Committee on NFPA 99

MEMORANDUM

TO: NFPA Technical Committee on Mechanical Systems

FROM: Jeanne Moreau-Correia

DATE: March 2, 2010

SUBJECT: NFPA 99 A11 ROP Letter Ballot

The ROP letter ballot for NFPA 99 HEA-MEC 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
99-378  Log #26  HEA-MEC
(6.4.1.1)  Final Action: Accept in Principle

Submitter: Jared Van Middlesworth, KJWW Engineering Consultants
Recommendation:  Revise text to read:
"...level of 35 percent or greater.
Substantiation:  Make the distance requirement consistent with other industry standards and guidelines (ex. 2001 AIA Guidelines for the Design and Construction of Healthcare Facilities Table 7.2).
Committee Meeting Action: Accept in Principle
Committee Statement:  See Committee Proposal 99-389 (Log #CP400), section 9.4.3, 9.5.3, and 9.6.3 of the preprint.

99-152  Log #178  HEA-MEC
(5.1.3.3.3)  Final Action: Reject

Submitter: Dale Woodin, ASHE-American Society for Healthcare Engineering of the American Hospital Association (AHA)
Recommendation:  Revise text to read as follows:
5.1.3.3.3 Ventilation for Outdoor Locations. 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. Walls that are shared with other enclosures or with buildings shall be permitted to not have openings but mechanical ventilation shall be installed.
Substantiation:  Ventilation of some means should be required, if you can not install louvered openings in the building wall because of occupancy on the other side, then install an exhaust fan or duct to existing exhaust.
This is not original material; its reference/source is as follows:
I am proposing this revision on behalf of the ASHE Medical Gas Workgroup chaired by Ed Tinsley
Committee Meeting Action:  Reject
Committee Statement:  This proposal is on chapter 5, Gas and Vacuum Systems but the subject of ventilation is addressed with the TC on Mechanical Systems. Outdoor storage ventilation requirements are covered in NFPA 55, therefore section 5.1.3.3.3 is being deleted. See section 9.3.7.2 in the preprint.

99-516  Log #312  HEA-MEC
(A.5.1.3.3.3.1(D)(New))  Final Action: Accept in Principle

Submitter: John M. Skinner, Medical Equipment Technology, Inc.
Recommendation:  Add new text to read as follows:

****Insert Table A.5.1.3.3.3.1(D) Here****

Substantiation:  There is not any information on the sizing of rooms for tank storage for Mechanical Contractors and Gas Maintenance Personnel.
Committee Meeting Action:  Accept in Principle
Insert Table C.13.5 as modified, into Table A.9.3.7.5.1 of the preprint.
Committee Statement:  The information submitted can be derived from existing Table C.13.5 which is more comprehensive. See table A.9.3.7.5.1 in the preprint.
<table>
<thead>
<tr>
<th>GAS</th>
<th>SIZES</th>
</tr>
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<tbody>
<tr>
<td>OXYGEN USP</td>
<td>(E) 23.0 C.F.</td>
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<td>CARBON DIOXIDE</td>
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<td>NITROUS OXIDE</td>
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</tr>
<tr>
<td>HELIUM</td>
<td>(E) 17.7 C.F.</td>
</tr>
</tbody>
</table>
The mechanical ventilation system supplying anesthetizing locations shall have the capacity of controlling the relative humidity at a level of 35 percent or greater. This shall not apply to anesthetizing locations where only non operative diagnostic procedures are performed, such as CT scan, X-Ray, or MRI.

Substantiation: There is no evidence that having any specific relative humidity in a non operative anesthetizing location is of any value. It will increase cost without any proven value. The relative humidity should be determined by the nature of the equipment and the manufacturer's recommendations.

Committee Meeting Action: Accept in Principle

Committee Statement: See Committee Proposal 99-389 (Log #CP400), section 9.4.3, 9.5.3, and 9.6.3 in the preprint.
Submitter: Dale Woodin, ASHE-American Society for Healthcare Engineering of the American Hospital Association (AHA)

Recommendation: Revise text to read as follows:

Step 1 - Expand Chapter 6 to include these new systems

General
- Piping
- Ductwork
- Acoustics
- Energy Conservation – reference ASHRAE 90.1
- Commissioning
- Maintenance and Operations

Heating, Ventilating and Air Conditioning – reference ASHRAE 170 and CDC
- Temperature/Humidity Control – maintain at all times for Level 1
- Airborne Contaminant Control – Level 1
- Primary filter to MERV 6
- Secondary filter to HEPA
- Redundant power to prime mover
- Positive pressure
- Exhaust specifications

Smoke/Fire Control
- Vent smoke and products of combustion
- Automatically prevent recirculation
- Fire alarms system interface with HVAC controls system

Hoods
- Pharmacy
- Sterile Processing

Plumbing – New and existing – reference ASPE
- Domestic Water
- Water Heating
- Water Conditioning
- Energy Conservation
- Commissioning
- Non-potable water
- Potable Water
- Black Waste Water
- Grey Waste Water
- Clear Waste Water
- Rainwater
- Waste & Vent
- Fixtures
- Acoustics

