

# ***Hands-on Gas & Electric Furnaces and Boilers***

**Two Sessions: October 1-2 or October 3-4, 2012**

**Chestnut Ridge Resort, Blairsville, PA**

This seminar is all-about furnaces: how they work, how to trouble-shoot problems and the “fine art” of maintaining them. As part of the “hands-on” experience, attendees will be shown how to test furnace components. They will gain skills required to make repairs and perform preventative maintenance.

Proper safety procedures will be reviewed, and live electric currents used to demonstrate how to test electrical components. The seminar will cover the use a digital multi-meter. Class members will practice its use, testing both gas and electrical components, to assure that they know exactly how to use it when they return to their agencies.

The afternoon session on the second day will be devoted to boiler operation and maintenance.

All participants will receive a workbook that details how to perform gas and electric furnace preventive maintenance, trouble shoot and make minor repairs, which can be used as a handy reference when on the job.

The seminar will be conducted by Training Services Association trainer LW Brittian who designed these seminars and has taught them for several years for TSA, colleges, universities and national training organizations. Previously, he was a mechanical and electrical contractor, electrical foreman, and HVAC department manager for a university. He is a certified proctor for the 608 EPA certification exam through the Refrigeration Engineers Society.

***(See reverse side for more details.)***

## **Seminar Cost**

**Each 2-day class: \$325/person for WPHDA members and \$375/person for non-members**

(Fee includes course materials, breaks, and lunches on both days.)

## **Hotel Reservation**

**Deadline: Friday, September 7**

**Hampton Inn Chestnut Ridge**  
62 Pine Ridge Road  
Blairsville, PA 15717

(Hotel is located immediately adjacent to Chestnut Ridge Resort.)

Call **724-459-5920** and ask for the WPHDA rate of \$101 per night plus tax. This rate includes a hot breakfast buffet.

(Tax-exempt agencies must present their certificates when checking in.)

## **Seminar Registration**

**Due: Friday, September 14**

Return enclosed registration form with check payable to Western Pennsylvania Housing Directors Association.

**Questions?** Please contact Julie Kascal at 412.661.0591 or [jkascal@hotmail.com](mailto:jkascal@hotmail.com).

Seminar sponsored by the Western Pennsylvania Housing Directors Association

# **Agenda: Hands-on Gas & Electric Furnaces and Boilers**

**A Two-Day Session: October 1–2 or October 3–4, 2012**

**8:00 a.m. to 4:30 p.m. both days**

## **MAJOR TOPICS COVERED DURING THIS WORKSHOP:**

- Introduction to operation of gas and electrical furnaces
- Understanding electricity as it relates to gas, electric furnace components
- Introduction to natural gas and propane fuels and how they perform in a furnace
- How gas fuel, air and ignition are properly mixed for efficient, safe operation and what to do if they are not properly mixed
- Alignment and cleaning of gas burners
- Checking heat for “deadly” cracks
- Performing “Fall” preventative maintenance on furnaces and checking for deadly carbon monoxide gas

## **“HANDS-ON” LEARNING OPPORTUNITIES:**

- Understanding the operation of gas burners, pilots, valves and venting
- Determining if a thermocouple is good or bad
- Checking the operation of fan and limit switches
- Inspecting electrical heating elements
- Checking an electrical heater’s sequencer
- Testing a furnace blower motor
- Checking a furnace draft-venting motor
- Setting the heat anticipator on a space heating thermostat
- Testing electrical pilot ignition systems

## **BOILER OPERATION AND MAINTENANCE:**

- Boiler types: fire tube, water tube, high and low pressure
- Basics of combustion
- Basics of thermodynamics and heat transfer
- Burner operation and combustion
- Safety and operating controls: low water cutoff, boiler operation
- Make up water and water treatment
- Combustion efficiency
- Hazards associated with boiler operation
- Auxiliary equipment
- Boiler operator inspection task
- Maintenance task: water side maintenance, fire side and burner maintenance

# Western Pennsylvania Housing Directors Association Training

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## Hands-on Gas & Electric Furnaces and Boilers Class 1: October 1-2, 2012 and Class 2: October 3-4, 2012 Chestnut Ridge Resort, Blairsville, PA

### Registration Form -- Return by Friday, September 14

Authority \_\_\_\_\_

Address \_\_\_\_\_

Contact person \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-mail \_\_\_\_\_

#### **REGISTRATION**

Participant's Name and Title	Attending:	
	Class 1 Oct. 1-2	Class 2 Oct. 3-4
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Total WPHDA-member Registrations @ \$325/person \$ \_\_\_\_\_

Total Non-member Registrations @ \$375/person \$ \_\_\_\_\_

**Total Amount Due** \$ \_\_\_\_\_

Please make checks payable to: Western Pennsylvania Housing Directors Association  
Mail to: Western Pennsylvania Housing Directors Association, 1405 Browning Road, Pittsburgh, PA 15206

**Questions?** Please contact Julie Kascal at 412.661.0591 or e-mail to [jkascal@hotmail.com](mailto:jkascal@hotmail.com).