

# Venting

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## Mechanical Systems - Multifamily

### Learning Objectives

By attending this session, participants will:

- Understand the functions of a venting system and the factors that affect its operation.
- Be able to recognize different types of venting systems, including those for Category I, II, III, and IV appliances.
- Learn the different types of combustion and draft, and the pros and cons of each.

### Key Terminology

Atmospheric combustion

Atmospheric pressure

Backdrafting

Barometric damper

British Thermal Unit (BTU)

Category I appliance

Category II appliance

Category III appliance

Category IV appliance

Combustion Appliance Zone (CAZ)

Condensation

Dew point

Direct vent appliance

Double-wall vents

Draft diverter

Fan-assisted combustion

Flame rollout

Forced draft

Induced draft

International Mechanical Code (IMC)

Latent heat

Mechanical draft

National Fire Protection Association (NFPA)

National Fuel Gas Code

Natural draft

Net free area

NFPA 31, Standard for the Installation of Oil-Burning Equipment

NFPA 54, National Fuel Gas Code

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

Non-direct-vent appliance

Oxygen (O<sub>2</sub>)

Power burner combustion

Sealed combustion

Second law of thermodynamics

Sensible heat	Type L vents
Single-wall vents	Vent connector
Spillage	Venting
Type B vents	Venting system

## Supplemental Materials

### Handouts & Resources

Applicable sections of NFPA 31: *Standard for the Installation of Oil-Burning Equipment*.

Applicable sections of NFPA 54: *National Fuel Gas Code*.

Applicable sections of NFPA 211: *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, especially Table 2-2.1, "Chimney Selection Chart."

Moffatt, Sebastian. "Backdrafting Causes and Cures." *Home Energy* May/June 1991: 30-35.  
[www.homeenergy.org](http://www.homeenergy.org).

Moore, Jerry. "Back to Basics: Venting for Gas-Fired Boilers." *PM Engineer* 4 June 2003.  
[www.pmengineer.com/Articles/Feature\\_Article/2003/06/04/Back-to-Basics-Venting-for-Gas-Fired-Boilers](http://www.pmengineer.com/Articles/Feature_Article/2003/06/04/Back-to-Basics-Venting-for-Gas-Fired-Boilers).

### **Vent materials:**

- Type B vent.
- Type L vent.
- Single-wall galvanized vent.
- PVC schedule 40 pipe.
- Stainless steel chimney liner and cap.

## Class Overview

Use the presentation, discussion, and handouts to introduce students to the various venting materials they will see and how appliance classification dictates vent type. Spend extra time on the definitions of the various combustion types and draft types, as the terminology used in the field often leads to confusion. Refer to the glossary when questions about terminology arise.

When discussing vent pipe materials, refer to NFPA 211 requirements. Pass around samples of different types of vent pipes, discussing appropriate applications for each one.