



## Coffee Break Training - Fire Protection Series

### Hazardous Materials: Portable Oxygen Cylinder Storage

No. FP-2011-29 July 19, 2011

**Learning Objective:** The student shall be able to identify the fire code requirements for indoor storage of oxygen in portable cylinders.

Regulations for indoor oxygen storage may be confusing when the product is used for medical purposes such as these E-size cylinders<sup>1</sup> located in an assisted-living facility. The source of this confusion is that the model fire codes and National Fire Protection Association (NFPA) 99, *Standard for Health Care Facilities*, have separate construction and storage requirements for medical gas systems.

The key to understanding the regulations is to realize that a medical gas system is an assembly of equipment that is designed to contain, distribute, or transport the gas from storage to the point of use. Because the gas is in transportation, it is more likely to be released into the atmosphere creating a potentially hazardous condition. Compressed oxygen cylinders that are not connected to this type of system are considered to be in storage, and are subject to the hazardous materials regulations for oxidizing gases.

The model fire codes typically allow 1,500 cu. ft. (42,475 L) of oxidizing gas in storage in a single control area. The amount may be doubled to 3,000 cu. ft. (84,950 L) if the control area is sprinklered or the oxidizing gas is stored in an approved hazardous materials cabinet. When both sprinklers and cabinets are employed, the allowable quantity can be increased to 6,000 cu. ft. (169,901 L) in a single control area.

Facilities that are regulated by NFPA 101, *Life Safety Code*<sup>®</sup>, and NFPA 99 may have different requirements. Always refer to the legally-adopted codes and standards for guidance.

For additional information, refer to *International Fire Code*<sup>®</sup>, Chapters 27 and 30, and NFPA 1, *Uniform Fire Code*<sup>™</sup>, Chapters 60 and 63.

(Please note that the self-closing door was wedged in the open position solely to obtain today's photograph.)



Oxygen cylinders stored indoors should be in compliance with fire code requirements for compressed gases. Photo courtesy of Adrianna Lovinescu, Pancake Architects.

<sup>1</sup> E-size cylinders typically contain 5.79 cu. ft. of oxygen at 2,000 psi (165 L at 138 bar). They also may be known as M-6 cylinders.

