
- Controls and Safety Devices for Automatic Boilers

Boiler Operator Licensing Requirements

- Federal, State, and Local Jurisdiction

Boiler Safety Controls

- Low Water Fuel Cut-Off (LWCO)
- Safety Relief Valve
- High-Pressure and High Temperature Cut-Outs

Maintenance Programs for Boilers and Boiler Systems

- Burner Tuning and Routine Maintenance
- Fireside Cleaning

Boiler Water Chemistry

- Working With Your Water Treatment Vendor
- Steam Boiler & Hot Water Chemicals
- Troubleshooting Waterside Problems
- New Boiler Boil-Out Procedure
- Wet and Dry Storage (Lay-Up)

Boiler And Burner Efficiency & Troubleshooting

- Combustion Analysis Basics
- Optimizing Heat Transfer In Your Boiler Room
- Minimizing Losses
- Troubleshooting Problem Areas

Operator Responsibilities

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

Training Philosophy

Our training is designed with practical, real-world facility and industrial applications in mind. It is unbiased, unaffiliated and non-commercial so you are assured of a real education and not a product sales pitch. It focuses less on theory and more on the actual steps students need to properly maintain equipment or fix specific problems at their own plant or facility. Doing this in just a few days while reinforcing worker safety is a serious challenge. That's why our instructors have the freedom to tweak each session to the specific needs of the students in each class. Our instructors will simplify the subject matter for the novice or go in-depth to answer an engineer's toughest question. We have over 125,000 hours (14 non-stop years) experience of live classroom training using these methods, and it is why our students keep coming back.

About Our Instructors

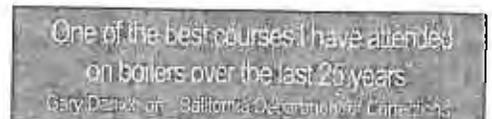
All American Trainco instructors are required to have a formal education and real world work experience. They need to be leaders in their field. We don't hire field people without teaching experience, and we don't hire teachers without field experience. They must have both.

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!

Training at Your Facility

We can bring this or any of our other dozens of courses directly to your facility for private training. For info call 1-877-722-2933 or email Ed@AmericanTrainco.com



BO-AJ

Spring thru Summer 2014

S. Only \$495 Per Day
\$990 for 2-Days (1.6 CEUs)
\$1980 for 4-Days (3.2 CEUs)

Please help our logistics team and register early.
 Cancel up to 24 hours in advance without penalty*.

Promo Code: M07 4154 1

Boiler Operation Maintenance & Safety™

002001 BO-AJ

BO-AJ

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

ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES
AK	Anchorage	May 7-8 '14	NJ	Newark	Mar 12-13 '14
AL	Birmingham	Mar 12-13 '14	NM	Albuquerque	Apr 30-May 1 '14
AL	Mobile	Apr 2-3 '14	NV	Las Vegas	Mar 5-6 '14
AR	Little Rock	Apr 9-10 '14	NV	Reno	Aug 6-7 '14
AZ	Phoenix	Apr 16-17 '14	NY	Albany	Jul 16-17 '14
AZ	Tucson	Jun 18-19 '14	NY	Long Island	Jul 10-11 '14
CA	Burbank	Jul 16-17 '14	NY	Syracuse	Jun 4-5 '14
CA	Fresno	Mar 5-6 '14	NY	White Plains	Mar 26-27 '14
CA	Modesto	May 21-22 '14	OH	Cincinnati	May 21-22 '14
CA	Oakland	Apr 30-May 1 '14	OH	Cleveland	Jun 25-26 '14
CA	Ontario	Jun 4-5 '14	OH	Columbus	Jun 4-5 '14
CA	Orange County	Apr 16-17 '14	OK	Oklahoma City	Jul 10-11 '14
CA	Sacramento	Jun 18-19 '14	OR	Corvallis	Jun 18-19 '14
CA	San Diego	May 14-15 '14	OR	Portland	May 14-15 '14
CA	San Jose	Jun 11-12 '14	PA	Allentown	Mar 26-27 '14
CO	Denver	Jun 25-26 '14	PA	Harrisburg	Mar 5-6 '14
CT	New Britain	May 21-22 '14	PA	Harrisburg	Jul 23-24 '14
DE	Wilmington	Apr 24-25 '14	PA	Lancaster	May 14-15 '14
FL	Fort Lauderdale	May 7-8 '14	PA	Philadelphia	Jul 10-11 '14
FL	Fort Myers	Mar 5-6 '14	PA	Pittsburgh	Apr 24-25 '14
FL	Gainesville	May 21-22 '14	PA	Scranton	Jun 25-26 '14
FL	Jacksonville	Jun 4-5 '14	RI	Providence	Jul 30-31 '14
FL	Orlando	Apr 9-10 '14	SC	Columbia	Mar 19-20 '14
FL	Tampa	May 14-15 '14	TN	Knoxville	Jul 10-11 '14
GA	Atlanta	Apr 16-17 '14	TN	Memphis	Mar 26-27 '14
GA	Marietta	Jun 25-26 '14	TN	Nashville	Jun 18-19 '14
HI	Honolulu	Apr 9-10 '14	TX	Arlington	Jun 25-26 '14
IA	Cedar Rapids	Apr 2-3 '14	TX	Austin	Mar 19-20 '14
IL	Elk Grove	Jul 14-15 '14	TX	El Paso	Jul 23-24 '14
IL	Joliet	Apr 24-25 '14	TX	Houston	Jun 4-5 '14
IL	Peoria	Mar 31-Apr 1 '14	TX	San Antonio	May 7-8 '14
IL	Springfield	Jun 9-10 '14	VA	Norfolk	Jun 18-19 '14
IN	Indianapolis	Apr 9-10 '14	VA	Richmond	Apr 16-17 '14
KS	Wichita	Apr 22-23 '14	WA	Bellevue	Apr 24-25 '14
KY	Louisville	Mar 19-20 '14	WA	Richland	May 21-22 '14
LA	New Orleans	Apr 2-3 '14	WI	Madison	May 29-30 '14
MA	Worcester	Apr 2-3 '14	WI	Milwaukee	Mar 17-18 '14
MD	Baltimore	Jun 11-12 '14	WV	Charleston	Apr 2-3 '14
MI	Flint	Apr 30-May 1 '14			
MI	Grand Rapids	Jul 10-11 '14	CANADIAN LOCATIONS		
MO	St. Louis	Mar 12-13 '14	AB	Calgary	Jul 9-10 '14
MS	Jackson	Apr 30-May 1 '14	AB	Edmonton	Jun 25-26 '14
NC	Charlotte	Jun 11-12 '14	MB	Winnipeg	Apr 24-25 '14
NC	Raleigh	Apr 24-25 '14	NS	Halifax	Apr 9-10 '14
ND	Bismarck	May 27-28 '14	ON	Ottawa	Jun 11-12 '14
NE	Omaha	Jun 11-12 '14	ON	Windsor	May 14-15 '14
NH	Manchester	Jun 11-12 '14	SK	Regina	Apr 2-3 '14

Combine this Boiler, Operation Maintenance & Safety class with our Air Conditioning & Refrigeration class to create our 4-day **HVAC Workshop: Air Conditioning & Boilers.**
\$1,980* All 4-Days

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