MEMORANDUM

TO: NFPA Technical Committee on Fundamentals

FROM: Jeanne Moreau-Correia

DATE: March 2, 2010

SUBJECT: NFPA 99 A11 ROP Letter Ballot

The ROP letter ballot for NFPA 99 HEA-FUN is attached. The ballot is for formally voting on whether or not you concur with the committee’s actions on the proposals. Reasons must accompany all negative and abstention ballots.

Please do not vote negatively because of editorial errors. However, please bring such errors to my attention for action.

Please complete and return your ballot as soon as possible but no later than Monday, March 15, 2010. As noted on the ballot form, please submit the ballot to Jeanne Moreau-Correia, e-mail to jmoreaucorreia@nfpa.org or fax to 617-984-7110.

The return of ballots is required by the Regulations Governing Committee Projects.

Attachment: Proposals
Submitter: Technical Committee on Fundamentals,
Recommendation: Revise text as follows:
Change the name of NFPA 99 to Health Care Facilities Code
Substantiation: The Technical Correlating Committee has instructed the Technical Committees to revise NFPA 99 to reflect when and how the requirements apply. The change in title reflects the document should be a Code.
Committee Meeting Action: Accept
Revise Chapter 1 as follows:

Chapter 1

1.1 Scope.

1.1.1 The scope of this code is to establish criteria to minimize the hazards of fire, explosion, and electricity in health care facilities providing services to human beings.

1.1.2 Fundamentals. Chapter 4 establishes criteria for levels of health care services or systems based on risk to the patients, staff, or visitors in health care facilities.

1.1.3 Gas and Vacuum Systems. Chapter 5 covers the performance, maintenance, installation, and testing of the following:

(1) Nonflammable medical gas systems with operating pressures below a gauge pressure of 2068 kPa (300 psi)
(2) Vacuum systems in health care facilities
(3) Waste anesthetic gas disposal (WAGD) systems, also referred to as scavenging
(4) Manufactured assemblies that are intended for connection to the medical gas, vacuum, or WAGD systems (also referred to as scavenging)

1.1.3.1 Requirements for portable compressed gas systems are covered in Chapter 11.

1.1.4 Electrical Systems. Chapter 6 covers the performance, maintenance, and testing of electrical systems (both normal and essential) in health care facilities.

1.1.4.1 The following areas are not addressed in this code, but are addressed in other NFPA documents:

(1) Specific requirements for wiring and installation of equipment are covered in NFPA 70, National Electrical Code.
(3) Requirements for installation, testing and maintenance of fire protection signaling systems are covered in NFPA 72, National Fire Alarm and Signaling Code.
(4) Requirements for installation of fire pumps are covered in NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, except that the alternate source of power shall be permitted to be the essential electrical system.
(5) Requirements for the installation of stationary engines and gas turbines are covered in NFPA 37, Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines.

1.1.5 Information Technology and Communications Systems. Chapter 7 covers the performance, maintenance, and testing of information technology and communications systems in health care facilities.

1.1.6 Plumbing. Chapter 8 covers the performance, maintenance, and testing of plumbing systems in health care facilities.

1.1.7 Heating, Cooling, Ventilating, Humidity Control and Process Systems. Chapter 9 covers the performance, maintenance, and testing of heating, cooling, ventilating, humidity control and process systems in health care facilities.

1.1.8 Electrical Equipment. Chapter 10 covers the performance, maintenance, and testing of electrical equipment in health care facilities.

1.1.9 Gas Equipment. Chapter 11 covers the performance, maintenance, and testing of gas equipment in health care facilities.

1.1.10* Health Care Emergency Management. Chapter 12 establishes minimum criteria for health care facility emergency management in the development of a program for effective disaster preparedness, response, mitigation, and recovery in health care facilities.

1.1.11 Security Management. Chapter 13 covers the performance, maintenance, and testing of security equipment and systems in health care facilities.

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).

1.1.13 Features of Fire Protection. Chapter 15 covers the performance, maintenance, and testing of fire protection equipment in health care facilities.

1.2 Purpose.

1.2.1 The purpose of this code is to provide minimum requirements for the performance, maintenance, testing, and
safe practices for facilities, material, equipment, and appliances, including other hazards associated with the primary hazards.

1.3 Application.
1.3.1 This code shall apply to all health care facilities.
1.3.1.1 This document is intended for use by those persons involved in the design, construction, inspection, and operation of health care facilities and in the design, manufacture, and testing of appliances and equipment used in patient care rooms of health care facilities.

1.3.2 Construction and equipment requirements shall be applied only to new construction and new equipment, except as modified in individual chapters.
1.3.2.1 Only the altered, renovated, or modernized portion of an existing system or individual component shall be required to meet the installation and equipment requirements stated in this code.
1.3.2.2 If the alteration, renovation, or modernization adversely impacts the existing performance requirements of a system or component, additional upgrading shall be required.
1.3.2.3 An existing system that is not in strict compliance with the provisions of this code shall be permitted to be continued in use provided that the authority having jurisdiction has not determined that such use constitutes a distinct hazard to life.

1.3.4 Policies.
1.3.4.1 The health care organization shall ensure that policies are established and maintained that permit the attending physician to satisfy the emergency needs of any patient that could supersede the requirements of this code.
1.3.4.2 Each such special use shall be clearly documented and reviewed to attempt to have future similar needs met within the requirements of this code.
1.3.5 Patient Care Rooms.
1.3.5.1 The governing body of the facility or its designee shall establish the following areas in accordance with the type of patient care anticipated and with the following definitions of the classification (see definition of patient care room in Chapter 3):
(1) Critical care rooms (Category 1 room) (see Chapter 3)
(2) General care rooms (Category 2 room) (see Chapter 3)
(3) Basic care rooms (Category 3 or 4 room) (see Chapter 3)
1.3.5.2 Anesthesia. It shall be the responsibility of the governing body of the health care organization to designate anesthetizing locations.
1.3.5.3 Wet Procedure Locations. It shall be the responsibility of the governing body of the health care organization to designate wet procedure locations.

1.4 Equivalency.
1.4.1 Nothing in this code is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety to those prescribed by this code. Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency. The system, method, or device shall be approved for the intended purpose by the authority having jurisdiction.
1.4.2 Alternative systems, methods, or devices approved as equivalent by the authority having jurisdiction shall be recognized as being in compliance with this code.
1.4.3 The authority having jurisdiction shall be permitted to grant exceptions to this code.

1.5 Units.
1.5.1 Primary units will be trade units, and secondary units will be the conversion.

1.6 Code Adoption Requirements.
1.6.1 The effective date of application of any provision of this document is not determined by the National Fire Protection Association. All questions related to applicability shall be directed to the authority having jurisdiction.
1.6.2 Enforcement. This code shall be administered and enforced by the authority having jurisdiction. (See Annex C for a sample wording for enabling legislation.)

Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.1.1.10 Because no single model of an emergency management plan is feasible for every health care facility, this chapter is intended to provide criteria in the preparation and implementation of an individual plan. The principles involved are universally applicable; the implementation needs to be tailored to the specific facility.
A.1.1.12 During the past 20 years, there has been a widespread interest in the use of oxygen at elevated environmental pressure to increase the partial pressure of oxygen in a patient’s tissues in order to treat certain medical conditions or to prepare a patient for surgery. These techniques are also employed widely for the treatment of
decompression sickness (e.g., bends, caisson worker’s disease) and carbon monoxide poisoning.

Recently, however, the level of knowledge and expertise has increased so dramatically that the codes are in need of updating. By the end of 1988, there were 218 hyperbaric facilities in operation in the United States and Canada. These facilities supported hyperbaric medical treatments for 62,548 patients between 1971 and 1987. As these facilities provide therapy for disorders indicated for treatment, these numbers will continue to increase. As the number of facilities increases, the number of patients treated will also increase.

Such treatment involves placement of the patient, with or without attendants, in a hyperbaric chamber or pressure vessel, the pressure of which is raised above ambient pressure. In the course of the treatment, the patient breathes up to 100 percent oxygen.

In addition to being used for patient care, these chambers also are being employed for research purposes using experimental animals and, in some instances, humans.

The partial pressure of oxygen present in a gaseous mixture is the determinate factor of the amount of available oxygen. This pressure will rise if the volume percentage of oxygen present increases, or if the total pressure of a given gas mixture containing oxygen increases, or if both factors increase. Because the sole purpose of the hyperbaric technique of treatment is to raise the total pressure within the treatment chamber, an increased partial pressure of oxygen always is available during treatment, unless positive means are taken to limit the oxygen content. In addition, the patient is often given an oxygen-enriched atmosphere to breathe.

The need for human diligence in the establishment, operation, and maintenance of hyperbaric facilities is continual. The chief administrator of the facility possessing the hyperbaric chamber is responsible to adopt and enforce appropriate regulations for hyperbaric facilities. In formulating and administering the program, full use should be made of technical personnel highly qualified in hyperbaric chamber operations and safety.

It is essential that personnel having responsibility for the hyperbaric facility establish and enforce appropriate programs to fulfill the provisions of Chapter 14.

Potential hazards can be controlled only when continually recognized and understood by all pertinent personnel.

The purpose of Chapter 14 is to set forth minimum safeguards for the protection of patients or other subjects of, and personnel administering, hyperbaric therapy and experimental procedures. Its purpose is also to offer some guidance for rescue personnel who are not ordinarily involved in hyperbaric chamber operation, but who could become so involved in an emergency.

Requirements cited in 1.1.12 are minimum requirements. Discretion on the part of chamber operators and others might dictate the establishment of more stringent regulations.

A.1.3.1.1.2 It is understood that the individuals who are responsible will vary from one health care organization to another, although in most cases the health care organization’s administration exercises the concomitant authority. It is further recognized that fulfillment of this responsibility frequently occurs by means of delegating appropriate authority to staff, consultants, architects, engineers, and others.

A.1.5 Although it is common practice for medical appliances to have metric units on their dials, gauges, and controls, many components of systems within the scope of this document, which are manufactured and used in the United States, employ nonmetric dimensions. Since these dimensions (such as nominal pipe sizes) are not established by the National Fire Protection Association, the Technical Correlating Committee on Health Care Facilities cannot independently change them. Accordingly, this document uses dimensions that are presently in common use by the building trades in the United States. Trade units vary from SI to U.S. customary units depending on the equipment devices or material.

Substantiation: The chapters are currently being rewritten and revised. The modifications better organized the material, separated the scopes from the application, removed redundant material and coordinated the scopes with the chapters.

Committee Meeting Action: Accept
99-11     Log #67 HEA-FUN
(1.1.4.1(3)) Final Action: Accept in Principle

Submitter: Burton R. Klein, Burton Klein Associates

Recommendation: Revise text to read as follows:
Requirements for the fire alarm systems are covered in NFPA 72, National Fire Alarm Code
Substantiation: Reflect the current terminology used to name these systems.
Committee Meeting Action: Accept in Principle
Committee Statement: See the action on Committee Proposal 99-10 (Log #CP524).

99-12     Log #259 HEA-FUN
(1.1.5.1 (Scope) (New)) Final Action: Reject

Submitter: Keith Ferrari, Praxair
Recommendation: Add new text as follows:
Specific requirements for installation, storage, use, and handling of oxygen in bulk oxygen systems are covered in NFPA 55, Compressed Gases and Cryogenic Fluids Code.
Substantiation: NFPA 55 is the principal authority on Bulk Oxygen Installation, Storage, Use, and Handling for the NFPA. Also, this change is necessary if parts of the Bulk Oxygen sections in Chapter 5 are removed.
Committee Meeting Action: Reject
Committee Statement: The scope statement for HEA-ACC "includes criteria for safeguarding patients and health care personnel in the delivery of health care services...from...hazards resulting either from the use of...medical gas equipment" for which there may be some risk from bulk systems. It is quite possible that there will remain bulk system requirements in this document. NFPA 55 will likely remain as a reference publication - see Section 2.2.

99-13     Log #219 HEA-FUN
(1.3.4) Final Action: Reject

Submitter: Thomas J. Mraulak, Metropolitan Detroit Plumbing Industry
Recommendation: Revise text to read as follows:
This document...of health care facilities. Nonflammable piped medical gases covered by this document include, but are not limited to, oxygen, nitrogen, nitrous oxide, medical air, carbon dioxide, and helium, and medical support gases; nitrogen and instrument air.
Substantiation: In the 2005 standard we eliminated nitrogen as a medical gas and created a new category called medical support gases which include nitrogen and instrument air.
Committee Meeting Action: Reject
Committee Statement: This material was deleted in Committee Proposal 99-10 (Log #CP524). See section 1.3.1.1.
2.1 General.

2.1.1 The documents referenced in this chapter or portions of such documents listed in this chapter are referenced within this Code and shall be considered part of the requirements of this document.

2.1.2 Documents referenced in this chapter or portions of such documents shall only be applicable to the extent called for within other chapters of this Code.

2.1.3 Where the requirements of a referenced code or standard differ from the requirements of this Code, the requirements of this Code shall govern.

Substantiation: The concepts proposed reflect the intent of the code but it was recently discovered that the code does not state this. Clearly just being listed in chapter 2 does not mean the referenced standard is automatically mandatory. The committee is aware that the NFPA has a publication templates that standardize the introductory language in chapter 2, the boilerplate language does not meet the codes needs.

Committee Meeting Action: Accept
Technical Committee on Fundamentals,

**New definition of Bathroom as follows:**

Bathrooms. An area including a basin with one or more of the following: a toilet, a tub, or a shower.

This definition was added to correlate with NFPA 70.

Committee Meeting Action: **Accept**

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Technical Committee on Fundamentals,

**Add new definition of compact storage as follows:**

3.3.x Compact Storage. Storage on solid shelves not exceeding 36 in. (0.9 m) in total depth, arranged as part of a compact storage module, with no more than 30 in. (0.76 m) between shelves vertically and with no internal vertical flue spaces other than those between individual shelving sections.

Definition is needed as compact storage is now used in the document.

Committee Meeting Action: **Accept**

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Technical Committee on Fundamentals,

**Add new definition to chapter 3 as follows:**

3.3.33 Defend in Place. The operational response to an emergency in a building, in which the initial action does not involve evacuation of the building occupants.

A.3.3.33 The concept of defend in place includes, but is not limited to, elements related to moving building occupants from an area of immediate danger to a safe location of the building, and containment of the emergency or dangerous condition.

This definition was added because of the discussion of defend in place in the new Fire Protection Chapter. This term is not defined in NFPA 99 nor NFPA 101.

Committee Meeting Action: **Accept**
Occupancy: for the purposes of designing medical gas and vacuum systems under this document, an occupancy is a portion of a facility designated for a specific use or type of patient care and under the supervision of a specific group of staff members. As examples, a 10 bed Intensive Care Unit is used for a specific type of patient care and is controlled by a specified group of staff members. Thus the ICU can be considered an occupancy, and the individual cubicles for the patients can be considered as parts of that occupancy. On the other hand, an operating room is also used for a specific type of patient care and is controlled by a specified group of staff members, but because the procedure carried out in each operating room is specific to the patient, each operating room constitutes its own occupancy.

Substantiation: This definition allows the refinement of requirements for alarms and valves in Chapter 5.

Committee Meeting Action: Reject

Committee Statement: The format is not consistent with a definition. In addition the document is being rewritten in a risk format and moving away from occupancies. It also conflicts with the definition in NFPA 101.

Substantiation: Section 3.3.106 Medical Air Definition and Section 5.1.3.5 Level 1 Medical Air Supply Systems refer to Medical Air USP reconstituted from oxygen USP and oil free, dry Nitrogen NF. Currently, NFPA 99 does not define a system that reconstitutes Medical Air USP from Oxygen USP and Nitrogen NF. Also, additional proposals defining a Proportioning system, if accepted, will need a definition for a Proportioning System.

Definition needed: Section 3.3.X Proportioning System for Medical Air USP (Proportioning System): a central supply that produces medical air (USP) reconstituted from Oxygen USP and Nitrogen NF as in by the means of a mixer or blender.

