

Code Interpretation: Mild Hyperbaric Oxygen Therapy

The State Fire Marshal Division (SFMD) has received several questions from local fire code and building code officials related to facilities that operate mild hyperbaric oxygen therapy (mHbOT) chambers, and the extent to which these chambers are regulated under the 2020 Minnesota State Fire Code (MSFC).

Mild hyperbaric oxygen therapy chambers typically operate with pressures between 2 to 4.5 psi while oxygen is administered to the occupant via mask or nasal cannula at concentration levels of 90 to 95 percent. Before therapy can be administered, a telemedicine appointment is necessary and the procedure is overseen by a licensed registered nurse. Although mHbOT chambers may be located within a healthcare facility, many are located in non-healthcare occupancies.

Interpretation

It is the interpretation of SFMD that mild hyperbaric oxygen therapy chambers fall under the scope of the MSFC pursuant to Section 609. Therefore, mHbOT chambers, and those facilities housing such chambers, must comply with the applicable provisions of NFPA 99, Chapter 14.

Findings and rationale

MSFC Section 609.1 adopts by reference the 2012 edition of NFPA 99 specific to hyperbaric facilities.

SECTION 609 HYPERBARIC FACILITIES

609.1 General. Hyperbaric facilities shall be inspected, tested and maintained in accordance with NFPA 99.

In addition, Minnesota Building Code (MBC) Section 425.1 adopts by reference the 2012 edition of NFPA 99, Chapter 14, specific to hyperbaric facilities.

SECTION 425 HYPERBARIC FACILITIES

425.1 Hyperbaric facilities. Hyperbaric facilities shall meet the requirements contained in Chapter 14 of NFPA 99.

A hyperbaric facility is undefined in the MSFC, thus the definition from NFPA 99 applies as the referenced standard. Although the specific term, "hyperbaric facility," is also undefined in NFPA 99, "hyperbaric" is defined in Section 3.3.76 of the standard.

3.3.76 Hyperbaric. Facility, building, or structure used to house chambers and all auxiliary service equipment for medical applications and procedures at pressures above normal atmospheric pressures. (HYP)



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Furthermore, the administrative section of NFPA 99 identifies chamber operating pressures that fall within the scope of Chapter 14 as anywhere from 0 to 100 psi.

1.1.12 Hyperbaric Facilities. Chapter 14 covers the recognition of, and protection against, hazards of an electrical, explosive, or implosive nature, as well as fire hazards associated with hyperbaric chambers and associated facilities that are used, or intended to be used, for medical applications and experimental procedures at gauge pressures from 0 kPa to 690 kPa (0 psi to 100 psi).

Chapter 14 classifies hyperbaric chambers as follows:

- Class A — Human, multiple occupancy
- Class B — Human, single occupancy
- Class C — Animal, no human occupancy

Because mHbOT chambers operate above normal atmospheric pressures (as high as 4.5 psi), such chambers and the facilities housing them appear to fall within the scope of NFPA 99, Chapter 14.

It's been argued that Chapter 14 of NFPA 99 only applies to hyperbaric chambers located in healthcare facilities. However, the annex commentary for Section 1.1.12 has been updated to clarify that the safeguards in Chapter 14 apply regardless of location. This view is consistent with the common-sense principle of providing fire and life-safety protection based on specific operational hazards as opposed to location. In other words, an occupant within a hyperbaric chamber is exposed to the same hazards regardless of the occupancy classification of the building.

Questions

Contact the SFMD 651-201-7221 or by email at fire.code@state.mn.us

