



## Public Comment No. 103-NFPA 99-2022 [ Section No. 14.1.3.4 ]

### 14.1.3.4 Category 4 Hyperbaric Care. (Reserved) Therapy

Where all the following conditions are met the hyperbaric facility shall be considered Category 4 for use in this chapter:

- (1) Interruption of or failure of oxygen supply is not likely to cause injury to patients, staff, or visitors, and,
- (2) Interruption or failure of electrical service is not likely to cause injury to patients, staff, or visitors, and,
- (3) The chamber gauge pressures is less than 34.5 kPa (5 psi) and the average oxygen concentration is less than 25%.

### Statement of Problem and Substantiation for Public Comment

This comment adds content to category 4 chambers that is currently reserved. Oxygen therapy at low pressures and concentrations exists in most jurisdictions. The fire hazards associated with these facilities are minimal and they are not medical procedures. Yet NFPA 99 Chapter 14 is often applied to these facilities in totality despite the lack of either an oxygen enriched environment or high pressures. This change, provides requirement to populate Category 4 and creates a new specific section for these low hazard (not no hazard) chambers.

FR 997 makes pressure requirements applicable to all chambers that are warranted for high pressure chambers, but not for these. The existing low pressure chambers cannot meet all pressure requirements.

This comment introduces content for a currently reserved section and adds a new requirements appropriate for these lower hazard chambers. This creates a lower threshold of applicability in terms of easily measurable physical parameters (Pressure and oxygen concentration). The concept of an applicability threshold is well established in fire codes (HAZMAT, high pile storage, sprinkler requirements to name a few) but does not exist in Chapter 14 currently. This change adds two thresholds so that the requirements of Chapter 14 that are needed for higher pressure and oxygen concentration hyperbaric facilities are not excessively applied to low pressure low concentration hyperbaric chambers that do not pose fire risks at the same level as medical chambers.

Restore is a national company that provides low pressure/low oxygen concentration therapy for clients as well as other non-medical therapies. Chapter 14 is not intended to apply in its entirety to these low hazard chambers, but it does if taken literally. Many AHJs have done just that and prevented installation of these chambers. Conversely, many AHJs have allowed these installations without NFPA 99 Chapter 14 compliance and several have required and approved equivalencies. The regulatory situation is inconsistent. Adding lower thresholds, provides clear requirements.

NFPA 99 CH 14 is intended to apply to medical and experimental procedures. The services offered by wellness centers such as Restore, are therapeutic not medical therefore NFPA 99 should not apply.

Pressure – The lower threshold of 5 psig allows a reasonable lower threshold that is above the achievable pressure most commercially available soft side inflatable therapeutic (non-medical) chambers that NFPA 99 Chapter 14 is not intended to apply to. 5 psig does not represent a significant pressure hazard in the configuration of these chambers. 5 psig is similar to the pressure at 10 feet of depth underwater in a swimming pool.

23.5% Oxygen Concentration – This level agrees with the NFPA 99 definition of an oxygen enriched atmosphere per 3.3.137 Oxygen-Enriched Atmosphere (OEA).  
For the purposes of this code, an atmosphere in which the concentration of oxygen exceeds 23.5 percent by volume.

#### Related Item

- FR 997

### Submitter Information Verification

**Submitter Full Name:** Martin Gresho

**Organization:** FP2Fire, Inc.

**Affiliation:** Restore Wellness

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue May 31 13:45:51 EDT 2022

**Committee:** HEA-HYP

### Committee Statement

**Committee** Rejected but held

**Action:**

**Resolution:** The proposed revision is new material and needs to be held for the next revision cycle to allow for public review in accordance with 4.4.4.2 and 4.4.8.3 of the Regulations Governing the Development of NFPA Standards. The noted FR-997 did not address the concept of mild hyperbaric therapy. The proposed definition of 'Category 4' appears to align more closely with the definition of 'Category 3' in Chapter 4.



## Public Comment No. 102-NFPA 99-2022 [ Section No. 14.2.1.3.3 ]

### 14.2.1.3.3\*

Gas supplies from commercially supplied cylinders from cylinders and portable containers shall include particulate filters to protect downstream components in the piping system.

## Statement of Problem and Substantiation for Public Comment

What is the definition of "Commercially"? The term "commercially supplied cylinders" is only found only in this section in NFPA 99. If there are "commercially supplied cylinders" some other "non-commercially supplied cylinders", then what is the alternative where this requirement doesn't apply? Why wouldn't this requirement apply to non-commercially supplied cylinders?

