

Other Heat Sources

Heating Systems for Energy Auditors and Inspectors

Learning Objectives

By attending this session, participants will:

- Be able to identify some less common sources of space heating.
- Know enough about these other heat sources to help clients make decisions about replacement and installation.
- Understand the DOE requirements for unvented space heaters.
- Gain a basic understanding of heat pump operation.

Key Terminology

British Thermal Units (BTU)

British Thermal Units per Hour (BTUH)

Carbon Dioxide (CO₂)

Electric resistance heater (strip heater)

Face cord

International Fuel Gas Code

International Residential Code

Kilowatt hour (kWh)

Manufactured Home Construction and Safety Standards

Minimum Ventilation Requirements (MVR)

National Fire Protection Association (NFPA)

NFPA 211, Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances

Nitrogen

Sulfur dioxide

Unvented space heater (or vent-free heater)

Weatherization Program Notice (WPN)

WPN 11-6: Health & Safety Guidance

Supplemental Materials

Handouts & Resources

Applicable sections of NFPA 54: National Fuel Gas Code.

DOE. WAP. Midwest Regional Field Office. *Midwest Weatherization Best Practices Field Guide* May 2007, pp. 37-56. www.karg.com/pdf/Midwest_Wx_Best_Practices_May_2007.pdf.

DOE. WAP. "WPN 11-6 Health & Safety Guidance." 12 Jan. 2011. www.waptac.org.

EPA. "EPA Carbon Monoxide Fact Sheet." Oct. 1996.
www.epa.gov/iaq/pubs/cofactsheet.html#CO%20Poisoning%20Symptoms.

Jester, Ronald C. "Wood Stove Installation and Operation." University of Delaware Cooperative Extension, 2002.
<http://nasdonline.org/document/1254/d001052/wood-stove-installation-and-operation.html>.

Krigger, John T., and Chris Dorsi. *Residential Energy Cost Savings and Comfort for Existing Buildings*. 4th ed. New York: Saturn Resource Management, 2004, pp. 174-177.

Classroom Props & Activities

Display various types of combustion and electric space heaters, including:

- Unvented and direct-vent gas space heaters.
- Portable electric space heaters.
- Baseboard electric heaters.

Because of their relatively small size, portable space heaters lend themselves well to show and tell during the presentation. Old space heaters are useful because they may be found in clients' homes. Point out any features that may be unsafe, such as improper fuel supply lines, blockages, or dirty burners.

Class Overview

Use the presentation, discussion, demonstrations, and handouts to introduce students to other heat sources and their safe operation. This section is primarily lecture-based with an opportunity for show and tell.

After discussing the section objectives at the beginning of the presentation, ask students about unsafe situations they may have observed with other heat sources in homes they've visited.

To maintain interest while discussing various types of space heaters, take a break from the presentation to point out the features and components of these heaters.