This will clarify the definition of the word – Proportioning System.

This is not original material; its reference/source is as follows:

References to International Standard ISO 7396-1 and CSA A305.1

Committee Meeting Action: Reject

Committee Statement: The submitter did not provide specific wording for a new proposal. Also the reference was incorrect.
Technical Committee on Fundamentals,

**Recommendation:** Use latest definitions from NFPA 101 and update extract references as follows:

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. [101:3.2.2]

3.3.6 Ambulatory Health Care Center. An occupancy used to provide services or treatment simultaneously to four or more patients that provides, on an outpatient basis, one or more of the following: (1) treatment for patients that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others; (2) anesthesia that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others; (3) emergency or urgent care for patients who, due to the nature of their injury or illness, are incapable of taking action for self-preservation under emergency conditions without the assistance of others. [101:3.3.178.1]

3.3.92 Limited Care Facility. A building or portion of a building used on a 24-hour basis for the housing of four or more persons who are incapable of self-preservation because of age; physical limitations due to accident or illness; or limitations such as mental retardation/developmental disability, mental illness, or chemical dependency. (ADM) [101:3.3.82.3]

3.3.129 Nursing Home. A building or portion of a building used on a 24-hour basis for the housing and nursing care of four or more persons who, because of mental or physical incapacity, might be unable to provide for their own needs and safety without the assistance of another person. [101:3.3.131.2]

**Substantiation:** Update definitions from NFPA 101 and add extract reference.

**Committee Meeting Action:** Accept

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**Submitter:** Marcelo M. Hirschler, GBH International

**Recommendation:** Revise text to read as follows:

3.3.23* Combustion. A chemical process (such as oxidation) accompanied by the rapid evolution of heat and light. A chemical process of oxidation that occurs at a rate fast enough to produce heat and usually light in the form of either a glow or flame (NFPA 5000).

A.3.3.23 Combustion. Combustion is not limited to a chemical reaction always involving oxygen. Certain metals, such as calcium and aluminum, will burn in nitrogen; nitrous oxide will support the combustion of phosphorus and carbon; and so on. However, this document deals with the more common process of fuels burning in air.

**Substantiation:** The preferred definition of the term “combustion” within the NFPA system is the one from NFPA 5000, Building Construction and Safety Code. The Glossary of Terms Advisory committee recommends that the definition from NFPA 5000 be adopted by NFPA 99, so as to obtain consistency of terms. It is also recommended that the annex note be retained within NFPA 99 as it helps specific use within NFPA 99.

I am the chairman of the NFPA Advisory Committee on the Glossary on Terminology. The committee was created by NFPA Standards Council to provide consistency in terminology throughout the NFPA documents. The committee has not had time to review all of my recommendations on definitions of terms. Therefore, this proposal is being submitted in my own name only.

**Committee Meeting Action:** Accept
3.3.24 Combustion Products. The gases, volatilized liquids and solids, particulate matter, and ash generated by combustion.

The preferred definition of the term “combustion products” within the NFPA system is the one from NFPA 54, National Fuel Gas Code. The definition reads as follows:

3.3.21 Combustion Products. Constituents resulting from the combustion of a fuel with the oxygen of the air, including the inert but excluding excess air.

The Glossary of Terms Advisory committee recommends that the definition from NFPA 99 be retained as the NFPA 54 definition is too limiting for general use, and specifically for NFPA 99 use.

I am the chairman of the NFPA Advisory Committee on the Glossary on Terminology. The committee was created by NFPA Standards Council to provide consistency in terminology throughout the NFPA documents. The committee has not had time to review all of my recommendations on definitions of terms. Therefore, this proposal is being submitted in my own name only.

Committee Meeting Action: Accept

This proposal will be sent to the HEA-MED committee as it is under their jurisdiction. This committee does recommend acceptance of this proposal and that the existing definition be retained.

Committee Statement: This is not under the jurisdiction of the HEA-FUN committee.

3.3.51* Flammable. A combustible that is capable of easily being ignited and rapidly consumed by fire.

A.3.3.51 Flammable. Flammables may be solids, liquids, or gases exhibiting these qualities. Many substances nonflammable in air become flammable if the oxygen content of the gaseous medium is increased above 0.235 ATA.

Retain the current definition.

The existing definition in NFPA 99 is identical to the NFPA preferred definition, contained in NFPA 1126. Retain that definition.

An alternate definition that is probably less appropriate is found in NFPA 921, as follows:

3.3.66 Flammable. Capable of burning with a flame.

I am the chairman of the NFPA Advisory Committee on the Glossary on Terminology. The committee was created by NFPA Standards Council to provide consistency in terminology throughout the NFPA documents. The committee has not had time to review all of my recommendations on definitions of terms. Therefore, this proposal is being submitted in my own name only.

Committee Meeting Action: Accept
3.3.54* Flash Point. The minimum temperature at which a liquid or a solid emits vapor sufficient to form an ignitable mixture with air near the surface of the liquid or the solid.

A.3.3.54 Flash Point. Note that the flash point temperature is heavily dependent on the test used to determine it. See also C.11.2.2.

C.11.2.2 The following definition is contained in also taken from NFPA 30, Flammable and Combustible Liquids Code, wherein section 4.4 contains a procedure for assessing flash point:

Flash Point. The minimum temperature at which sufficient vapor is given off to form an ignitable mixture with the air, near the surface of the liquid or within the vessel used, as determined by the appropriate test procedure and apparatus specified in 1.7.4. [30:3.3.16]

Flash Point. The minimum temperature of a liquid at which sufficient vapor is given off to form an ignitable mixture with the air, near the surface of the liquid or within the vessel used, as determined by the appropriate test procedure and apparatus specified in Section 4.4 [30:3.3.19]

Substantiation: The existing definition in NFPA 99 is different to the NFPA preferred definition, contained in NFPA 45. Replace by the definition in NFPA 45-2008, which is the more up-to-date and generic one. Also, revise the annex note to include reference to the test method and revise Annex C to put the 2008 definition from NFPA 30 (with the correct spelling of the term "ignitable").

It is important, however, to point out that a number of other NFPA documents have definitions for the term "flash point". They include the following:

NFPA 30 (2008): 3.3.19 Flash Point. The minimum temperature of a liquid at which sufficient vapor is given off to form an ignitable mixture with the air, near the surface of the liquid or within the vessel used, as determined by the appropriate test procedure and apparatus specified in Section 4.4. (Note that section 4.4 contains a test procedure)

NFPA 5000 (2006): 3.3.476.2* Flash Point. The minimum temperature at which a liquid or a solid emits vapor sufficient to form an ignitable mixture with air near the surface of the liquid or the solid.

NFPA 45 (2004): 3.3.24 Flash Point. The minimum temperature at which a liquid or a solid emits vapor sufficient to form an ignitable mixture with air near the surface of the liquid or the solid.

NFPA 495 (2006): 3.3.21* Flash Point. The minimum temperature at which a liquid or a solid emits vapor sufficient to form an ignitable mixture with air near the surface of the liquid or the solid.

I am the chairman of the NFPA Advisory Committee on the Glossary on Terminology. The committee was created by NFPA Standards Council to provide consistency in terminology throughout the NFPA documents. The committee has not had time to review all of my recommendations on definitions of terms. Therefore, this proposal is being submitted in my own name only.

Committee Meeting Action: Accept
Burton R. Klein, Burton Klein Associates

**Recommendation:** Revise the definition of "health care facility" to read: "Buildings, portions of buildings, or structures brought onto the property in which medical, dental, psychiatric, nursing, obstetrical or surgical care are provided..." (rest the same) (change is underlined).

**Substantiation:** There are medical devices within enclosures that are transported to a health care facility that meet the definition of health care facility, except that these enclosures are not "buildings" or "portions of buildings." Appendix A.3.3.68 is informative only, and does address this situation. Examples of this situation are an MRI within a flatbed trailer, and a hyperbaric chamber within an enclosure that is positioned next to a health care facility building. It has been brought to this submitter's attention that patients who are treated within these enclosures are the responsibility of the health care facility, even though the enclosure may not be owned by the health care facility, or even physically connected to the health care facility.

**Committee Meeting Action:** Accept in Principle

Revise to read as follows:
"Buildings, portions of buildings, or mobile enclosures, in which medical, dental, psychiatric, nursing, obstetrical, or surgical care is provided. (ADM)"

Add to the end of the existing annex:
A.3.3.68 This definition applies to normal, regular operations and does not pertain to facilities during declared local or national disasters.

**Committee Statement:** The change was more generic for the various types of facilities.
3.3.98* Limited-combustible material. A material (as defined in NFPA 220, Standard on Types of Building Construction) not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat-value not exceeding 8141 kJ/kg (3500 Btu/lb) and complies with one of the following: (a) materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of 3.2 mm (in.) and having a flame-spread rating not greater than 50 or (b) materials, in the form and thickness used, other than as described in (a), having neither a flame-spread rating greater than 25 nor evidence of continued progressive combustion and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame-spread rating greater than 25 nor evidence of continued progressive combustion.

A.3.3.98 Limited-Combustible Material. Materials subject to increase in combustibility or flame-spread rating beyond the limits herein established through the effects of age, moisture, or other atmospheric condition are considered combustible.

3.3.98* Limited-Combustible (Material). Refers to a building construction material not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg), where tested in accordance with NFPA 259, Standard Test Method for Potential Heat of Building Materials, and includes either of the following: (1) materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of 1/8 in. (3.2 mm) that has a flame spread index not greater than 50; or (2) materials, in the form and thickness used, having neither a flame spread index greater than 25 nor evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread index greater than 25 nor evidence of continued progressive combustion, when tested in accordance with ASTM E 84, Standard Test Method of Surface Burning Characteristics of Building Materials, or ANSI/UL 723 Standard Test Method of Surface Burning Characteristics of Building Materials.

A.3.3.98 Limited-Combustible (Material). Material subject to increase in combustibility or flame spread index beyond the limits herein established through the effects of age, moisture, or other atmospheric condition is considered combustible. See NFPA 259, Standard Test Method for Potential Heat of Building Materials, and NFPA 220, Standard on Types of Building Construction.

Substantiation: The existing definition in NFPA 99 is different from the NFPA preferred definition, contained in NFPA 220. It is also different from the most recent complete review of the definition, which was made by the NFPA Air Conditioning Committee at its ROP meeting for NFPA 90A. The committee recommended the definition proposed here and this received no comments at the ROC level. One of the issues involved is the elimination of references to NFPA 255, which is in the process of being withdrawn by the NFPA Fire Tests committee. It is therefore recommended, in order to improve consistency within NFPA documents that the definition adopted following the most recent technical debate be used, as shown. Another issue is the consistent use of the term “flame spread index” instead of flame spread rating. The use of this new definition does not require adoption of NFPA 90A or reference to NFPA 90A. Proposals are being made to all relevant committees to adopt the same definition so as to obtain consistency in terminology.

I am the chairman of the NFPA Advisory Committee on the Glossary on Terminology. The committee was created by NFPA Standards Council to provide consistency in terminology throughout the NFPA documents. The committee has not had time to review all of my recommendations on definitions of terms. Therefore, this proposal is being submitted in my own name only.

Committee Meeting Action: Accept
3.3.125* Noncombustible Material. A material (as defined in NFPA 220, Standard on Types of Building Construction) that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat.

A.3.3.125 Noncombustible Material. Materials reported as noncombustible, when tested in accordance with ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C, are considered noncombustible materials.

3.3.125 Noncombustible Material. A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat; materials that are reported as passing ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C, shall be considered noncombustible materials.

Also: add the reference to ASTM E 136 into Chapter 2 on referenced standards and remove it from Annex G on informational references.

Substantiation: The existing definition in NFPA 99 is different from the NFPA preferred definition, contained in NFPA 220. The NFPA 220 definition reads: “Noncombustible Material. A substance that will not ignite and burn when subjected to a fire.” It is also different from the NFPA 5000 definition, which reads: “Noncombustible Material. A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat. Materials that are reported as passing ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C, shall be considered noncombustible materials.”

In practice, the only thing that matters is whether the material complies with ASTM E 136 and that is what is being used in NFPA 99, in NFPA 101 and in NFPA 5000 (as well as in other codes) for classifying a material as noncombustible. The NFPA 220 does not address this and the NFPA 5000 definition is contained in two sentences, while that in NFPA 99 has the critical information in the nonmandatory annex.

It is therefore recommended, in order to improve consistency within NFPA documents that the definition from NFPA 5000, revised to contain a single sentence, be used, as shown. This does not require adoption of NFPA 5000 or reference to NFPA 5000. Proposals are being made to other committees to adopt the same definition so as to obtain consistency in terminology.

I am the chairman of the NFPA Advisory Committee on the Glossary on Terminology. The committee was created by NFPA Standards Council to provide consistency in terminology throughout the NFPA documents. The committee has not had time to review all of my recommendations on definitions of terms. Therefore, this proposal is being submitted in my own name only.

Committee Meeting Action: Accept
3.3.185* Wet Procedure Locations. The area in a patient care room where a procedure is performed that is normally subject to wet conditions while patients are present, including standing fluids on the floor or drenching of the work area, either of which condition is intimate to the patient or staff. (ADM) (FUN)

A.3.3.185 Wet Procedure Locations. Routine housekeeping procedures and incidental spillage of liquids do not define a wet procedure location.

Substantiation: The term ‘wet location’ is used and defined in Article 100 of NFPA 70, and has a different definition. The term as used in NFPA 99 has a different intent than that in article 100 of NFPA 70. The Standards Council policy is not to have terms defined differently in NFPA documents. Changing the term as used in NFPA 99 will eliminate this confusion as well indicate more clearly the intent of the term as used in NFPA 99.

The TC on FUN recommends the TCC review this definition and correlate with the TC on ELS.

Committee Meeting Action: Accept
Corporation on Fundamentals, Add new chapter to address levels of risk as follows:

Chapter 4 Fundamentals

4.1* Building System Categories.

Building systems in health care facilities shall be designed to meet system Categories 1 through 4 requirements as detailed in this code.

4.2 Category 1.

Facility systems in which failure of such equipment or system is likely to cause major injury or death of patients or caregivers shall be designed to meet system Category 1 requirements as defined in this code.

4.3 Category 2.

Facility systems in which failure of such equipment is likely to cause minor injury to patients or caregivers shall be designed to meet system Category 2 requirements as defined in this code.

4.4 Category 3.

Facility systems in which failure of such equipment is not likely to cause injury to the patients or caregivers, but can cause patient discomfort shall be designed to meet system Category 3 requirements as defined in this code.

4.5 Category 4.

Facility systems in which failure of such equipment would have no impact on patient care shall be designed to meet system Category 4 requirements as defined in this code.

A.4.1 Four levels of systems categories are defined in this code based on the risks to patients and caregivers in the facilities. The categories are as follows:

(1) Category 1: Systems are expected to work or be available at all times to support patient needs.

(2) Category 2: Systems are expected to provide a high level of reliability; however, limited short durations of equipment downtime can be tolerated without significant impact on patient care. Category 2 systems support patient needs but are not critical for life support.

(3) Category 3: Normal building system reliabilities are expected. Such systems support patient’s needs but failure of such equipment would not immediately affect patient care. Such equipment is not critical for life support.

(4) Category 4: Such systems have no impact on patient care and would not be noticeable to patients in the event of failure.

The following are potential examples of areas/systems and the categories of risk. A risk assessment should be conducted to evaluate the risk to the patients, staff and visitors:

Ambulatory surgical center 2 patients with full OR services, Category 1
Reconstructive surgeon’s office with general anesthesia, Category 1
Procedural sedation site for outpatient services, Category 2
Cooling Towers in Houston, TX Category 2
Cooling Towers in Seattle, WA Category 3
Dentist office no general anesthesia, Category 3
Typical doctors office/exam room, Category 4
Lawn Sprinkler system, Category 4

Substantiation: The committee scope includes fire protection in health care facilities. This new chapter addresses the requirements that are specific to health care.