### Related Item

- FR-985

## Submitter Information Verification

**Submitter Full Name:** Chad Beebe

**Organization:** ASHE-AHA

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue May 31 12:35:24 EDT 2022

**Committee:** HEA-HYP

## Committee Statement

**Committee Action:** Accepted

**Resolution:** SR-946-NFPA 99-2022

**Statement:** The protection of downstream components should not be limited to commercially supplied cylinders.



## Public Comment No. 39-NFPA 99-2022 [ Section No. 14.2.2.1.2 ]

### 14.2.2.1.2\*

A means to provide secondary pressure relief capable of preventing pressure exceeding 200 percent of the design pressure shall be provided.

## Statement of Problem and Substantiation for Public Comment

We are required to fabricate the chamber(s) to ASME PVHO-1. This change needs to be presented to the ASME PVHO-1 committees before consideration by NFPA 99 HEA/HYP. I am not aware of a requirement in ASME PVHO-1 that would require a secondary PRV.

In my opinion, this is an unnecessary provision as there have been no incidents I am aware of where a secondary PRV would have been necessary. It adds cost, additional maintenance and potential point of failure.

I strongly disagree with the addition of a requirement to provide a secondary PRV. We already have points of failure well below the 200% over design pressure specified, see design of viewports for example.

### Related Item

- 22-NFPA99 2020 and annex note

## Submitter Information Verification

**Submitter Full Name:** James Bell

**Organization:** Fink Engineering

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Thu Mar 24 06:11:45 EDT 2022

**Committee:** HEA-HYP

## Committee Statement

**Committee Action:** Rejected but see related SR

**Resolution:** [SR-947-NFPA 99-2022](#)

**Statement:** Reference to a rupture disc was removed because it conflicts with requirements of ASME PVHO-1.



## Public Comment No. 40-NFPA 99-2022 [ Section No. 14.2.2.1.2 ]

### 14.2.2.1.2\*

~~A means to provide secondary pressure relief capable of preventing pressure exceeding 200 percent of the design pressure shall be provided.~~

## Statement of Problem and Substantiation for Public Comment

Excessive safety barrier for a multi-place chamber. The additional penetration would create another unnecessary point of potential failure. A multi-place chamber with acrylic windows would already have several failure points which would fail before the components of a second PRV with regards to any increase in temperature externally.

### Related Item

- Hyperbaric chamber fabrication

## Submitter Information Verification

**Submitter Full Name:** Carl Jackson

**Organization:**

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Thu Mar 24 06:28:57 EDT 2022

**Committee:** HEA-HYP

## Committee Statement

**Committee Action:** Rejected but see related SR

**Resolution:** SR-947-NFPA 99-2022

**Statement:** Reference to a rupture disc was removed because it conflicts with requirements of ASME PVHO-1.



## Public Comment No. 25-NFPA 99-2022 [ Section No. 14.2.9.6.4 ]

### 14.2.9.6.4

Equipment not specified by 14.2.9.6 shall be permitted in the chamber, with the approval of the hyperbaric medical director and the hyperbaric safety coordinator, if one of the following conditions exists:

- (1) The equipment is intrinsically safe.
- (2) The equipment is compliant with Class 1 requirements specified in Article 500 of NFPA 70.
- (3) The equipment meets the following conditions:
  - (a) The batteries and circuitry are sealed or isolated from the chamber environment.
  - (b) It has a maximum voltage of 3 volts and a power requirement of 4 W.
  - (c) It contains no volatile lubricants or hydrocarbons.

## Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_99_CCN_28.pdf	NFPA 99 CCN_28	

## Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 28 appeared in the First Draft Report on First Revision No. 1003.

Consider revising to read, "... if any of the following conditions exists:" as it appears the exemption is intended to apply when one or more of the conditions is met, not when one and only one is met. Also consider revising item (3) to specify that all of the conditions must be met within that subitem.

### Related Item

- FR-1003

## Submitter Information Verification

**Submitter Full Name:** CC on HEA-AAC

**Organization:** NFPA

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Fri Mar 18 11:18:31 EDT 2022

**Committee:** HEA-HYP

## Committee Statement

**Committee Action:** Rejected but see related SR

**Resolution:** SR-948-NFPA 99-2022

**Statement:** The revisions respond to CCN-28 and clarify the intent.



## Correlating Committee Note No. 28-NFPA 99-2022 [ New Section after 14.2.9.6.3 ]

### Submitter Information Verification

**Committee:** HEA-AAC

**Submittal Date:** Fri Jan 21 12:11:13 EST 2022

### Committee Statement

**Committee Statement:** Consider revising to read, "... if any of the following conditions exists:" as it appears the exemption is intended to apply when one or more of the conditions is met, not when one and only one is met. Also consider revising item (3) to specify that all of the conditions must be met within that subitem.

First Revision No. 1003-NFPA 99-2021 [New Section after 14.2.9.6.3]

### Ballot Results

✓ This item has passed ballot

16 Eligible Voters

4 Not Returned

12 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

#### Not Returned

Ashby, H. Shane

Brooks, Bruce D.

Dagenais, David A.

Hijazi, Robert

#### Affirmative All

Beebe, Chad E.

Burrill, Gordon D.

Ferrari, Keith

Finnegan, Daniel P.

Gagnon, Robert M.

Galloway, Ronald E.

Gilyeat, Sharon S.

Kennedy, Chad

Reiswig, Rodger

Rosenbaum, Eric R.

Sontag, Robert

Versteeg, Joseph H.



## Public Comment No. 1-NFPA 99-2022 [ Section No. 14.2.10.4.5 ]

### 14.2.10.4.5\*

Any chamber with a design pressure exceeding 3.38 ATA shall have a means to prevent occupants from breathing any gas containing more than 2570 mm Hg oxygen.

14.2.10.4.5 should be deleted. NFPA should not be limiting how a physician prescribes a drug, in this case oxygen.

## Statement of Problem and Substantiation for Public Comment

I do not believe that NFPA should be dictating through code how a physician prescribes a drug, and oxygen is a drug. Limiting the use of 100 percent oxygen to 3.38 ATA would have caused the death of at least two patients. Both were diving accidents with arterial gas embolisms that had massive shunting. A 50/50 heliox mixture at 6 ATA was inadequate to overcome the shunting. When 100 percent oxygen was given at 6 ATA the patient improved. Yes, the patient did experience a seizure from CNS oxygen toxicity but they survived and the toxicity was reversible, whereas death is not.

The case I was involved in was presented at a UHMS conference in Amsterdam in 1990 by doctor Robert Goldmann. The other was a case told to me by Keith Van Meter M.D. New Orleans, LA.

GOLDMANN, RW, Massive Air Embolism. Use of 100% Oxygen at 6 ATA in the management of Bends Shock. Undersea Biomedical Research 17:(Suppl) Abstract 286, Aug. 1990.

Had our chamber had a restrictive device that prevented delivery of 100 percent oxygen at 6 ATA, I'm sure our patient would not have survived.

### Related Item

- No public comments are available. No related items

## Submitter Information Verification

**Submitter Full Name:** Greg Raleigh

**Organization:** Retired

**Affiliation:** None

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Wed Mar 02 13:45:03 EST 2022

**Committee:** HEA-HYP

## Committee Statement

**Committee Action:** Rejected but see related SR

**Resolution:** SR-949-NFPA 99-2022

**Statement:** The revision responds to PC-1 and also deleted the associated annex note. See PC-1 for the submitter's statement.



## Public Comment No. 24-NFPA 99-2022 [ Section No. 14.2.10.4.5 ]

### 14.2.10.4.5\*

Any chamber with a design pressure exceeding 3.38 ATA shall have a means to prevent occupants from breathing any gas containing more than 2570 mm Hg oxygen.

## Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_99_CCN_27.pdf	NFPA 99 CCN_27	

## Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 27 appeared in the First Draft Report on First Revision No. 1004.

Provide US/metric unit equivalents in 14.2.10.4.5 in accordance with the Manual of Style.

### Related Item

- FR-1004

## Submitter Information Verification

**Submitter Full Name:** CC on HEA-AAC

**Organization:** NFPA

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Fri Mar 18 11:15:23 EDT 2022

**Committee:** HEA-HYP

## Committee Statement

**Committee** Rejected but see related SR

**Action:**

**Resolution:** [SR-949-NFPA 99-2022](#)

**Statement:** The revision responds to PC-1 and also deleted the associated annex note. See PC-1 for the submitter's statement.