Committee Meeting Action: Accept
**Substantiation:** Today, Code Compliant sprinkler and fire alarm systems in health care occupancies are all over the board in terms of engineering, design, occupant notification, and especially operational interface with critical elements of the patient care fire plan and the building architectural features meant to provide "protect in place" life safety.

The problem is that modern systems have intrinsic new capabilities and complexities that NFPA Codes such as the Life Safety Code (NFPA 101) and the Fire Alarm Code (NFPA 72), and the International Building Code do not answer or even address many critical design questions that must be decided to complete the job. So, designers unfamiliar with the complexities of health care occupancies unknowingly allow "cookie-cutter" or "off the shelf" pre-programmed systems to be installed, or make flat out WRONG design decisions.

And we, in the health care NFPA Code making community own the responsibility, not the fire protection system designers. Particular to health care occupancies, there is sorely inadequate guidance out there for the designer. This proposal seeks to begin the process of providing guidance to these designers. NFPA 99, with its focus on safe health care delivery is perceived as the perfect setting to do so. NFPA 13 and NFPA 72 have a different focus.

Wrong design decisions are a serious problem, 1) negatively affecting health care delivery by totally unnecessary fire alarm interruptions, 2) significant cost incurred for every alarm when entire building staff drop normal productive activities to standby/respond to unnecessary alarms, 3) utility systems shut down, for example HVAC and elevator operations causing patient discomfort and infection control vulnerabilities, 4) an otherwise secure healthcare facility is rendered unsecured by fire alarm activities unlocking all doors, and 5) with poor design comes fire alarm system loss of credibility which equals slow or inappropriate staff response which, particularly for health care occupancies, equals a degradation of life safety. The end result, a brand new fire alarm system inappropriately designed for health care occupancies can and often does equal a degradation of life safety.

Four real world examples (among countless available):

1) A VA Hospital, Texas, high-rise, new addressable fire alarm system; for any alarm in the building, the entire building receives alarm tones AND strobe activation. Staff, if paying attention at all, await an announcement from the phone operator over the non-supervised PA system as to where the fire emergency is located. All elevators recall to the first floor for every alarm, ending normal business vertical transport until alarm is reset.

2) A relatively new, private, high-rise hospital in Massachusetts, two or three smoke compartments per floor. The sprinkler system is designed and installed to take advantage of hydraulic efficiencies by dual feed from two stairwells. A sprinkler water flow activation designates only the floor of alarm, staff have no clue which of three zones has the fire emergency. (There is fire history where quick response sprinkler activation provides first detection) (Such sprinkler zoning is NFPA 13 Code compliant but violates NFPA 72 fire alarm zoning requirements. The sprinkler designers wouldn't know that)

3) High-rise Dana-Farber Cancer Institute, Boston, Massachusetts, "New and replacement fire alarm systems come with pre-packaged programs that control alarm and visual notification signals. During design we recognized early that these signals conflicted with our fire plan. It makes no sense to sound an alarm and then automatic voice announce "proceed to the nearest exit stair and evacuate immediately" when the patients can not evacuate, when their families would be panicked, and especially when we have a carefully thought out step-by-step fire plan following RACE and horizontal evacuation. We would literally have to have staff running around telling patients and family to ignore the fire alarm system and standby for further instructions. Furthermore, it could be argued that such an alarm system actually violates Life Safety Code, 2000 Edition, Section 9.6.3.7 exception # 2 for private operating mode. It is as though the fire alarm industry never heard of "defend-in-place". (Mr. Lewicki, Edward, JR, "You Don't Have To Live With That", New England Healthcare Engineers Society, Newsletter, June 2006.)

4) A large four building campus, all four are health care occupancies; for any detection device anywhere, all four buildings and all areas receive a continuous audible alarm and strobes activate, until silenced by Fire Dept. A phone operator views the fire alarm panel for location of fire and makes an announcement over the PA system. Other than the fire making itself known eventually, staff and occupants have no clue where the fire is until a phone operator voice announcement. 1) When the phone operator was asked one evening to demonstrate how this procedure worked, they said, “I really don’t know, I’m just filling in while she is having dinner” 2) this particular phone operators room was on the top floor of a non sprinkler protected health care building, when asked what would happen if the fire were in their
CHAPTER 5 FIRE PROTECTION SYSTEMS.

5.1 Applicability. This chapter is applicable to health care facilities and buildings containing health care facilities where the response to a fire is to defend in place within a safe place in the building and not to automatically evacuate the building. (See Section 1.3.2 for applicability to new construction and existing facilities)

5.2 Sprinkler Systems

5.2.1 Where automatic sprinkler systems are required by NFPA 101 Life Safety Code, systems shall be installed in accordance with NFPA 13 and Section 5.2.

5.2.2 Coverage. Sprinkler protection shall be provided in all spaces including, but not limited to, elevator machine rooms, walk-in freezers and cold rooms, computer rooms, telephone switch rooms, radiology and MRI suites, loading docks, electrical rooms, plumbing or utility closets, audiorientic booth, vaults, paint spray booths, dry type lint collectors, dust collectors, and generator rooms.

5.2.2.1 Sprinklers are not required where specifically exempted by NFPA 13.

5.2.2.2 In Type I and Type II construction, alternative protection measures shall be permitted to be substituted for sprinkler protection, without causing a building to be classified as nonsprinklered, in specified areas where the authority having jurisdiction has prohibited sprinklers.

5.2.3 Hydraulic Design. Sprinkler systems shall be hydraulically calculated by any design approach allowed by NFPA 13, except that the Special Design Approach shall not be used in Health Care occupancies.

A5.2.3.1 The special design approach would allow only four residential heads to be calculated. The prohibition of using the Special Design Approach will result in a more conservative sprinkler design.

5.2.3.1 Sprinkler densities shall comply with NFPA 13, except in rooms containing movable/mobile shelving (high density storage) where the density shall be Ordinary Hazard, Group 2.

A5.2.3.1.1 Densities should be in accordance with NFPA 13. Some suggested design densities are as follows:

<table>
<thead>
<tr>
<th>Hazard Group</th>
<th>Densities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary Hazard 1</td>
<td>Kitchens, mechanical equipment rooms, transformer rooms, electrical switchgear rooms, electric closets, elevator shafts (if required), elevator machine rooms, refrigeration service rooms, storage rooms,</td>
</tr>
<tr>
<td>Ordinary Hazard 2</td>
<td>Clean and soiled linen rooms, trash rooms, clean and soiled utility rooms, laundry, laboratories, retail sales and storage rooms, boiler plants, loading docks, warehouse spaces, energy centers, pharmacy and central supply areas, file storage areas with “Rolling File” racks, supply warehouse with storage height less than 3650 mm (12 ft. high)</td>
</tr>
</tbody>
</table>

5.2.4 Sprinkler Zones. Sprinkler system zones shall coincide with smoke compartment boundaries and 2-hour fire barriers that are designated as separate building boundaries.

A5.2.4.1 NFPA 101, Chapter 8 and other building codes consider structures to be separate buildings when there are two hour fire rated separations.

5.2.5 Sprinklers. Install quick response sprinklers in all areas, except where specifically prohibited (e.g., high temperature areas as defined in NFPA 13, elevator shafts, or elevator machine rooms).

A5.2.5.1 For retrofit projects in patient sleeping areas, replace existing standard response sprinklers with quick response within the entire smoke compartment being modified. For non-patient sleeping areas, replace existing standard response sprinklers with quick response for the area renovated where separated from standard response sprinklers with a wall and doorways with a lintel of at least 8 inches.

A5.2.5.1 Note: It is permissible on a case by case basis to install standard response sprinklers within smoke zones that are protected by quick response sprinklers, such as in a main electrical switch gear room or an MRI suite. (It is not permissible to mix standard and quick response sprinkler heads within a room or corridor). The risk of an accidental discharge due to physical damage of the sprinkler is lessened with the installation of standard response sprinklers since they generally have an operating element that is more massive than the operating element of quick response heads. The advantage gained in response time by installing quick response sprinklers would not be worth the increased risk to the electrical equipment and personnel due to possible accidental discharge of a quick response sprinkler. (It is easier to break a quick response glass bulb head by striking it from the side than it is to break a standard response glass bulb head).
5.3 Fire Alarm Systems. Fire Alarm Systems shall be installed in accordance with NFPA 72 and Sections 5.2 through 5.3.

5.3.1 Purpose.

*5.3.1.1 The primary purpose of a fire alarm system is to notify the appropriate people and initiate the proper response from those who are notified.

A5.3.1.1 These requirements are intended for the defend-in-place requirements of the health care occupancy where staff need to know what is happening so they can give direction to those who need it. Patients are considered to be in need of help for evacuation and evacuation itself will only be undertaken as a last effort.

The Life Safety Code states, “For health care occupancies, the proper protection of patients shall require the prompt and effective response of health care personnel.” It goes on to say, “The basic response required of staff shall include the following:

1. Removal of all occupants directly involved with the fire emergency.
2. Transmission of an appropriate fire alarm signal to warn other building occupants and summon staff.
3. Confinement of the effects of the fire by closing doors to isolate the fire area.
4. Relocation of patients as detailed in the health care occupancy’s fire safety plan.”

The fire alarm system in a health care occupancy should give early warning by immediately notifying the staff in the zone of alarm origin to take action (e.g., “RACE”) and simultaneously summon adequate staff remote from the zone of alarm origin to respond to staff in the zone of alarm origin.

*5.3.1.2 The secondary purpose is to initiate fire safety functions, which are building and fire control functions that are intended to increase the level of safety for occupants or to control the spread of the harmful effects of fire.

A5.3.1.2 Fire safety functions can include shutting down fans, closing smoke barrier doors, unlocking doors, closing fire shutters, operating smoke control systems.

*5.3.1.3 The fire alarm system operation must be coordinated with the facility fire plan.

A5.3.1.3 This does not preclude modifying an existing healthcare fire plan to match or meet the fire alarm system operation.

5.3.1.4 The fire alarm system notification functions shall match the fire plan and shall match the smoke and fire barrier boundaries.

5.3.2 Initiation Devices.

*5.3.2.1 Manual Pull Stations. In addition to those manual fire alarm boxes required by NFPA 101, provide manual fire alarm boxes at or adjacent to each nurses station in health care occupancies and at each reception area for ambulatory health care occupancies.

A5.3.2.1 In cases of fire, staff at nurses stations can readily call for the response team by activating a pull station without having to travel to an exit to find one.

5.3.2.2 Smoke alarms. Provide smoke alarms, installed in accordance with NFPA 72, in non patient resident sleeping rooms, family/staff quarters, on-call staff sleeping rooms, visitor or guest sleeping rooms, and other sleeping rooms in patient and non-patient areas.

*5.3.2.3 Smoke detectors. Smoke detectors shall be photoelectric type only. Alarm verification shall not be active for any detectors required by NFPA 101 and NFPA 72.

A5.3.2.3 To help prevent false alarms, Photoelectric detectors should be set at 0.0% per ft sq obscuration sensitivity. $\leq 0.5$. Photoelectric type detectors respond better to smoke where the fire is distant from the detectors and respond better to slow, smoldering fires. Sprinklers will likely be installed and they will respond to a flaming fire.

*5.3.2.3.1 Install smoke detectors where required by NFPA 101 and in accordance with NFPA 72.

A5.3.2.3.1 For health care occupancies, requirements to install smoke detectors are generally limited to the location of automatic closing doors, elevator lobbies, elevator shaft and machine rooms, areas open to the corridor, large suites where all areas are not visible, and for corridors in long term care and nursing homes.

5.3.2.3.2 Where smoke detectors are installed and are not required by NFPA 101 and NFPA 72, they are not required to comply with the spacing guidelines of NFPA 72.

A5.3.2.3.2 Example, if design teams wish to install smoke detectors where they are not required, such as within a cafeteria eating area, one detector is acceptable for the entire room no matter the size. The design basis document should establish the reason for providing smoke detection when not required by the code. More smoke detectors correlate to an increase in unwanted alarms.

5.3.2.4 Duct smoke detectors shall activate supervisory signals and are permitted not to activate the occupant notification alarms signals.
5.3.2.5 Sprinkler water flow devices must activate the occupant notification alarm signals within one minute of water flow.

A5.3.2.5 Where false alarms due to water surges are not a problem, reducing the retard on the water flow switches (15 to 30 seconds), particularly when quick response sprinklers are used, enhances fire alarm system early warning.

5.3.4 Notification

*5.3.4.1 Occupant Notification Zones. Where buildings are required to be sub-divided into smoke compartments, fire alarm notification zones shall coincide with the smoke compartment boundaries. Notification zones shall also be established at 2-hour fire barriers that are designated as separate building boundaries in accordance with NFPA 101, Chapter 8.

A5.3.4.1 The occupants that need to be notified in a healthcare occupancy are the staff. The patients are the responsibility of the staff and the fire alarm occupant notification is to notify the staff and not the patients. Most often a coded message (Code Red) or signal should be used so that patient anxiety levels are not increased.

*5.3.4.1.1 Notification alarm signals and staff summoning signals shall be in accordance with the facility fire plan. The notification sequence and types of signals utilized, will depend on planned and expected staff and public actions according to types of occupancy for particular zones.

A5.3.4.1.1 The notification sequence and types of signals utilized will depend on planned and expected staff and public actions according to types of occupancy for particular zones. For buildings containing segregated or mixed occupancies, the alarm system signals may be different. For office areas and outpatient clinics (business occupancy) the alarm would typically be a general evacuation signal. For health care patient sleeping areas, where staff may be in a safe place is likely required by the fire plan, the alarm signals should be designed to alert staff to take action in the zone of alarm and to summon additional staff from other areas as necessary.

There are other systems that can be utilized to help summon staff during a fire alarm activation. These include paging and radio systems. In some instances it may be beneficial to tie the fire alarm system outputs to summon staff by way of these systems.

*5.3.4.1.2 Alarm and summoning notification signals shall be distinctly different in at least one aspect.

A5.3.4.1.2 The alarm signal may be a voice message together with visible appliances (strobes) activated only in the zone of alarm while a voice message without strobes is activated in the areas of the building remote from the zone of the alarm to summon the staff. The alarm signal may also be differentiated from the summoning signal by having a separate sound type in the zone of alarm. With this differentiation, persons within the fire zone know immediately that a fire condition is detected within their zone and that they are in danger.

5.3.4.2 The private operating mode as defined in NFPA 72, shall be used for the placement of notification appliances within the healthcare occupancies of the protected premises.

5.3.4.2.1 The notification signal shall include means to readily identify the zone, area, floor, or building in need of evacuation.

A5.3.4.2.1 It is imperative that the location of the fire is established promptly so that staff who are responsible to assist in the relocation of patients during the emergency can respond to the area where the fire is located. Providing a general alarm or utilizing strobe lights throughout the premises does not provide this information.

A5.3.4.2.2 Provide audible notification appliances to be heard in all locations throughout the protected premises from where staff must respond.

A5.3.4.2.2 Only the attendants and other personnel required to evacuate occupants from a zone, area, floor, or building shall be required to be notified. This may include more than one building if the number of staff within a building is not adequate. For healthcare, nursing ward areas should be utilized for responders since areas other than nursing wards (e.g., administration areas) will generally be occupied only during (daylight) normal business hours.

A5.3.4.2.3 Audible notification appliances shall be installed and arranged so they are clearly heard and understood by staff under normal working conditions.

A5.3.4.2.4 Provide audible notification appliances in all public accessible areas of the building.

A5.3.4.2.4 Visible audible should be installed in areas such as corridors, auditoriums, cafeterias, open assembly rooms ≥ 750 ft², canyons, retail stores, etc. Visible audible should also be placed in high noise areas such as mechanical spaces and near audiometric booths where the audiologist will be notified (possibly through a window).