## Correlating Committee Note No. 27-NFPA 99-2022 [ Section No. 14.2.10.4 ]

### Submitter Information Verification

**Committee:** HEA-AAC

**Submittal Date:** Fri Jan 21 12:00:47 EST 2022

### Committee Statement

**Committee Statement:** Provide US/metric unit equivalents in 14.2.10.4.5 in accordance with the Manual of Style.

First Revision No. 1004-NFPA 99-2021 [Section No. 14.2.10.4]

### Ballot Results

✓ **This item has passed ballot**

16 Eligible Voters

4 Not Returned

12 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

#### Not Returned

Ashby, H. Shane

Brooks, Bruce D.

Dagenais, David A.

Hijazi, Robert

#### Affirmative All

Beebe, Chad E.

Burrill, Gordon D.

Ferrari, Keith

Finnegan, Daniel P.

Gagnon, Robert M.

Galloway, Ronald E.

Gilyeat, Sharon S.

Kennedy, Chad

Reiswig, Rodger

Rosenbaum, Eric R.

Sontag, Robert

Versteeg, Joseph H.



## Public Comment No. 53-NFPA 99-2022 [ Section No. 14.3.1.3.2 ]

### 14.3.1.3.2\*

For each hyperbaric facility, a hyperbaric safety coordinator shall be ~~director shall be~~ designated as responsible for all hyperbaric equipment and the operational safety requirements of this chapter.

#### 14.3.1.3.2.1

The hyperbaric safety coordinator shall ~~director shall~~ develop operation and maintenance procedures for the hyperbaric facility with facility management personnel and the hyperbaric physician(s).

#### 14.3.1.3.2.2

The hyperbaric safety coordinator shall ~~director shall~~ make recommendations for departmental safety policies and procedures.

#### 14.3.1.3.2.3

The hyperbaric safety coordinator shall ~~director shall~~ have the authority to restrict or remove any potentially hazardous supply or equipment items from the chamber.

## Statement of Problem and Substantiation for Public Comment

The Hyperbaric Safety Director literally "directs" staff and patients regarding approval of items for use inside the chamber, education of safety procedures and development and approval of departmental policies. This is not just a "coordinator", and referring to them as such is a clear demotion of title.

### Related Item

- First Draft Report

## Submitter Information Verification

**Submitter Full Name:** Kurt Laipple

**Organization:** DP World

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue May 10 04:07:51 EDT 2022

**Committee:** HEA-HYP

## Committee Statement

**Committee Action:** Rejected

**Resolution:** The existing requirement does not dictate a job title. As explained in A.14.3.1.3.2, the individual can be assigned any job title.



## Public Comment No. 26-NFPA 99-2022 [ Section No. 14.3.1.6.4.3 ]

### 14.3.1.6.4.3\*

The hyperbaric physician in charge, with the concurrence of the hyperbaric safety coordinator, shall be permitted to use materials that are prohibited or not specifically permitted by this chapter.

## Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_99_CCN_29.pdf	NFPA 99 CCN_29	

## Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 29 appeared in the First Draft Report on First Revision No. 984.

Provide a committee statement for the first revision, which appears to have been inadvertently omitted, via the creation of a second revision.

### Related Item

- FR-984

## Submitter Information Verification

**Submitter Full Name:** CC on HEA-AAC

**Organization:** NFPA

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Fri Mar 18 11:25:01 EDT 2022

**Committee:** HEA-HYP

## Committee Statement

**Committee** Rejected

**Action:**

**Resolution:** In response to the correlating committee's request for a statement on FR-984, the revision clarifies titles and removes nonspecific descriptors of materials. Other revisions are primarily editorial.



## Correlating Committee Note No. 29-NFPA 99-2022 [ Section No. 14.3.1.6.4.3 ]

### Submitter Information Verification

**Committee:** HEA-AAC

**Submittal Date:** Fri Jan 21 12:14:05 EST 2022

### Committee Statement

**Committee Statement:** Provide a committee statement for the first revision, which appears to have been inadvertently omitted, via the creation of a second revision.

First Revision No. 984-NFPA 99-2021 [Section No. 14.3.1.6.4.3]

### Ballot Results

✓ **This item has passed ballot**

16 Eligible Voters

4 Not Returned

12 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

#### Not Returned

Ashby, H. Shane

Brooks, Bruce D.

Dagenais, David A.

Hijazi, Robert

#### Affirmative All

Beebe, Chad E.

Burrill, Gordon D.

Ferrari, Keith

Finnegan, Daniel P.

Gagnon, Robert M.

Galloway, Ronald E.

Gilyeat, Sharon S.

Kennedy, Chad

Reiswig, Rodger

Rosenbaum, Eric R.

Sontag, Robert

Versteeg, Joseph H.



## Public Comment No. 104-NFPA 99-2022 [ New Section after 14.3.4.7.1 ]

### 14.4. Category 4 Hyperbaric Therapy

#### New Section

##### 14.4.4.1 Fire Sprinklers

Full automatic fire sprinkler protection in accordance with NFPA 13 shall be provided throughout buildings housing Category 4 Hyperbaric Therapy facilities.

##### 14.4.4.2 Fire Alarm

A fire alarm system in accordance NFPA 72 meeting the following requirements shall be provided for each Category 4 Hyperbaric Therapy facility .

14.4.4.2.1 Fire detection shall be provided in each room of the Category 4 Hyperbaric Therapy facility.

14.4.4.2.2 Water flow in the fire sprinkler system shall create an alarm signal on the fire alarm system.

14.4.4.2.3 Notification appliance(s) with visible and audible notification shall be provided in rooms housing Category 4 Hyperbaric Class A, Class B, or Class C chambers .

14.4.4.2.4 Notification appliances shall be provided throughout the remainder of the Category 4 Hyperbaric Therapy facility in accordance with NFPA 72.

14.4.4.2.5 A manual pull shall be located within rooms housing Category 4 Hyperbaric Class A, Class B, or Class C chambers.

14.4.4.2.6 For the application of the requirements of 14.4.4.2, the boundary of the Category 4 Hyperbaric Therapy facility shall be either exterior walls or smoke partitions in accordance with the adopted building code.

##### 14.4.4.3 Fire Extinguishers

The room housing a Class A, Class B, or Class C chamber shall contain a minimum of one 2-A:10B:C portable fire extinguisher.

##### 14.4.4.4 Ventilation of Class B Chambers

The minimum ventilation rate for a Class B chamber shall be 0.0283 m<sup>3</sup>/min (1 ft<sup>3</sup>/min).

##### 14.4.4.5 Emergency Lighting

Emergency lighting with an internal battery backup in accordance with the adopted fire code or life safety code shall be provided in each room housing Class A, Class B, or Class C chambers.

##### 14.4.4.6 Signage

Signs prohibiting the introduction of flammable liquids, gases, and other articles not permitted by this chapter into the chamber shall be posted at the chamber room entrance(s).

##### 14.4.4.7 Rules and regulations

Category 4 Hyperbaric Therapy facilities shall comply with 14.3.1.4.

##### 14.4.4.7 Emergency Procedures

Emergency procedures for Category 4 Hyperbaric Therapy facilities shall comply with 14.3.1.5.

##### 14.4.4.8 Potential Ignition Sources

The following shall be prohibited from inside the chamber and the immediate vicinity outside the chamber:

###### (1) Smoking

(2) Open flames

(3) Hot objects

#### 14.4.4.9 Handling of Gases

14.4.4.9.1 Oxygen cylinder use, and storage shall be prohibited.

14.4.4.9.1.1 Personal oxygen cylinders for persons with medical conditions requiring them shall be permitted when in use.

14.4.4.9.2 Liquid oxygen shall be prohibited.

14.4.4.9.3 Flammable gases be prohibited in rooms housing Class A, Class B or Class C chambers when in use.

#### 14.4.4.10 Inspection, Testing, and Maintenance

Inspection, Testing and Maintenance shall comply with 14.3.4.

#### 14.4.4.11 Equipment

Equipment used for Class A, Class B or Class C chambers shall be listed or approved.

14.4.4.11.1 Chambers shall be provided with a clear window that allows occupants see into the room.

14.4.4.11.2 Chamber construction materials intended to attenuate chamber room sounds shall be prohibited.

14.4.4.11.3 Chambers shall provide for depressurization by the occupant from inside without assistance and enable self-egress.

#### 14.4.4.12 Housekeeping

Housekeeping shall comply with 14.3.4.7.

#### 14.4.4.4.12 Emergency Depressurization

Class A and Class B chambers shall be capable of depressurizing to ambient pressure in not more than 2 minutes.

## Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
LA_Restore_Hyperbaric_Chamber_Report_R0_w_att_2_PE_stamps.pdf	FPE report providing additional substantiation	

## Statement of Problem and Substantiation for Public Comment

This comment is related to FR 997 which makes pressure requirements needed for high pressure chambers applicable to all chambers above 0 psig. Soft sided inflatable chambers cannot meet the pressure safety requirements and should be exempt, yet FR 997 makes it even more clear that NFPA 99 is to apply to all chambers above 0 psig. The FR 997 changes apply both to high pressure chambers and low pressure non enriched chambers. This is excessive for the proposed Category 4 chambers that have a lower fire life safety hazard than higher pressure chambers. The change creates reasonable requirements for low pressure non enriched chambers, while not exempting them from NFPA 99.