In healthcare occupancies, strobes should be activated only in the zone of alarm origin. Strobes in areas outside of the zone of alarm origin provide no help to staff to identify the location to which they are to respond. Strobes are to be located to assist staff to react immediately without having to interpret the signal. If the staff see that the strobes are activated then staff know that they are within the zone of alarm origin.

5.3.4.2.5 Visible notification appliances are not required in the following spaces which are not considered to be public accessible:

1) Individual office spaces unless the space is known to have a hearing impaired person stationed there.
2) Closets (janitor’s, clothes, etc.)
3) Utility shafts.
4) Crawlspace.
5) Normally unoccupied rooms ≤100 ft².
6) Normally unoccupied storage spaces where no regular activities take place other than placement and retrieval of storage.
7) Stairway enclosures and elevators.

*A5.3.4.2* Do not provide visible notification appliances inside critical care areas, surgical operating rooms, or patient sleeping rooms or in any health care occupancy where their presence would interfere with patient treatment (such as psychiatric areas).

A5.3.4.2.6 In some psychiatric locked wards, the strobes lights will cause the patient population to act out. Since the patients are locked in the ward and need staff assistance to evacuate/relocate, there may be instances where the clinician would recommend that the visible appliances not be installed. This is an acceptable arrangement that is recognized by the Technical Bulletin #2 published by the United States Access Board dated August 2003 as follows:

Why is there an exception in the scoping requirements of 4.1.3(14) for “standard health care alarm design practice”? In medical care settings where a supervised emergency evacuation plan is in place, it is usually not desirable to install alarms in patient rooms or wards. In such occupancies, personnel responsible for ensuring the safe egress of patients will respond to an intercom message or other signal that is not intended to alert or alarm patients incapable of independent evacuation. Additionally, visual alarms may not be appropriate for use in some specialized medical facilities, such as operating rooms, where lighting levels are high and the sudden discharge of a strobe flash might adversely affect a surgical procedure. For such facilities, the requirements for visual and audible alarms may be modified to suit industry-accepted practices.

5.3.5 Functions.

5.3.5.1 Elevator recall shall be activated only when the elevator lobby, machine room or hoist way shaft detectors activate. All other fire alarm activations within the building shall not initiate elevator recall/firefighter service unless specifically approved by the Authority Having Jurisdiction.

5.3.5.2* Automatic door release shall be in accordance with NFPA 101. Smoke barrier and fire doors shall be released within the zone and at the boundaries of the zone where the fire alarm originated; or can be released by floor, or the entire building.

A5.3.5.2 For buildings protected throughout with automatic sprinklers, doors need not and should not close throughout the building. Battery backup should be provided for the doors for one minute to allow the doors to remain open while the normal power transfers to the emergency generators where generators are provided.

*A5.3.5.3* Door locks such as delayed egress locks and access-controlled doors, as defined by NFPA 101, shall unlock within the zone and at the boundaries of the zone where the fire alarm originated; or can be released by floor, or the entire building.

A5.3.5.3 Careful thought should go into deciding what doors are to unlock upon fire alarm system activation. Locked doors remote from the fire origin should not be unlocked during an alarm.

5.3.6 Typical Sequence of Operation.

5.3.6.1* Upon activation of the first initiation device, alarm signals shall be activated without delay only within the smoke compartment or compartments where people are in danger. Simultaneously, summoning signals shall be activated to notify appropriate staff at locations other than the alarm location. In both cases the alarm and summoning signal shall automatically notify staff of the smoke compartment where fire is detected.

A5.3.6.1 “In Danger” would always be defined as within the same smoke compartment where fire is detected. Beyond that, “in danger” might initially include other smoke compartments according to overall conditions, the life safety performance objectives and the total life safety concept outlined in NFPA 101 Sections 18.1.13 and 19.1.1.3; and considering the disruption of patient care and expense incurred when multiple zones are “alarmed.” These decisions are left to the design team and as approved by the AHJ. Such decisions may need to be adjusted as the building is occupied or as conditions change. Fire alarm systems can be easily reprogrammed should conditions change.

When “buildings” are separated by 2-hour fire rated barriers, there should be no reason to “alarm” multiple buildings since a fire in one would be unlikely to place those in the other building in danger.

5.3.6.3* An initiating device activation subsequent to the first device identified in 5.3.6.1 in another smoke compartment shall, as a minimum, perform the same sequence of operation for the new compartment as the first device did for the original smoke compartment. Other sequences shall be permitted beyond the additional smoke compartment according to the life safety performance objectives. (See Annex 5.3.6.3 for examples sequence of operation).

A5.3.6.3 See A5.3.1. When the danger in the first compartment moves to a second compartment, the alarm signal then identifies a danger in the second compartment and an additional summoning signal is sent to let staff know that there is now danger in the second compartment.

See sequence examples below:

Example #1 Fire Alarm System sequence of operation (generic):

a. Upon operation of a fire alarm initiating device, the fire alarm system should: in the zone of alarm origin only.
   1. Notify staff/occupants by activating an alarm signal and
   2. Activate the visible appliances (strobe).

b. Simultaneously the fire alarm system should send an automatic voice message to the rest of the building and other buildings as necessary to notify enough staff to respond to the zone of alarm origin. No visible appliances (strobe) should be activated outside of the zone of alarm origin.
c. Subsequent activations of initiating devices in the same zone of alarm origin should not initiate any new alarm outputs, but should appear at the fire alarm control unit and printer. Subsequent to the original alarm, activation of initiating devices in a different zone should initiate the alarm signal and visible appliances in the new zone and should initiate a new voice message to the locations as determined above, to identify the new location of alarm.

d. The alarm signals should be designed to the private operating mode requirements contained in NFPA 72.

e. The strobes should be installed and synchronized if necessary within the zone in accordance with NFPA 72. Both audible and visible signals should be programmed to continue to operate for five minutes or until the system is acknowledged and turned off/silenced by an operator. The strobes are only to be activated in the zone of alarm origin and not in the zones where the voice message is used.

f. The voice message should be preceded by a tone alert. No less than three rounds of a voice message to bring staff to the zone of alarm origin should be announced.

   For Example: (tone alert) “Code Red, First Floor Center; Code Red, First Floor Center; Code Red, First Floor Center.” The message content should be coordinated with the local Medical Center Staff.

g. Manual operation of the voice system should override all automatic voice messages in the system.

Example # 3 Fire Alarm System sequence of operation (generic):

TYPICAL OPERATION

A. Activation of any manual pull station, water flow or pressure switch, heat detector, kitchen hood suppression system, gaseous suppression system, or smoke detector shall initiate the following operations to occur:

   1. Operate the emergency voice communication system in Buildings // indicate buildings //. For sprinkler protected buildings, flash strobes continuously only in the zone of alarm. For buildings without sprinkler protection throughout, flash strobes continuously only on the floor of alarm.

   2. Continuously sound a temporal pattern general alarm and flash all strobes in the building in alarm until reset at the local fire alarm control unit in Buildings // indicate buildings //.

   3. Release only the magnetic door holders // in the smoke zone // on the floor from which alarm was initiated // after the alert signal.

   4. Unlock the electrically locked exit doors within the zone of alarm.

Example # 3 Fire Alarm System sequence of operation for a 14 story hospital building with mixed occupancies; (floors 11, 12, 13, 14 business occupancy and penthouses) with an attached four story E-Wing (outpatient) and several other business occupancy buildings attached (separated by 2 hour fire rated barriers):

Fire alarm signals and voice communication typical operation and logic sequences should be in accordance with the following Table.

****INSERT TABLE 99_L318_TB_R.DOC HERE****
<table>
<thead>
<tr>
<th>INITIATING DEVICE BY BUILDING AND ZONE</th>
<th>FIRE ALARM SYSTEM NOTIFICATION AND RESPONSE SEQUENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUILDING 1, EXCEPT AS BELOW</strong></td>
<td></td>
</tr>
<tr>
<td>Activation of any manual pull station, sprinkler water flow switch, heat detector, kitchen hood suppression system, gaseous suppression systems, or spot type smoke detector</td>
<td>1. Evacuation alarm temporal pattern and visible notification appliances (activate strobes) in smoke zone of alarm origin/initiation. Audible devices operate for 5 minutes then stop. Strobes continue to operate until manually reset at the MFACP.</td>
</tr>
<tr>
<td></td>
<td>2. Operate audible automatic voice notification message in all other areas of Building 1 and 6 and E-Wing. No activation of visible notification appliances.</td>
</tr>
<tr>
<td></td>
<td>3. Release magnetic door holders for all automatic closing doors throughout the floor of alarm origin after five-second delay, in Building 1 only.</td>
</tr>
<tr>
<td></td>
<td>4. Unlock/release any &quot;access-controlled&quot; and &quot;delayed egress&quot; magnetic electrically locked exit doors within the floor of alarm origin/initiation AND all exterior exit doors on stairs/exits serving the floor in alarm. (Note: If egress is available without release of lock, such as for electric strikes, lock need not be released.)</td>
</tr>
<tr>
<td></td>
<td>For &quot;Wander-Guard&quot; patient bracelet door locking devices, disable locking mechanism only within smoke zone of alarm origin/initiation.</td>
</tr>
<tr>
<td></td>
<td>5. Disable automatic power operated doors and automatic hold open features on such doors within the floor of alarm origin/initiation where the door is required to be kept closed during a fire condition, example smoke barrier doors, corridor doors, suite entry doors.</td>
</tr>
<tr>
<td></td>
<td>6. Transmit a separate alarm signal, via the main fire alarm control unit to the fire department.</td>
</tr>
<tr>
<td><strong>BUILDING 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FLOORS 11, 12, 13, 14.</strong></td>
<td></td>
</tr>
<tr>
<td>Activation of any manual pull station, sprinkler water flow switch, heat detector, kitchen hood suppression system, gaseous suppression systems, or spot type smoke detector</td>
<td>All fire alarm notification and response sequence actions 1. through 6. above Plus Code 3 temporal pattern and visible notification appliances (activate strobes) within floors 12, 13, 14. Strobes continue to operate until manually reset at the MFACP.</td>
</tr>
<tr>
<td></td>
<td>Note for 11th floor, there are only two zones, provide standard response sequence temporal pattern and visible notification appliances (activate strobes) in only the smoke zone of alarm origin/initiation. Audible devices operate for 5 minutes then stop. Strobes continue to operate until manually reset at the MFACP.</td>
</tr>
<tr>
<td><strong>Building 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ZONE 5A AND 7A</strong>   (Note: Zone 6A is hotel for visitors and family, alarming for fire floor below or floor above.)</td>
<td>All fire alarm notification and response sequence actions 1. through 6. above Plus Code 3 temporal pattern and visible notification appliances (activate strobes) in smoke zone 6A Hotel area. Audible devices and strobes continue to operate until manually reset at the MFACP.</td>
</tr>
<tr>
<td>Activation of any manual pull station, sprinkler water flow switch, heat detector, kitchen hood suppression system, gaseous suppression systems, or spot type smoke detector</td>
<td></td>
</tr>
<tr>
<td><strong>BUILDING 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Zone 5B and 7B</strong>   (Zone 6B hotel.)</td>
<td>All fire alarm notification and response sequence actions 1. through 6. above Plus Code 3 temporal pattern and visible notification appliances (activate strobes) in smoke zone 6B Hotel area. Audible devices and strobes continue to operate until manually reset at the MFACP.</td>
</tr>
<tr>
<td>Activation of any manual pull station, sprinkler water flow switch, heat detector, kitchen hood suppression system, gaseous suppression systems, or spot type smoke detector</td>
<td></td>
</tr>
<tr>
<td><strong>BUILDING 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FLOORS SUB-BASEMENT AND BASEMENT</strong></td>
<td>All fire alarm notification and response sequence actions 1. through 6. above Plus Code 3 temporal pattern and visible notification appliances (activate strobes) for sub-basement. Strobes continue to operate until manually reset at the MFACP.</td>
</tr>
<tr>
<td>Activation of any manual pull station, sprinkler water flow switch, heat detector, kitchen hood suppression system, gaseous suppression systems, or spot type smoke detector</td>
<td>Note for Basement, two zones, standard response sequence Code 3 temporal pattern and visible notification appliances (activate strobes) in only the smoke zone of alarm origin/initiation. Audible devices operate for 5 minutes then stop. Strobes continue to operate until manually reset at the MFACP.</td>
</tr>
<tr>
<td><strong>BUILDING 1, ALL LOCATIONS</strong></td>
<td></td>
</tr>
<tr>
<td>Activation of subsequent additional initiating device in the zone of alarm origin.</td>
<td>Operate the new automatic voice notification message identifying the zone location and type of device in alarm in all areas of Buildings 1 and 6 and E-Wing. No restart of code 3 temporal pattern or visible notification appliances.</td>
</tr>
<tr>
<td></td>
<td>Subsequent alarms automatic voice notification message shall be stacked in order of activation and automatically processed/notification given upon completion of prior voice notification.</td>
</tr>
<tr>
<td></td>
<td>Alarm is indicated at all annunciation points.</td>
</tr>
<tr>
<td><strong>E-WING, ALL LOCATIONS</strong> (Attached outpatient clinic)</td>
<td>Activation of all floors and in all areas notification appliances in E-Wing evacuation alarm temporal pattern and visible notification appliances (activate strobes). Requires manual reset at the building fire alarm control panel. Operate automatic voice notification message throughout Building 1 and Building 6 identifying the E-Wing. Alarm is indicated at all annunciation points by building, floor, and type of device in alarm.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>BUILDING 6, ALL LOCATIONS INCLUDING BOILER HOUSE</strong> (Attached, maintenance shops and Facilities staff.)</td>
<td>Activation of any manual pull station, sprinkler water flow switch, heat detector, kitchen hood suppression system, gaseous suppression systems, or spot type smoke detector. Activation of all floors and in all areas notification appliances in building 6 evacuation alarm temporal pattern and visible notification appliances (activate strobes). Requires manual reset at the building fire alarm control panel. Operate automatic voice notification message throughout Building 1 and E-Wing identifying building 6. Alarm is indicated at all annunciation points by building, floor, and type of device in alarm.</td>
</tr>
<tr>
<td><strong>OTHER BUILDINGS CONNECTED TO THE FIRE ALARM SYSTEM, ALL LOCATIONS</strong></td>
<td>Activation of any manual pull station, sprinkler water flow switch, heat detector, kitchen hood suppression system, gaseous suppression systems, or spot type smoke detector. Activation of all floors via notification appliances in the building with code 3 temporal pattern evacuation signal. Requires manual reset at the building fire alarm control panel. Automatic voice alarm message throughout all other buildings identifying the building in alarm (see below). Alarm is indicated at all annunciation points by building, floor, and type of device in alarm.</td>
</tr>
</tbody>
</table>
Initiated at either “Code Grey” dedicated pull stations located @ Switchboard and Directors Suite


ALL CLEAR MESSAGE (All Locations): One second alert tone “Attention All Staff, Care Line Managers And Department Heads Code Grey All Clear
Return To Normal Operations”

Both messages to be announced twice. Alert tones shall not repeat.

5.3.6 Emergency Forces Notification. Provide fire department notification by any of the allowed methods identified in NFPA 72. Where direct connections to the fire department are permitted by the fire department, they shall be acceptable as long as the circuit is supervised for grounds, shorts, and opens.

A5.3.6.1 The Life Safety Code also requires the healthcare facility to telephone the fire department when there is an alarm. Long delays have been experienced through alarm monitoring companies and a telephone call can provide additional information that the fire department can act upon promptly.

The four types of connections identified in NFPA 101 and NFPA 72 are auxiliary, central station, proprietary, or remote station.
immediate area, they gave two answers: a) "we would go down with the ship, meaning we would stay and make the announcements" and b) "we are out-of-here, there would be no announcement, there is no back-up location for a PA announcement".

It is effectively argued that all of the above situations comply with current Codes. It is sadly ludicrous that a 2 to 4 million dollar fire alarm system depends on a phone operator announcement for early warning and that the system design plans for disruption of patient care to some degree throughout the campus.