This comment introduces content for a currently reserved section and adds a new requirements appropriate for these lower hazard chambers. This creates a lower threshold of applicability in terms of easily measurable physical parameters (Pressure and oxygen concentration). The concept of an applicability threshold is well established in fire codes (HAZMAT, high pile storage, sprinkler requirements to name a few) but does not exist in Chapter 14 currently. This change adds two thresholds so that the requirements of Chapter 14 that are needed for higher pressure and oxygen

concentration hyperbaric facilities are not excessively applied to low pressure low concentration hyperbaric chambers that do not pose fire risks at the same level as medical chambers.

Restore is a national company that provides low pressure/low oxygen concentration therapy for clients as well as other non-medical therapies. Chapter 14 is not intended to apply in its entirety to these low hazard chambers, but it does if taken literally. Many AHJs have done just that and prevented installation of these chambers. Conversely, many AHJs have allowed these installations without NFPA 99 Chapter 14 compliance and several have required and approved equivalencies. The regulatory situation is inconsistent. Adding lower thresholds, provides clear requirements.

NFPA 99 CH 14 is intended to apply to medical and experimental procedures. The services offered by wellness centers such as Restore, are therapeutic not medical therefore NFPA 99 should not apply.

**Pressure** – The lower threshold of 5 psig allows a reasonable lower threshold that is above the achievable pressure most commercially available soft side inflatable therapeutic (non-medical) chambers that NFPA 99 Chapter 14 is not intended to apply to. 5 psig does not represent a significant pressure hazard in the configuration of these chambers. 5 psig is similar to the pressure at 10 feet of depth underwater in a swimming pool.

**23.5% Oxygen Concentration** – This level agrees with the NFPA 99 definition of an oxygen enriched atmosphere per 3.3.137 Oxygen-Enriched Atmosphere (OEA).

For the purposes of this code, an atmosphere in which the concentration of oxygen exceeds 23.5 percent by volume.

During the development of a fire code analysis (copy attached stamped by two independent licensed Fire Protection Engineers) to address the hazard posted by soft sided low pressure non enriched chambers, a realization that most (not all) of chapter 14 is not reasonable. Therefore, the development of specific requirements is preferable to outright exemption. In addition the proposed changes reflect the realization that the inflatable chambers likely pose an egress delay not addressed by Chapter 14 because most chambers with both enriched oxygen and high pressures are constantly attended by medical professionals trained to take action in the early phases of a fire emergency. This is not always the case with inflatable chambers where in contrast with a basic assumption of Group B Business occupancy (or all except Group R Residential), occupant may be asleep at the time of a fire event. This creates a problem related to a delay in egress that must be addressed. Since occupants are assumed to be capable of self preservation, some of the same strategies for Group R Residential occupancies where sleeping occupants are expected, have been used. Mostly this is fire sprinklers to reduce the severity and spread of fires anywhere in the egress path and fire alarm systems with fire detection capability to notify occupants of a need the egress faster. To that end, fire detection and sprinkler requirements were added that exceed those for other types of chambers where delayed egress is less of an issue and self-preservation is not relied upon. The increase in fire life safety of these standard provisions is substantial.

Because a separate section for category 4 was created, many requirements of Chapter 14 have been retained by referral of inclusion within some cases modification.

This results in a largely stand alone section that simplifies application of NFPA 99 for these chambers.

#### Related Item

- FR 997

### **Submitter Information Verification**

**Submitter Full Name:** Martin Gresho

**Organization:** FP2Fire, Inc.

**Affiliation:** Restore

**Street Address:**

**City:**

**State:**

**Zip:**

**Submittal Date:** Tue May 31 14:13:25 EDT 2022

**Committee:** HEA-HYP

## Committee Statement

**Committee** Rejected but held

**Action:**

**Resolution:** The proposed revision is new material and needs to be held for the next revision cycle to allow for public review in accordance with 4.4.4.2 and 4.4.8.3 of the Regulations Governing the Development of NFPA Standards. The noted FR-997 did not address the concept of mild hyperbaric therapy. The proposed definition of 'Category 4' appears to align more closely with the definition of 'Category 3' in Chapter 4.