We must do better. This proposed new Chapter attempts to capture the major design considerations and give guidance for systems particular to the health care occupancy.

Committee Meeting Action: Accept in Principle
Committee Statement: See Committee Proposal 99-471 (Log #CP4).

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99-439  Log #CP523 HEA-FUN
(Chapters 11, 13, 14, 15, 16, 17, 18, 19, 21)  Final Action: Accept

Submitter: Technical Committee on Fundamentals,
Recommendation: Revise text as follows:
Delete Chapters 7,11, 13, 14, 15, 16, 17, 18, 19, 21
Substantiation: Chapter 11 is being deleted because it is redundant with NFPA 45. Chapters 7, 13, 14, 15, 16, 17, 18, 19, 21 are being deleted because the protection of the staff, patient and guests will be determined by a risk assessment and not by occupancy.
Committee Meeting Action: Accept

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99-440  Log #37 HEA-FUN
(11.4.2.1.1)  Final Action: Reject

Submitter: Burton R. Klein, Burton Klein Associates

Recommendation: Change "that release ignitable vapors" to read "that do not release ignitable vapors" so paragraph reads as follows:
All new tissue processors and similar automatic equipment that do not release ignitable vapors shall be provided with the following safeguards... (rest stays the same)
Substantiation: Appears to be editorial, since A.11.4.2.1 speaks of tissue processors that operate on a closed system basis, and contain ignitable vapors.
Committee Meeting Action: Reject
Committee Statement: The HEA-FUN does not have jurisdiction as Chapter 11 will be eliminated. This committee recommends that the TC on Laboratories considers this proposal for "closed systems."
(5) Use only nonsparking tools where flammable, combustible liquids, vapors or dusts are present.

Substantiation:  
· NFPA 1, Uniform Fire code, 2006 edition, Section 61.4.6.6.1 states that “in areas where flammable gases or flammable vapors might be present, precautions shall be taken to prevent ignition by eliminating or controlling sources of ignition”.
· NFPA 30, Flammable and Combustible Liquids Code, 2008 edition, Section 6.5.1 requires that precaution be taken to prevent the ignition of flammable vapors by sources such as sparks.
· 29 CFR 1901.106 Flammable and Combustible Liquids, Section 1910.106(b)(6): “Sources of ignition.” In locations where flammable vapors may be present, precautions shall be taken to prevent ignition by eliminating or controlling sources of ignition. Sources of ignition may include open flames, lightning, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, and mechanical), spontaneous ignition, chemical and physical-chemical reactions, and radiant heat. Section 1910.106(f)(6): “Sources of ignition.” Class I liquids shall not be handled, drawn, or dispensed where flammable vapors may reach a source of ignition.
· Recognizing the potential for steel tools to be an ignition source in flammable environment, the Occupational Safety & Health Administration (OSHA) provides guidance in booklet 3080 Hand and Power Tools, 2002 revised, “iron and steel hand tools may produce sparks that can be an ignition source around flammable substances. Where this hazard exists, spark-resistant tools should be used.”

NFPA 99 can better mitigate the flammability hazards by specifying the use of nonsparking tools. Without this specification, steel tools are likely to be used. Steel tools can cause mechanical sparks, which can be an ignition source. The risk of ignition introduced by steel tools can be avoided through the specific reference for the use of nonsparking tools.

This is not original material; its reference/source is as follows: OSHA Publication 3080; Hand and Power Tools, Revised: 2002; NFPA 1, Uniform Fire code, 2006 edition; NFPA 30, Flammable and Combustible Liquids Code, 2008 edition; 29 CFR 1901.106 Flammable and Combustible Liquids

Committee Meeting Action: Reject
Committee Statement: The HEA-FUN does not have jurisdiction as Chapter 11 will be eliminated. This committee recommends that the TC on Laboratories considers this proposal.

Submitter: Patty Taylor, GOJO Industries, Inc.
Recommendation: Revise text as follows:

13.4.1.2.2 Germicides for use as pre-operative skin preparations for use on patients.

Substantiation: Clarify that section applies to products that are patient pre-operative skin preparations.

Committee Meeting Action: Accept in Principle
Committee Statement: See Committee Proposal 99-471 (Log #CP4).
Revise section 13.4.1.2.2 & A.13.4.1.2.2.2 as follows:

13.4.1.2.2 Germicides and Antiseptics.

13.4.1.2.2.1 Medicaments, including those dispersed as aerosols, shall be permitted to be used in anesthetizing locations for germicidal and antiseptic purposes, for affixing plastic surgical drape materials, for preparation of wound dressing, or for other purposes.

13.4.1.2.2.2 Flammable liquid germicides or antiseptics used in anesthetizing locations, whenever the use of electro-surgery, cautery or electrosurgery a laser is contemplated, shall be nonflammable packaged to ensure controlled delivery to the patient in unit dose applicators, swabs, and other similar applicators.

13.4.1.2.2.3 Whenever the application of flammable liquid germicides or antiseptics is employed in surgeries where the use of electro-surgery, cautery or a laser is contemplated, time shall be allowed to elapse between application of the germicide or antiseptic and:

a) The application of drapes to permit complete evaporation and dissipation of any flammable vehicle remaining, and
b) The use of electro-surgery, cautery or a laser to ensure the solution is completely dry and to permit thorough evaporation and dissipation of any flammable vehicle remaining.

13.4.1.2.2.4 Any solution-soaked materials shall be removed from the operating room prior to draping or use of electro-surgery, cautery or a laser.

13.4.1.2.2.5 Pooling of flammable liquid germicides or antiseptics shall be avoided, if pooling occurs, excess solution shall be wicked and the germicide or antiseptic allowed to completely dry.

13.4.1.2.2.6 A preoperative “time out” period shall be conducted prior to the initiation of any surgical procedure using flammable liquid germicides or antiseptics to verify that a flammable germicide or antiseptic:

a) Application site is dry prior to draping, and use of electro-surgery, cautery or a laser, and
b) That pooling of solution has not occurred, or has been corrected, and

A.13.4.1.2.2.2 Some tinctures and solutions of disinfecting agents provide significant clinical benefits in reducing the risk of surgical infections. However, they can be flammable, and can be used improperly during surgical procedures. Tipping containers, accidental spillage, and the pouring of excessive amounts of such flammable agents on patients expose them to injury in the event of accidental ignition of the flammable solvent. To control this risk, flammable germicides or antiseptics that are used when electro-surgery, cautery or a laser is contemplated should be packaged to ensure controlled delivery to the patient (e.g., unit dose applicator, swab, etc.) in small volumes appropriate for single application.

The issue is not a simple one as operating rooms of hospitals and ambulatory care settings are busy and hectic places yet they are a sanctuary for the healing of millions of people every year. The medical procedures and supporting preparation that takes place in these rooms can be hazardous to the health of the patient and staff therefore every precaution must be taken by the operating room team to safeguard the environment by closely following established procedures. Section 13.4.1.2.2 on germicides is not written with strong enough language to provide health care staff
and regulators with the opportunity to provide this safe environment when alcohol based skin prep is employed. Recent events have questioned the use of alcohol skin prep when cautery electro-surgery, or lasers are contemplated. The dilemma in today’s operating room environment is that cautery, electro-surgery, or lasers are commonplace and will be used or readied for use in 90 percent or more of surgical procedures. The alcohol skin prep is significantly more efficient and importantly, more effective in preventing surgical infections than aqueous solutions. Therefore, the newly proposed language is to strengthen the procedural elements of using flammable germicides instead of eliminating them as a clinical tool.

“As to the issues, alcohol based products are no more dangerous in the OR than a scalpel, laser, oxygen, or drapes. Banning them will hinder effective surgery. The key to preventing surgical fires is to ensure that the staff knows the hazards and how to minimize their risks.” Mr. de Richemond, Associate Director, ECRI

The Fix
This TIA extensively increases the awareness of the risk from fire when alcohol skin prep is employed and electro-surgery, cautery, and lasers are contemplated. The risk is not in the volume of material, spilling, or mishandling of the skin prep but in trapping pooled solution under a surgical drape and then igniting it with a heat source. A thoroughly dry site additionally ensures that no vapors remain. To this extent, the TIA has added language to strengthen the clinical protocols used in the surgical preparation process. This has been accomplished by adding:

1. Application of alcohol skin prep shall be from a unit dose style of applicator.
2. Expanding and emphasizing the critical need for appropriate drying time before surgical drapes are applied or a heat-producing source is employed.
3. The removal of solution-soaked material from the area to avoid a potential oversight.
4. A procedure to deal with the pooling of solution. This should not be an issue if the paragraph on unit dose application is enforced.
5. A policy mandating a “time out” period prior to the draping or use of electro-surgery, cautery, or lasers. This procedure is similar to the Joint Commission’s new standard on wrong-side surgeries and, mandates an “all clear” be announced by a selected staff member.
6. Reemphasizes the existing NFPA 99 language requiring a periodic hazard assessment be performed of the surgical procedures and the OR environment.

With the severe strengthening of the skin prep surgical protocols and the mandatory addition of a “time out”, the hazard of using alcohol based germicides and antiseptics are being effectively managed.

Clinical Background
Prevention of Surgical Site Infection
Scope of the problem: According to the CDC Guideline for Prevention of Surgical Site Infection (SSI), 1999, “in the United States alone, there were an estimated 27 million surgical procedures are performed each year. (13)The CDC’s National Nosocomial Infections Surveillance (NNIS) system, established in 1970, monitors reported trends in nosocomial infections in U.S. acute-care hospitals. Based on NNIS system reports, SSIs are the third most frequently reported nosocomial infection, accounting for 14 percent to 16 percent of all nosocomial infections among hospitalized patients. (14) Of these SSIs, two thirds were confined to the incision, and one third involved organs or spaces accessed during the operation. When surgical patients with nosocomial SSI died, 77 percent of the deaths were reported to be related to the infection, and the majority (93%) were serious infections involving organs or spaces accessed during the operation.” [Note: see appendix for citation references]

Skin prepping: The entire purpose of skin prepping in the OR, as close to the time of incision is to ensure the best possible patient outcome, i.e., prevention of surgical site infection. There is agreement based on epidemiological evidence. That “most surgical site infections originate from the patient’s own skin, mucous membranes or viscera. When mucous membranes or skin is incised, the exposed tissues are at risk for contamination with endogenous flora (58)” - even though we must- and do-maximize all other environmental parameters to reduce exogenous or other sources of contamination. The use of alcohol has been established as the ‘gold standard’ for prevention of surgical site infection because of its speed in ‘kill’ or cidal activity against microorganisms.

Clinicians are aware of the hazards of alcohol and would agree that if there were safer and equally effective agents for surgical preps they would willingly consider substitutes. Among the other commonly used antiseptic agents today are iodophors (e.g., povidone-iodine), chlorhexidine gluconate (CHG) in aqueous solutions, or solutions of these in alcohol (termed tinctures.) However, even the aqueous formulations involve some use of alcohol during skin cleaning.

According to the CDC Guideline, “no studies have adequately assessed the comparative effects of these preoperative skin antiseptics on SSI risk in well-controlled, operation-specific studies.” Hence the complete removal of alcohol in any form constitutes an unacceptable risk for increased surgical site infection and has never been attempted. The most common practice is using aqueous formulations with alcohol skin wipes, alcohol alone, or tinctures of iodophors or CHG. The fact remains that the clinical community simply does not know the unintended consequence of complete alcohol removal because no one has been willing to risk development of SSI. Application outside of the operating room and...
moving the patient later—once the site is dry is not good for the patient and increases risk of recontamination. How these products are typically used in teaching and training is described by a well-known authority in surgical infectious diseases:


“Skin Preparation. The skin is an important source of organisms contaminating surgical wounds. Two methods can be recommended to prevent skin organisms from entering the wound. First, the time-honored technique is to scrub the entire operative area of the patient for 5 to 7 minutes with a germicidal detergent solution and then paint the region with an antimicrobial solution of either tincture of iodine, povidone-iodine, or chlorhexidine. An alternative way to isolate the skin from the wound is to use an antimicrobial incise drape applied to the entire operative area, with the incision made through the plastic. Before the incise drape is applied, the skin should be scrubbed for 1 minute with a 70% solution of alcohol or a solution of 2 percent iodine in 90 percent alcohol to kill surface bacteria…. the technique of drape application, including cleansing of surface fat and debris from the skin and application only to a dry surface, becomes important for its success.”

Alcohol: As noted before, alcohol is the ‘gold standard’ proven to lower the risk of surgical site infection. “Alcohol is one of the oldest antiseptics, and remains one of the most effective, outperforming virtually all other antiseptics…. Alcohol is bactericidal and cheap, and does not damage human skin. It kills vegetative bacteria both by denaturing proteins and by interfering with bacterial metabolism. Fungi and viruses are also destroyed by alcohol, but bacterial spores can be resistant. Although alcohol rapidly evaporates, damaged organisms continue to die after a single brief exposure. While all alcohols are bactericidal, higher-molecular-weight alcohols are more bactericidal. Other subtle differences between alcohols exist, but the single most important factor is concentration, since all alcohols must be diluted with water to effectively denature proteins. Both ethyl and isopropyl alcohols are in common clinical use, usually in concentrations of 70-90 percent…. The World Health Organization recently designated alcohol as the ‘gold standard’ against which all skin antiseptics should be judged.”

Other antiseptic agents –iodophors; chlorhexidine gluconate (CHG):
Tinctures: Iodophors or CHG have a persistent antimicrobial efficacy on skin flora (i.e., continuing kill action after the alcohol evaporates). They are most effective as tincture. The added value of tinctures (at varying concentrations of alcohol) is the “instant” action of alcohols as noted above, combined with the continuing residual activity of iodophors or CHG once the site is dry. The combination improves cidal activity, faster drying of the solution on the skin and a continuing cidal action of the antiseptic whether an iodophor or CHG. Further, use of a tincture enhances the incise drape adhesion, which can dramatically reduce infection risks by protecting the wound from normal surgical fluids (blood, saline etc) since it dries so quickly.

Aqueous: Aqueous formulations must be dry to be effective for cidal activity, but take prolonged time to dry—10-15 minutes. If tinctures are not used, then alcohol swabs are used to remove prep residue prior to applying the drape in order to decontaminate the skin as close to incision time as possible. Further, many patients are allergic to iodophors or CHG and prolonged contact with the aqueous solutions may lead to skin ‘burns’

Therefore it is essential to provide the full spectrum of options for skin antisepsis in order to optimize all factors that may prevent surgical site infection.

Risk management
Prior experience with managing the risk for fire recognizes that there are many sources of fire risk—other combustible fuels such as the patient’s own hair, (face, scalp, body) and GI tract gases. —as well as endotracheal tubes, breathing circuits, airways and masks, as well as), prepping agents including alcohol, linens, dressings, various ointments, gloves, tubing, and tourniquet cuffs and other materials that may not be flammable in an environment that is not oxygen or nitrous oxide enriched.

ECRI, an independent non-profit health services research organization, has published several articles on preventing, preparing for and managing surgical fires and in its Guidance Article: A Clinician’s Guide to Surgical Fires - How They Occur, How to Prevent Them, How to Put Them Out implicitly recognizes that the this must be done to minimize or even eliminate a very predictable risk—that of surgical site infections. The steps recommended by ECRI and endorsed by the Joint Commission on Accreditation of Healthcare Organization in their prior Sentinel Alert on preventing fires in the OR are incorporated into the proposed TIA.

ASHE proposes including key practices to ensure these protocols are recognized and implemented by calling for a time out before introducing a source of ignition (e.g., electro-surgery, cautery or laser) thus permitting the optimal skin preparation, reducing risk of SSI yet minimizing risk of fire.

Committee Meeting Action: Accept in Principle
Committee Statement: See action on Committee Proposal 99-471 (Log #CP4).
Add 14.1.1 and 14.1.2 to read as follows and renumber the remainder:

14.1.1 Chapter 14 applies to both single- and multiple-occupancy hyperbaric chambers; to animal chambers, the size of which precludes human occupancy; and to those in which the chamber atmosphere contains an oxygen partial pressure greater than an absolute pressure of 21.3 kPa (3.09 psi) (0.21 atmospheres).

14.1.2 Paragraphs 14.2.4.5.3, 14.2.5.1.4, 14.2.5.1.5, 14.2.5.1.7, 14.2.5.5, 14.2.6.1, 14.2.6.2, 14.2.7.3.9, 14.2.7.3.17, 14.2.8.6, 14.2.9.2.4, 14.3.1, 14.3.2.1.1 through 14.3.2.1.6, 14.3.3.2.4 through 14.3.2.6, 14.3.3, 14.3.4.1.1, 14.3.4.1.3, 14.3.4.1.5, 14.3.4.1.6, 14.3.4.2, 14.3.5.1.1, 14.3.6.2 through 14.3.6.4, 14.2.4.5, and 14.2.9.3 shall apply to both new and existing health care facilities.

Relocating this section clarifies when the requirements apply to new and existing systems. This proposal makes no technical changes to previous draft.

Committee Meeting Action: Accept
Technical Committee on Fundamentals,

Add new chapter on fire protection as follows:

Chapter 15 Features of Fire Protection

15.1 Applicability.

15.1.1 The features of fire protection set forth in this chapter shall apply for health care facilities.

15.1.2 An existing system that is not in strict compliance with the provisions of this code shall be permitted to be continued in use provided that the authority having jurisdiction has not determined that such use constitutes a distinct hazard to life.

15.2 Construction and Compartmentation.

Buildings or structures housing a health care facility shall meet the minimum construction and compartmentation requirements of the applicable building code, NFPA 101, Life Safety Code, or fire code acceptable to the authority having jurisdiction.

15.3 Special Hazard Protection for Flammable Liquids and Gases.

15.3.1 The storage and handling of flammable liquids or gases shall be in accordance with the following applicable standards:

1. NFPA 30, Flammable and Combustible Liquids Code
2. NFPA 54, National Fuel Gas Code
3. NFPA 58, Liquefied Petroleum Gas Code [101:8.7.3.1]

15.3.2* No storage or handling of flammable liquids or gases shall be permitted in any location where such storage would jeopardize egress from the structure, unless otherwise permitted by 15.3.1 [101:8.7.3.2]

15.4 Laboratories.

Laboratories using chemicals shall comply with NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals, unless otherwise modified by other provisions of this code. [101:8.7.4.1]

15.5 Utilities.

15.5.1 General. Utilities shall comply with the requirements of 15.5.1.1 through 15.5.1.4. [101:12.5.1]

15.5.1.1 Gas. Equipment using gas and related gas piping shall be in accordance with NFPA 54, National Fuel Gas Code, or NFPA 58, Liquefied Petroleum Gas Code, unless such installations are approved existing installations, which shall be permitted to be continued in service. [101:9.1.1]

15.5.1.2 Electrical Systems. Electrical wiring and equipment shall be in accordance with NFPA 70, National Electrical Code, unless such installations are approved existing installations, which shall be permitted to be continued in service. [101:9.1.2]

15.5.1.3 Emergency Generators and Standby Power Systems. Emergency generators and standby power systems, where required for compliance with this code, shall be installed, tested, and maintained in accordance with NFPA 110, Standard for Emergency and Standby Power Systems.

15.5.1.4 Stored Electrical Energy Systems. Stored electrical energy systems shall be installed, tested, and maintained in accordance with NFPA 111, Standard on Stored Electrical Energy Emergency and Standby Power Systems. [101:9.1.4]

15.5.2 Heating, Ventilating, and Air-Conditioning. [101:9.2]

15.5.2.1 Air-Conditioning, Heating, and Ventilating Ductwork, and Related Equipment. Air-conditioning, heating, and ventilating ductwork, and related equipment shall be in accordance with NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems, or NFPA 90B, Standard for the Installation of Warm Air Heating and Air-Conditioning Systems, as applicable, unless such installations are approved existing installations, which shall be permitted to be continued in service. [101:9.2.1]

15.5.2.2 Ventilating or Heat-Producing Equipment. Ventilating or heat-producing equipment shall be in accordance with NFPA 91, Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids; NFPA 211, Standard for Chimneys, Fireplaces, Vents, and Solid Fuel–Burning Appliances; NFPA 31, Standard for the Installation of Oil-Burning Equipment; NFPA 54, National Fuel Gas Code; or NFPA 70, National Electrical Code, as applicable, unless such installations are approved existing installations, which shall be permitted to be continued in service. [101:9.2.2]

15.5.2.3 Commercial Cooking Equipment. Commercial cooking equipment shall be in accordance with NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, unless such installations are approved existing installations, which shall be permitted to be continued in service. [101:9.2.3]
15.5.2.4 Ventilating Systems in Laboratories Using Chemicals. Ventilating systems in laboratories using chemicals shall be in accordance with NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals. [101:9.2.4.4]

15.5.3 Elevators, Escalators, and Conveyors. [101:9.4.4] 
15.5.3.1 Code Compliance. [101:9.4.4.1]

15.5.3.1.1 Except as modified herein, new elevators, escalators, dumbwaiters, and moving walks shall be in accordance with the requirements of ASME A17.1/CSA B44, Safety Code for Elevators and Escalators. [101:9.4.4.2.1]

15.5.3.1.2 Except as modified herein, existing elevators, escalators, dumbwaiters, and moving walks shall conform to the requirements of ASME A17.3, Safety Code for Existing Elevators and Escalators. [101:9.4.4.2.2]

15.5.3.2 Fire Fighters’ Emergency Operations. [101:9.4.4.3]

15.5.3.2.1 All new elevators shall conform to the fire fighters’ emergency operations requirements of ASME A17.1/CSA B44, Safety Code for Elevators and Escalators. [101:9.4.4.3.1]

15.5.3.2.2 All existing elevators having a travel distance of 25 ft (7620 mm) or more above or below the level that best serves the needs of emergency personnel for firefighting or rescue purposes shall conform to the fire fighters’ emergency operations requirements of ASME A17.3, Safety Code for Existing Elevators and Escalators. [101:9.4.4.3.2]

15.5.3.3* Elevator Machine Rooms. Elevator machine rooms that contain solid-state equipment for elevators, other than existing elevators, having a travel distance exceeding 50 ft (15 m) above the level of exit discharge or exceeding 30 ft (9150 mm) below the level of exit discharge shall be provided with independent ventilation or air-conditioning systems to maintain temperature during fire fighters’ emergency operations for elevator operation (see 9.3.3). The operating temperature shall be established by the elevator equipment manufacturer’s specifications. When standby power is connected to the elevator, the machine room ventilation or air-conditioning shall be connected to standby power. [101:9.4.4.4.5]

15.5.3.4 Elevator Testing. Elevators shall be subject to periodic inspections and tests as specified in ASME A17.1. Safety Code for Elevators and Escalators. All elevators equipped with fire fighters’ emergency operations in accordance with 9.3.3 shall be subject to a monthly operation with a written record of the findings made and kept on the premises as required by ASME A17.1. [101:9.4.4.6]

15.6 Rubbish Chutes, Incinerators, and Laundry Chutes. Rubbish chutes, laundry chutes, and incinerators shall be installed and maintained in accordance with NFPA 82, Standard on Incinerators and Waste and Linen Handling Systems and Equipment, unless such installations are approved existing installations, which shall be permitted to be continued in service. 
15.6.1 [101:19.5.4.3]

15.7 Fire Detection, Alarm, and Communications Systems. [101:9.6.6]
15.7.1* General. [101:9.6.6.1]

15.7.1.1 Buildings or structures housing a health care facility shall meet the fire detection, alarm, and communications systems requirements of the applicable building code, NFPA 101, Life Safety Code, or fire code acceptable to the authority having jurisdiction.

15.7.1.2 A fire alarm system required for life safety shall be installed, tested, and maintained in accordance with the applicable requirements of NFPA 70, National Electrical Code, and NFPA 72, National Fire Alarm and Signaling Code, unless it is an approved existing installation, which shall be permitted to be continued in use. [101:9.6.6.1.3]

15.7.1.3 For the purposes of this code, a complete fire alarm system shall provide functions for initiation, notification, and control, which shall perform as follows:

1. The initiation function provides the input signal to the system.
2. The notification function is the means by which the system advises that human action is required in response to a particular condition.
3. The control function provides outputs to control building equipment to enhance protection of life. [101:9.6.6.1.7]

15.7.2 Signal Initiation.
15.7.2.1 Buildings or structures housing a health care facility shall meet the minimum signaling and alarm initiation requirements of the applicable building code, NFPA 101, Life Safety Code, or fire code acceptable to the authority having jurisdiction.

15.7.2.2 Manual fire alarm boxes shall be used only for fire-protective signaling purposes.
15.7.2.2.1 Combination fire alarm and guard’s tour stations shall be acceptable.

15.7.2.3 A manual fire alarm box shall be provided in the natural exit access path near each required exit from an area, unless modified by another section of this code.

15.7.2.4* Additional manual fire alarm boxes shall be located so that, on any given floor in any part of the building, no horizontal distance on that floor exceeding 60 m (200 ft) shall need to be traversed to reach a manual fire alarm box. [101:9.6.6.2.5]

15.7.2.5 For fire alarm systems using automatic fire detection or waterflow detection devices, not less than one manual fire alarm box shall be provided to initiate a fire alarm signal.

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15.7.2.5.1 The manual fire alarm box shall be located where required by the authority having jurisdiction.
15.7.2.6 Each manual fire alarm box on a system shall be accessible, unobstructed, and visible. [104:9.6.2.7]
15.7.2.7 Where a sprinkler system provides automatic detection and alarm system initiation, it shall be provided with an approved alarm initiation device that operates when the flow of water is equal to or greater than that from a single automatic sprinkler.
15.7.3 Smoke Alarms.
15.7.3.1 Where required by the applicable building code, NFPA 101, Life Safety Code, or fire code, single-station and multiple-station smoke alarms shall be in accordance with NFPA 72, National Fire Alarm and Signaling Code.
15.7.3.2 System smoke detectors in accordance with NFPA 72, National Fire Alarm and Signaling Code and arranged to function in the same manner as single-station or multiple-station smoke alarms shall be permitted in lieu of smoke alarms. [104:9.6.1.10.1.4]
15.7.3.3 The alarms shall sound only within an individual dwelling unit, suite of rooms, or similar area and shall not actuate the building fire alarm system, unless otherwise permitted by the authority having jurisdiction. Remote annunciation shall be permitted. [104:9.6.2.10.4]
15.7.4 Occupant Notification. [104:9.6.3]
15.7.4.1 Where required by the applicable building code, NFPA 101, Life Safety Code, or fire code, occupant notification shall be provided to alert occupants of a fire or other emergency.
15.7.4.2 Occupant notification shall be in accordance with 15.7.4.3 unless otherwise provided in 15.7.4.2.1 and 15.7.4.2.2. [104:9.6.3.2]
15.7.4.2.1 Elevator lobby, hoistway, and associated machine room smoke detectors used solely for elevator recall, and heat detectors used solely for elevator power shutdown, shall not be required to activate the building evacuation alarm if the power supply and installation wiring to such detectors are monitored by the building fire alarm system, and if the activation of such detectors initiates a supervisory signal at a constantly attended location. [104:9.6.3.2.1]
15.7.4.2.2 Smoke detectors used solely for closing dampers or heating, ventilating, and air-conditioning system shutdown shall not be required to activate the building evacuation alarm, provided that the power supply and installation wiring to the detectors are monitored by the building fire alarm system, and the activation of the detectors initiates a supervisory signal at a constantly attended location. [104:9.6.3.2.2]
15.7.4.3 Defend in Place. For new and existing facilities, where the response to a fire is to defend in place within a safe place in the building, occupant notification shall be in accordance with the facility fire plan.
15.8 Automatic Sprinklers and Other Extinguishing Equipment.
15.8.1 Automatic Sprinklers.
15.8.1.1 Automatic sprinkler system shall be in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems.
15.8.1.2* Defend in Place. For new and existing facilities, where the response to a fire is to defend in place within a safe place in the building and not to automatically evacuate the building, sprinkler system zones shall coincide with smoke compartment boundaries or shall be in accordance with the facility fire plan.
15.8.2 Fire Suppression Systems for Data Processing and Telecommunications Rooms.
15.8.2.1 New fire suppression systems in data processing rooms shall be in accordance with NFPA 75, Standard for the Protection of Information Technology Equipment.
15.8.2.2 New fire suppression systems in telecommunications rooms shall be in accordance with NFPA 76, Standard for the Fire Protection of Telecommunications Facilities.
15.9 Manual Extinguishing Equipment.
15.9.1* Portable fire extinguishers shall be installed, inspected, and maintained in accordance with NFPA 10, Standard for Portable Fire Extinguishers.
15.9.2 Where provided, standpipe and hose systems shall be provided in accordance with NFPA 14, Standard for the Installation of Standpipe and Hose Systems.
15.9.2.1 Where standpipe and hose systems are installed in combination with automatic sprinkler systems, installation shall be in accordance with the appropriate provisions established by NFPA 13, Standard for the Installation of Sprinkler Systems, and NFPA 14, Standard for the Installation of Standpipe and Hose Systems.
15.9.2.2* Hose or hose outlets shall be permitted to be removed from existing standpipe and hose systems that are not required by the applicable building code, NFPA 101, Life Safety Code, and fire code.
15.10* Compact Storage.
Compact storage shall be protected by sprinklers in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems.
15.11 Maintenance and Testing.
15.11.1 All water-based fire protection systems shall be inspected, tested, and maintained in accordance with NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
15.11.2 All non-water based fire protection systems shall be inspected, tested, and maintained in accordance with the applicable NFPA standards.

15.12* Fire Loss Prevention in Operating Rooms.

15.12.1 Hazard Assessment.
15.12.1.1 An evaluation shall be made of hazards that could be encountered during surgical procedures.
15.12.1.2 The evaluation shall include hazards associated with the properties of electricity, hazards associated with the operation of surgical equipment, and hazards associated with the nature of the environment.
15.12.1.3 Periodic reviews of surgical operations and procedures shall be conducted with special attention given to any change in materials, operations, or personnel.

15.12.2 Fire Prevention Procedures. Fire prevention procedures shall be established.

15.12.3 Germicides and Antiseptics.
15.12.3.1 Medicaments and alcohol-based hand sanitizers, including those dispersed as aerosols, shall be permitted to be used in anesthetizing locations.
15.12.3.2* Flammable liquid germicides or antiseptics used in anesthetizing locations, whenever the use of electrotherapy, cautery, or a laser is contemplated, shall be packaged as follows:
(1) In a nonflammable package
(2) To ensure controlled delivery to the patient in unit dose applicators, swabs, and other similar applicators

15.12.3.3 Whenever the application of flammable liquid germicides or antiseptics is employed in surgeries where the use of electrotherapy, cautery, or a laser is contemplated, time shall be allowed to elapse between application of the germicide or antiseptic and the following:
(1) The application of drapes to permit complete evaporation and dissipation of any flammable vehicle remaining
(2) The use of electrotherapy, cautery, or a laser to ensure the solution is completely dry and to permit thorough evaporation and dissipation of any flammable vehicle remaining

15.12.3.4 Any solution-soaked materials shall be removed from the operating room prior to draping or use of electrotherapy, cautery, or a laser.

15.12.3.5 Pooling of flammable liquid germicides or antiseptics shall be avoided; if pooling occurs, excess solution shall be wicked and the germicide or antiseptic allowed to completely dry.

15.12.3.6 A preoperative “time out” period shall be conducted prior to the initiation of any surgical procedure using flammable liquid germicides or antiseptics to verify the following:
(1) Application site of flammable germicide or antiseptic is dry prior to draping and use of electrotherapy, cautery, or a laser.
(2) Pooling of solution has not occurred or has been corrected.
(3) Any solution-soaked materials have been removed from the operating room prior to draping and use of electrotherapy, cautery, or a laser.

15.12.3.7 Whenever flammable aerosols or antiseptics are employed, sufficient time shall be allowed to elapse between deposition and application of drapes to permit complete evaporation and dissipation of any flammable vehicle remaining.

15.12.3.8 Health care organizations shall establish policies and procedures outlining safety precautions related to the use of flammable liquid or aerosol germicides or antiseptics used in anesthetizing locations, as required in 15.14.1, whenever the use of electrotherapy, cautery, or a laser is contemplated.

15.12.3.9 Emergency Procedures.
15.12.3.9.1 Procedures for operating room/surgical suite emergencies shall be developed.
15.12.3.9.2 Procedures shall include alarm actuation, evacuation, and equipment shutdown procedures and provisions for control of emergencies that could occur in the operating room including specific detailed plans for control operations by an emergency control group within the organization or a public fire department.

15.12.3.9.3 Emergency procedures shall be established for controlling chemical spills.

15.12.3.10 Orientation and Training.
15.12.3.10.1 New operating room/surgical suite personnel, including physicians and surgeons, shall be taught general safety practices for the area and specific safety practices for the equipment and procedures they will use.

15.12.3.10.2 Continuing safety education and supervision shall be provided, incidents shall be reviewed monthly, and procedures shall be reviewed annually.

15.12.3.10.3 Fire exit drills shall be conducted annually or more frequently as determined by the applicable building code, NFPA 101, Life Safety Code, or fire code.

A.15.3.2 NFPA58, Liquefied Petroleum Gas Code, permits portable butane-fueled appliances in restaurants and in attended commercial food catering operations where fueled by not in excess of two 10 oz (0.28 kg) LP-Gas capacity, nonrefillable butane containers having a water capacity not in excess of 1.08 lb (0.4 kg) per container. Containers are
required to be directly connected to the appliance, and manifolding of containers is not permitted. Storage of cylinders is also limited to 24 containers, with an additional 24 permitted where protected by a 2-hour fire resistance–rated barrier. [101:A.8.7.3.2]

A.15.5.3.3 Continued operation of solid-state elevator equipment is contingent on maintaining the ambient temperature in the range specified by the elevator manufacturer. If the machine room ventilation/air-conditioning is connected to the general building system, and that system is shut down during a fire, the fire department might lose the use of elevators due to excessive heat in the elevator machine room. [101:A.9.4.5]

A.15.7.1 The provisions of Section 15.7 cover the basic functions of a complete fire alarm system, including fire detection, alarm, and communications. These systems are primarily intended to provide the indication and warning of abnormal conditions, the summoning of appropriate aid, and the control of occupancy facilities to enhance protection of life.

Some of the provisions of Section 15.7 originated with NFPA 72, National Fire Alarm Code. For purposes of this Code, some provisions of Section 15.7 are more stringent than those of NFPA 72, which should be consulted for additional details. [101:A.9.6.1]

A.15.7.2.4 It is not the intent of 15.7.2.4 to require manual fire alarm boxes to be attached to movable partitions or to equipment, nor is it the intent to require the installation of permanent structures for mounting purposes only. [101:A.9.6.2.5]

A.15.7.4.2.1 Elevator lobbies have been considered areas subject to unwanted alarms due to factors such as low ceilings and smoking. In the past several years, new features have become available to reduce this problem. These features are, however, not necessarily included in any specific installation. [101:A.9.6.3.2.1]

A.15.7.4.2.2 The concept addressed is that detectors used for releasing service, such as door or damper closing and fan shutdown, are not required to sound the building alarm. [101:A.9.6.3.2.2]

A.15.7.4.3.1 It is not the intent of this paragraph to require fire alarm system zones to coincide with smoke compartment boundaries provided that the facility fire plan addresses the differences between fire alarm system zones and building smoke compartments.

A.15.7.4.3.2 In the private operating mode, audible and visible signaling is required only to those persons directly concerned with the implementation and direction of emergency action. Provided that those persons receive alarm notification, audible and visible signaling is not required to patients or other building occupants who are not responsible for the implementation and direction of emergency action.

A.15.8.1.2 It is not the intent of this paragraph to require sprinkler system zones to coincide with smoke compartment boundaries provided that the facility fire plan addresses the differences between sprinkler systems zones and building smoke compartments.

A.15.9.1 There are special extinguisher requirements such as non-ferrous fire extinguishers in a MRI room and K type extinguishers in kitchens.

A.15.9.2.2 Hose and hose outlets can be required by a building code or by the authority having jurisdiction.

A.15.10 Compact storage is characterized by shelving units that are manually or electrically moved on fixed tracks to provide access aisles. Such systems are also known as mobile shelving, track files, compaction files, or movable files. A floor loading calculation should be performed.

A.15.12 The following definitions were adapted from the American College of Surgeons publication 04GR-0001: Guidelines for Optimal Ambulatory Surgical Care and Office-Based Surgery, which was developed by the Board of Governors Committee on Ambulatory Surgical Care and published in May 2000. Class A, B and C operating rooms are classified as:

Class A—Provides for minor surgical procedures performed under topical and local infiltration blocks with or without oral or intramuscular preoperative sedation. (Excluded are procedures that make use of spinal, epidural axillary, and stellate ganglion blocks; regional blocks (e.g., interscalene) and supraclavicular, infraclavicular, and intravenous regional anesthesia.) These procedures are also appropriately performed in Class B and C facilities.

Class B—Provides for minor or major surgical procedures performed in conjunction with oral, parenteral, or intravenous sedation or under analgesic or dissociative drugs. These procedures are also appropriately performed in Class C facilities.

Class C—Provides for major surgical procedures that require general or regional block anesthesia and support of vital bodily functions.

A.15.12.3.2 Some tinctures and solutions of disinfecting agents provide significant clinical benefits in reducing the risk of surgical infections. However, they can be flammable and can be used improperly during surgical procedures. Tipping containers, accidental spillage, and the pouring of excessive amounts of such flammable agents on patients expose them to injury in the event of accidental ignition of the flammable solvent. To control this risk, flammable germicides or antiseptics that are used when electrosurgery, cautery, or a laser is contemplated should be packaged to ensure controlled delivery to the patient (e.g., unit dose applicator, swab, etc.) in small volumes appropriate for single
Substantiation: NFPA 99 is being reformatted to address levels of protection based on risk. This new chapter outlines the fire protection requirements for subjects such as compact storage, suppression systems, fire alarm systems, generators, HVAC systems, elevator systems, defend in place and others.

Committee Meeting Action: Accept

99-472 Log #CP527 HEA-FUN

(15.7.4.3.1)

Submitter: Technical Committee on Fundamentals,

Recommendation: Insert new sections as follows:

15.7.4.3.1 Where buildings are required to be subdivided into smoke compartments, fire alarm notification zones shall coincide with one or more smoke compartment boundaries or shall be in accordance with the facility fire plan.

15.7.4.3.2* The private operating mode as defined in NFPA 72 shall be permitted to be used for the placement of notification appliances within the health care and ambulatory health care occupancies of the building.

15.7.4.3.3 The notification signal shall readily identify the smoke zone or the floor area, floor, and building in need of staff response.

15.7.4.3.4 The notification signal shall be heard in all locations in accordance with the facility fire plan.

15.7.4.3.5 In critical care areas visible alarm notification appliances shall be permitted to be used in lieu of audible alarm signals.

15.7.4.3.6 Visible signals shall not be required inside surgical operating rooms, patient sleeping rooms, or psychiatric care areas where their operation would interfere with patient treatment.

15.7.4.3.7 Visible signals shall not be required inside exam rooms, special procedure rooms, dressing rooms, and non-public toilet rooms where staff is required to respond to those areas in accordance with the facility fire plan.

A.15.7.4.3.1 It is not the intent of this paragraph to require fire alarm system zones to coincide with smoke compartment boundaries provided that the facility fire plan addresses the differences between fire alarm system zones and building smoke compartments.

Substantiation: This section was added to address defend in place and the special signaling requirements for various spaces in health care facilities.

Committee Meeting Action: Accept
99-473 Log #CP528 HEA-FUN
(15.8.2) Final Action: Reject

Submitter: Technical Committee on Fundamentals,
Recommendation: Insert new section as follows:
15.8.2 Patient Rooms.
15.8.2.1 Closets.
  15.8.2.1.1 In hospitals, sprinklers shall not be required in closets of patient rooms, where the area of the space does not exceed 12 ft² (1.1 m²), and the least dimension does not exceed 3 ft (0.9 m).

A.15.8.2.1.1 NFPA 13 currently allows omission of sprinklers in casework and furniture such as free standing wardrobes. NFPA 13 also allows the omission of sprinklers in small closets in hotels. The committee feels that the minimal fuel load in small closets in patient sleeping rooms in hospitals presents less risk than the exempted areas above.

Substantiation: NFPA 13 currently allows omission of sprinklers in casework and furniture such as free standing wardrobes. NFPA 13 also allows the omission of sprinklers in small closets in hotels. The committee feels that the minimal fuel load in small closets in patient sleeping rooms in hospitals presents less risk than the exempted areas above. The committee is soliciting input and comments on the size of the closets to be exempted.

Committee Meeting Action: Reject
Committee Statement: The committee feels this material is worthwhile but is being recorded as a Reject in order to get the information into the record and to facilitate coordination with NFPA 13. The committee will work with NFPA 13 between the ROP and ROC period.
15.10 Cylinder and Container Storage Requirements.

15.10.1 Storage for nonflammable gases equal to or greater than 85 m³ (3000 ft³) compressed shall comply with 5.1.3.3.2 and 5.1.3.3.3.

15.10.2 Storage for nonflammable gases greater than 8.5 m³ (300 ft³) but less than 85 m³ (3000 ft³) compressed shall comply with the requirements in 9.4.2.1 through 9.4.2.3.

15.10.2.1 Storage locations shall be outdoors in an enclosure or within an enclosed interior space of noncombustible or limited-combustible construction, with doors (or gates outdoors) that can be secured against unauthorized entry.

15.10.2.2 Oxidizing gases, such as oxygen and nitrous oxide, shall not be stored with any flammable gas, liquid, or vapor.

15.10.2.3 Oxidizing gases such as oxygen and nitrous oxide shall be separated from combustibles or materials by one of the following:

(1) Minimum distance of 6.1 m (20 ft)
(2) Minimum distance of 1.5 m (5 ft) if the entire storage location is protected by an automatic sprinkler system designed in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems
(3) Enclosed cabinet of noncombustible construction having a minimum fire protection rating of ½ hour

15.10.2.4 Liquefied gas container storage shall comply with Section 11.4.

15.10.2.5 Cylinder and container storage locations shall comply with 5.1.3.3.1.7 with respect to temperature limitations.

15.10.2.6 Electrical fixtures in storage locations shall comply with 5.1.3.3.2(5).

15.10.2.7 Cylinder protection from mechanical shock shall comply with 5.3.13.1.3.

15.10.2.8 Cylinder or container restraint shall comply with 5.3.13.1.3.

15.10.2.9 Smoking, open flames, electric heating elements, and other sources of ignition shall be prohibited within storage locations and within 6.1 m (20 ft) of outside storage locations.

15.10.2.10 Cylinder valve protection caps shall comply with 5.3.13.1.3.

15.10.2.11 Gas cylinder and liquefied gas container storage shall comply with Section 11.4.

15.10.3 Storage for nonflammable gases with a total volume compressed equal to or less than 8.5 m³ (300 ft³) shall comply with the requirements in 9.3.3.1 and 9.3.3.2.

15.10.3.1 Individual cylinder storage associated with patient care rooms, not to exceed 2100 m² (22,500 ft²) of floor area, shall not be required to be stored in enclosures.

15.10.3.2 Precautions in handling these cylinders shall be in accordance with 9.6.2.

15.10.3.3 When small-size (A, B, D, or E) cylinders are in use, they shall be attached to a cylinder stand or to a therapy apparatus of sufficient size to render the entire assembly stable.

15.10.3.4 An individual cylinder placed in patient room for immediate use by a patient shall not be required to be stored in an enclosure.

15.10.3.5 Cylinders shall not be chained to portable or movable apparatus such as beds and oxygen tents.

15.10.4 Signs.

15.10.4.1 A precautionary sign, readable from a distance of 1.5 m (5 ft), shall be displayed on each door or gate of the storage room or enclosure.

15.10.4.2 The sign shall include the following wording as a minimum:

CAUTION: OXIDIZING GAS(ES) STORED WITHIN
NO SMOKING

15.10.5 Cylinder Environment.

15.10.5.1 Cylinders in use and in storage shall be prevented from reaching temperatures in excess of 54°C (130°F).

15.10.5.2 Design and Construction. Locations for central supply systems and the storage of positive-pressure gases shall meet the following requirements:

(1) Be constructed with access to move cylinders, equipment, and so forth, in and out of the location on hand trucks complying with 11.5.3.1.1
(2) Be secured with lockable doors or gates or otherwise secured
(3) If outdoors, be provided with an enclosure (wall or fencing) constructed of noncombustible materials
(4) If indoors, be constructed and use interior finishes of noncombustible or limited-combustible materials such that all
walls, floors, ceilings, and doors are of a minimum 1-hour fire resistance rating
(5) Be compliant with NFPA 70, National Electrical Code, for ordinary locations, with electrical devices located 1520
mm (5 ft) at or above finished floor to avoid physical damage
(6) Be heated by indirect means (e.g., steam, hot water), if heat is required
(7) Be provided with racks, chains, or other fastenings to secure all cylinders, whether connected, unconnected, full, or
empty, from falling
(8) Be supplied with electrical power compliant with the requirements for essential electrical systems as described in
Chapter 4
(9) Have racks, shelves, and supports, where provided, constructed of noncombustible materials or
limited-combustible materials
15.10.5.3 Ventilation.
15.10.5.3.1 Ventilation of Locations for Manifolds. Locations containing central supply systems or used for storing
medical gas containers shall be ventilated to prevent the accumulation of medical gases from leaks and operation of
cylinder or manifold overpressure safety devices in accordance with 9.3.7.5.2 through 9.3.7.5.3.
15.10.5.3.1.1 Indoor supply systems shall have all relief valves vented per 5.1.3.5.6.1(4) through 5.1.3.5.6.1(9).
15.10.5.3.1.2 Where the total volume of medical gases connected and in storage is greater than 84,950 L (3000 ft³) at
STP, indoor supply locations shall be provided with dedicated mechanical ventilation systems that draw air from within
300 mm (1 ft) of the floor and operate continuously. A means of makeup air shall be provided.
15.10.5.3.1.3 The power supply for mechanical ventilation fans shall conform to the requirements of an essential
electrical system as described in Chapter 4.
15.10.5.3.1.4 Where the total volume of medical gases connected and in storage is less than 84,950 L (3000 ft³) at
STP or the only compressed gas in the room is medical air, natural ventilation shall be permitted to be employed.
15.10.5.3.1.5 Where natural ventilation is permitted, it shall consist of two louvered openings, each having a minimum
free area of 46,500 mm² (72 in²), with one located within 300 mm (1 ft) of the floor and one located within 300 mm (1
ft) of the ceiling.
15.10.5.3.1.6 Louvered natural ventilation openings shall not be located in an exit access corridor.
15.10.5.3.1.7 Mechanical ventilation shall be provided if the requirements of 9.3.7.5.2 cannot be met.
15.10.5.3.2 Ventilation for Motor-Driven Equipment. The following source locations shall be adequately ventilated to
prevent accumulation of heat:
(1) Medical air sources (See 5.1.3.5.)
(2) Medical–surgical vacuum sources (See 5.1.3.6.)
(3) Waste anesthetic gas disposal (WAGD) sources (See 5.1.3.7.1.)
(4) Instrument air sources (See 5.1.3.8.)
15.10.5.3.3 Ventilation for Outdoor Locations.
15.10.5.3.3.1 Outdoor locations surrounded by impermeable walls shall have protected ventilation openings located at
the base of each wall to allow free circulation of air within the enclosure.
15.10.5.3.3.2 Walls that are shared with other enclosures or with buildings shall be permitted to not have openings.
15.10.6* Manifolds for Cryogenic Liquid Containers.
15.10.6.1 The manifolds in this category shall be located in accordance with 5.1.3.3.1 and the following:
(1) If located outdoors, be installed in an enclosure used only for this purpose and sited to comply with minimum
distance requirements in Figure A.5.1.3.5.13(a)
(2) If located indoors, be installed within a room used only for this purpose
15.10.6.2 The manifolds in this category shall have their primary and secondary headers located in the same
enclosure.
15.10.6.3 The reserve header shall be permitted to be located in the same enclosure as the primary and secondary
headers or in another enclosure compliant with 5.1.3.5.12.1.
15.10.6.4 The manifolds in this category shall consist of the following:
(1) Two equal headers, per 5.1.3.5.9, each having sufficient number of liquid container connections for an average
day’s supply, and with the headers connected to the final line pressure regulator assembly in such a manner that either
header can supply the system
(2) A reserve header, per 5.1.3.5.9, having sufficient number of gas cylinder connections for an average day’s supply,
but not fewer than three connections, and connected downstream of the primary/secondary headers and upstream of
the final line pressure regulators
(3) A pressure relief installed downstream of the connection of the reserve header and upstream of the final line
pressure regulating assembly and set at 50 percent above the nominal inlet pressure
15.10.6.5 The manifolds in this category shall include an automatic means of controlling the three headers to
accomplish the following during normal operation.
(1) If provided with two liquid container headers, one cryogenic liquid header is the primary and the other is the secondary, with either being capable of either role.

(2) If provided with one liquid container header and one gas cylinder header (a hybrid arrangement), the liquid header is the primary and the gas cylinder header is the secondary.

(3) When the primary header is supplying the system, the secondary header is prevented from supplying the system.

(4) When the primary header is depleted, the secondary header automatically begins to supply the system.

15.10.6.6 The manifolds in this category shall be equipped with a means to conserve the gas produced by evaporation of the cryogenic liquid in the secondary header (when so provided). This mechanism shall discharge the conserved gas into the system upstream of the final line regulator assembly.

15.10.6.7 The manifolds in this category shall include a manual or automatic means to place either header into the role as primary header and the other in the role of secondary header, except where a liquid/gas hybrid manifold is employed.

15.10.6.8 The manifolds in this category shall include a means to automatically activate the reserve header if for any reason the primary and secondary headers cannot supply the system.

15.10.6.9 The manifolds in this category shall actuate a local signal and shall activate an indicator at all master alarms under the following conditions:

(1) When or at a predetermined set point before the secondary header begins to supply the system, indicating changeover

(2) Where a hybrid arrangement is employed, when or at a predetermined set point before the secondary (cylinder) header contents fall to one day’s average supply, indicating secondary low

(3) When or at a predetermined set point before the reserve header begins to supply the system, indicating reserve is in use

(4) When or at a predetermined set point before the reserve header contents fall to one day’s average supply, indicating reserve low

15.10.6.10 A variant on the cryogenic liquid container manifold shall be permitted having three headers of cylinders.

15.10.6.11 Such a variant shall comply with all requirements of 15.10.6, except the following:

(1) The minimum number of cylinder connections required for each header under 15.10.6.4(1) shall be two.

(2) Paragraph 15.10.6.6 shall not apply.

15.10.7 Operations and Management.

15.10.7.1 Cylinders shall be protected from damage, which shall include the following specific procedures:

(1) Oxygen cylinders shall be protected from abnormal mechanical shock, which is liable to damage the cylinder, valve, or safety device.

(2) Oxygen cylinders shall not be stored near elevators, gangways, or in locations where heavy moving objects will strike them or fall on them.

(3) Cylinders shall be protected from the tampering of unauthorized individuals.

(4) Cylinders or cylinder valves shall not be repaired, painted, or altered.

(5) Safety relief devices in valves or cylinders shall never be tampered.

(6) Valve outlets clogged with ice shall be thawed with warm — not boiling — water.

(7) A torch flame shall never be permitted under any circumstances to come in contact with cylinder valves or safety devices.

(8) Sparks and flame shall be kept away from cylinders.

(9) Even if they are considered to be empty, cylinders shall never be used as rollers, supports, or for any purpose other than that for which the supplier intended them.

(10) Large cylinders (exceeding size E) and containers larger than 45 kg (100 lb) weight shall be transported on a proper hand truck or cart complying with Chapter 9.

(11) Freestanding cylinders shall be properly chained or supported in a proper cylinder stand or cart.

(12) Cylinders shall not be supported by radiators, steam pipes, or heat ducts.

15.10.7.2 Special Precautions for Handling Oxygen Cylinders and Manifolds. Handling of oxygen cylinders and manifolds shall be based on CGA G-4, Oxygen.

15.10.7.2.1 Oxygen cylinders, containers, and associated equipment shall be protected from contact with oil or grease, which shall include the following specific precautions:

(1) Oil, grease, or readily flammable materials shall never be permitted to come in contact with oxygen cylinders, valves, regulators, gauges, or fittings.

(2) Regulators, fittings, or gauges shall never be lubricated with oil or any other flammable substance.

(3) Oxygen cylinders or apparatus shall never be handled with oily or greasy hands, gloves, or rags.

15.10.7.2.2 Equipment associated with oxygen shall be protected from contamination, which shall include the following specific precautions:
(1) Particles of dust and dirt shall be cleared from cylinder valve openings by slightly opening and closing the valve before applying any fitting to the cylinder.

(2) The high-pressure valve on the oxygen cylinder shall be opened slowly before bringing the apparatus to the patient or the patient to the apparatus.

(3) An oxygen cylinder shall never be draped with any materials such as hospital gowns, masks, or caps.

(4) Cylinder-valve protection caps, where provided, shall be kept in place and be hand-tightened, except when cylinders are in use or connected for use.

(5) Valves shall be closed on all empty cylinders in storage.

15.10.7.2.3 Cylinders shall be protected from damage, which shall include the following specific procedures:

(1) Oxygen cylinders shall be protected from abnormal mechanical shock, which is liable to damage the cylinder, valve, or safety device.

(2) Oxygen cylinders shall not be stored near elevators, gangways, or in locations where heavy moving objects will strike them or fall on them.

(3) Cylinders shall be protected from the tampering of unauthorized individuals.

(4) Cylinders or cylinder valves shall not be repaired, painted, or altered.

(5) Safety relief devices in valves or cylinders shall never be tampered.

(6) Valve outlets clogged with ice shall be thawed with warm — not boiling — water.

(7) A torch flame shall never be permitted under any circumstances to come in contact with cylinder valves or safety devices.

(8) Sparks and flame shall be kept away from cylinders.

(9) Even if they are considered to be empty, cylinders shall never be used as rollers, supports, or for any purpose other than that for which the supplier intended them.

(10) Large cylinders (exceeding size E) and containers larger than 45 kg (100 lb) weight shall be transported on a proper hand truck or cart complying with 9.4.3.1.

(11) Freestanding cylinders shall be properly chained or supported in a proper cylinder stand or cart.

(12) Cylinders shall not be supported by radiators, steam pipes, or heat ducts.

15.10.7.2.4 Cylinders and their contents shall be handled with care, which shall include the following specific procedures:

(1) Oxygen fittings, valves, regulators, or gauges shall never be used for any service other than that of oxygen.

(2) Gases of any type shall never be mixed in an oxygen cylinder or any other cylinder.

(3) Oxygen shall always be dispensed from a cylinder through a pressure regulator.

(4) The cylinder valve shall be opened slowly, with the face of the indicator on the regulator pointed away from all persons.

(5) Oxygen shall be referred to by its proper name, oxygen, not air, and liquid oxygen referred to by its proper name, not liquid air.

(6) Oxygen shall never be used as a substitute for compressed air.

(7) The markings stamped on cylinders shall not be tampered with because it is against federal statutes to change these markings without written authority from the Bureau of Explosives.

(8) Markings used for the identification of contents of cylinders shall not be defaced or removed, including decals, tags, stenciled marks, and the upper half of the shipping tag.

(9) The owner of the cylinder shall be notified if any condition has occurred that might permit any foreign substance to enter a cylinder or valve, giving details and cylinder number.

(10) Neither cylinders nor containers shall be placed in proximity of radiators, steam pipes, heat ducts, or other sources of heat.

(11) Very cold cylinders or containers shall be handled with care to avoid injury.

15.10.7.2.5 Oxygen equipment that is defective shall not be used until one of the following tasks has been performed:

(1) It has been repaired by competent in-house personnel.

(2) It has been repaired by the manufacturer or the authorized agent.

(3) It has been replaced.

15.10.7.2.6 Regulators that are in need of repair or cylinders having valves that do not operate properly shall never be used.

Substantiation: This proposal was rejected anticipating the TC on MED has addressed this material. This proposal reserves this material in case the material needs to be incorporated back into the document.

Committee Meeting Action: Reject
Committee Statement: We anticipate this material will be handled by the MED committee and this proposal was generated as a placeholder in order to not loose the material.
Submittor: Technical Committee on Fundamentals,

Recommendation: Add new section as follows:

15.11* Compact Shelf Storage.

Compact shelf storage shall be protected by sprinklers in accordance with NFPA 13 and shall also comply with the following:

1. The sprinkler design density shall be 8 L/m/m² (0.2 gpm per ft²) over 140 m² (1500 ft²) if there is an opening of at least 3 horizontal in. between vertical shelf units when the units are in the closed position.

2. The sprinkler design density shall be 12 L/m/m² (0.3 gpm per ft²) over 140 m² (1500 ft²) if there is not an opening of at least 3 horizontal in. between vertical shelf units when the units are in the closed position.

3. Sprinkler spacing shall be no greater than 3 m × 3 m (10 ft × 10 ft).

4. Quick-response sprinklers shall be used and the reduction in design area for quick-response sprinklers shall not be permitted.

5. Shelf height shall not exceed 2.44 m (8 ft) above the floor.

6. A 0.46 m (18 in.) vertical clearance shall be between the top of the storage and the plane of the sprinkler deflector.

7. Storage areas greater than 4.65 m² (50 ft²) shall be protected as a hazardous area in accordance with the applicable building code, NFPA 101, Life Safety Code, or fire code.

Substantiation: Guidance was added to cover sprinkler requirements for compact storage of medical records, dietary product storage, storage of sterile medical supplies. These requirements were based on the June 2008 Compact Mobile Shelving System Fire Test Project.

Committee Meeting Action: Reject

Committee Statement: The TC on FUN will discuss this proposal with the NFPA 13 committee and revisit the issue during the ROC. The committee is looking for guidance on densities for storage configurations not compliant (ie records greater than 5% plastics in the storage) with 20.6 of NFPA 13-2010 edition.
15.12 Audiometric Booths.

15.12.1 Audiometric booths shall comply with 15.12.1.1 or 15.12.1.2.

15.12.1.2 Sprinklers shall not be required for audiometric booths that comply with the following:

1. Wall and ceiling panels and liner materials used in ventilation system, silencers, and fan housings, tested in accordance with ASTM E 84, or UL 723, shall not exceed a rating of 25 for flame spread and 450 for smoke development.

2. Wall and ceiling panels, tested in accordance with NFPA 251, ASTM E 119, or UL 263, shall have a minimum fire resistance rating of 1 hour. Panels that have solid and perforated surfaces shall be tested for both solid and perforated surfaces exposed to fire.

3. Door assemblies, tested in accordance with NFPA 252, ASTM E 2074, UL 10B, or UL 10C, shall be rated for a minimum of 45 minutes.

4. Windows installed in wall assemblies, tested in accordance with NFPA 257, ASTM E 2010, or UL 9, shall be rated for a minimum of 45 minutes.

5. Carpet and carpet-like floor finishes shall meet the requirements of the Federal Flammability Standard FF-1-70, Standard for the Surface Flammability of Carpets and Rugs (Pill Test), or shall comply with ASTM D 2859.

6. Doors shall be self-closing or automatic-closing.

7. The area of each audiometric booth shall not exceed 150 ft2.

Substantiation: These requirements reflect the new non-combustible and fire rated enclosures of audiometric booths. This requirement is reflecting new equipment available that mitigates the need for sprinklers within these booths.

Committee Meeting Action: Reject
Committee Statement: The committee feels this material is worthwhile but is being recorded as a Reject in order to get the information into the record and to facilitate coordination with NFPA 13. The committee will work with NFPA 13 between the ROP and ROC period.

A health care facility is not a type of occupancy classification as defined by NFPA 101, Life Safety Code. Therefore, the term “health care facility” should not be confused with the term “health care occupancy.” All health care occupancies (and ambulatory health care occupancies) are considered health care facilities, however, not all health care facilities are considered health care occupancies, as health care facilities also include ambulatory health care occupancies and business occupancies.

Substantiation: There is a lot of confusion and mixing between the terms “health care facility” and “health care occupancy.” The annex note aims to merely alert the reader of this fact so not to use these terms interchangeably. The TC is welcome to modify the annex note to add more clarification.

Committee Meeting Action: Accept
### Report on Proposals – June 2011

<table>
<thead>
<tr>
<th>Log #</th>
<th>Submitter</th>
<th>Final Action</th>
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</tr>
</thead>
<tbody>
<tr>
<td>99-527</td>
<td>Technical Committee on Fundamentals</td>
<td>Accept</td>
<td>Revise as follows: Delete Annexes B, D, E</td>
<td>These annexes are redundant and in some cases reflect technology that is not in common use.</td>
</tr>
<tr>
<td>99-528</td>
<td>Dale Woodin, ASHE-American Society for Healthcare Engineering of the American Hospital Association (AHA)</td>
<td>Reject</td>
<td>Add new text to read as follows: B.1.1.2.1.1 Behavior Healthcare or Rehabilitation Facilities – Electrical Shock Prevention</td>
<td>This section is not about unintentional electrical shock hazards but intentional shock by patients in behavioral healthcare facilities, units, or wards. Extra precautions should be taken for patients in these facilities because some are looking for methods to harm themselves or to achieve a purpose (e.g., destruction, lighting fires or cigarettes). The most vulnerable devices in patient areas in these types of facilities are the fire alarm systems (i.e., strobe lights, audible alarms, fire exit signs and in some cases, emergency backup lighting). Although they are more efficient than their predecessors, they are all made of plastic and can be broken or torn down by the patients with ease. When this happens, the two immediate problems that enhance the probability of a sentinel event are broken glass and electrical wiring. The electrical circuits for these devices are usually not tied GFI protected and therefore will cause a severe (i.e., deadly) electrical shock to the patient. To increase patient safety, these devices should be enclosed with a polycarbonate cover or dome. Wire cages are not recommended for these types of facilities because the grills could be used as a platform for hanging. In regard to electrical receptacles in behavior healthcare patient areas, they should be limited to the hallways or staff areas. Experience has shown us that behavioral healthcare patients can circumvent the GFI device and use the electrical receptacle for the production of fire. An example of this is when a patient inserts two pieces of lead graphite (i.e., pencil lead) into a GFI electrical receptacle. When the two pieces are crossed together, the lead will begin to glow hot enough to light paper; however, it is not enough resistance to trip the GFI device. The only way to prevent this is to eliminate electrical receptacles in the patients' rooms. Also, it is recommended that tamper-resistant screws should be used on all electrical switch covers.</td>
</tr>
<tr>
<td>99-531</td>
<td>Technical Committee on Fundamentals</td>
<td>Accept</td>
<td>Send section C.11 to NFPA 45 and delete the remainder of Annex C but retain the title.</td>
<td>The laboratory chapter of NFPA 99 is being eliminated. The information in C.11 is useful and should not be lost. The title of Annex C (Annex B in preprint) is being retained for the use of other TC’s to incorporate or keep any Annex C material.</td>
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**Printed on 3/2/2010**