Step 2 – revise Mechanical Issues Currently Addressed in 99

Ventilation
- Lab – 11.1.3 – page 102, 11.3.4 – page 103, 11.7.4.1 – page 104 – not design information – only general information on negative pressure and exhaust duct (not corridors) and 6.4.2 – page 82 – and 11.8.1.2 – page 105
- Fume hood and biological safety cabinet – 6.4.3 – pages 82 & 83
- Contingency Plan for ventilation system failure – 12.3.3.2 – page 107
- OR & anesthetizing areas (and humidity control) – 13.4.1.2.1 – page 109 – and 6.4.1 – page 82 – and 6.6.1 – page 83
- O2 & NO tank storage rm & manifold enclosures – 13.4.1.2.7.1 – pg 110
- Hyperbaric facilities – Class A – 20.4.2 – page 115, Class B page 116, also pages 121 (CO monitoring) and 122 (flammable gases)
- Piped Gas Rooms – 6.6.1.2 – page 83

WAGD – 5.1.3.7 (appendix states using HVAC not within scope of chapter 5 – Medical Gas and Vacuum)
EPS Room – 4.4.1.1.12 pages 27 & 28
Emergency Power - Heating equipment loads for connection – 4.4.2.2.3.5 - page 32 – and 4.5.2.2.3.4 – page 34
Medical Air system filters – 5.1.3.5.8 – page 44
Window air conditioning units – 6.4.1.5 – page 82
Heating
Med gas storage room – 5.3.3.3.6.7 – page 99
Lab heating fans – 8.4.2.2.2.4 – page 105
Step 3 – Add related subjects in Annexes
Ventilation for Transfiling
Corridor Transfer
Ventilation during Construction Projects
Shop Compressed Air
Pneumatic Tube Transport Systems
Pure Water Systems – AAMI
Acid Dilution
Grease Interceptors
Silver Recovery
Laser gas disposal
Smoke Control in OR

Substantiation: Many of these items are addressed in a fragmented manner throughout 99 – consolidation to one chapter will improve the ease of use of the document. In addition there are several excellent references that should be noted in 99 (and crosswalk information or abstract provided – summaries of each of these is attached to this proposal)
Note: Supporting material is available for review at NFPA Headquarters.

This is not original material; its reference/source is as follows:
Proposing revision on behalf of the ASHE Environmental Safety and HVAC Workgroups.

Committee Meeting Action: Accept in Principle in Part

Labs have been removed from NFPA 99. New chapters refer to NFPA 45.
In reference to 12.3.3.2 contingency plan for ventilation system failure the ventilation system redundancies have been incorporated into the committee proposal. The proposed language will be passed to HEA-HYP.
Hyperbaric facilities are not the responsibility of this committee.
Medical air filters are not the responsibility of this committee.

Committee Statement: See Committee Proposal 99-389 (Log #CP400) and Proposal 99-382 (Log #CP401).

No proposed language for many of the items in the proposal. The submitter is encouraged to submit proposed language at the ROC stage.

99-151 Log #98a HEA-MEC (5.1.3.3.1(E)) Final Action: Accept in Principle

Submitter: Corky Bishop P.E., Medical Gas Management, LLC
Recommendation: Revise text to read as follows:
(E) Where natural ventilation is permitted, it shall consist of two louvered openings, each having a minimum free area of 46,500 mm² (72 in.²), with one located within 300 mm (1 ft) of the floor and one located within 300 mm (1 ft) of the ceiling. Natural venting shall be to outside atmosphere.

Substantiation: Natural venting should be to outside atmosphere to avoid oxygen deficient or enriched atmospheres inside the building. What good does it do to vent leaking nitrous oxide cylinders to the adjacent lunchroom or patient holding area?

Committee Meeting Action: Accept in Principle
The proposed language has been revised and incorporated into the new chapter. See Committee Action on Committee Proposal 99-389 (Log #CP400).

Committee Statement: This proposal was slightly modified and incorporated into Committee Proposal 99-389 (Log #CP400). See section 9.3.7.5.2.

Printed on 3/2/2010
(5.1.3.3.3.1(A)) should remain in pipe gas systems. Remainder of the proposal has been revised and incorporated into the new chapter. Renumber accordingly.

Committee Meeting Action: Accept in Principle in Part

Section 5.1.3.3.3.1(A) should remain in pipe gas systems. Remainder of the proposal has been revised and incorporated into the new chapter. Renumber accordingly.

Committee Statement: This proposal was incorporated into Proposal 99-389 (Log #CP400). See section 9.3.7.5.2 and 9.3.7.5.3 in the preprint.

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99-148 Log #279a HEA-MEC
(5.1.3.3.3.1(B))

Submitter: Keith Ferrari, Praxair

Recommendation: Revise text to read as follows:

(B) 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. Mechanical ventilation shall be at a rate of not less than 0.3048 m³/min/m² (1 ft³/min/ft²) of floor area over the area of storage or use. A means of makeup air shall be provided.

Substantiation: Mechanical ventilation for medical gas storage is extremely important. And also as important is the mechanical ventilation rate that removes asphyxiant gasses that can displace oxygen in the room due to the low ventilation rate. When mechanical ventilation was added to the NFPA 99 standard, no reference to ventilation rates was defined. We find 10 ft x 10 ft storage rooms with the same ventilation designs as 50 ft by 50 ft storage rooms. The mechanical rate listed above is listed in the national and local mechanical and building codes as well as NFPA 55.

This is not original material; its reference/source is as follows:
NFPA 99, 2005 handbook; NFPA 55; IMC, IBC, NFPA 5000

Committee Meeting Action: Accept in Principle

See Committee Action on Proposal 99-146 (Log #131a). Incorporate these requirements into Committee Proposal 99-389 (Log #CP400).

Committee Statement: This proposal was given to the TC on MEC for action. The TC on PIP recommended this proposal be accepted. The proposed language has been revised and incorporated into the new chapter shown in Committee Proposal 99-389 (Log #CP400). See section 9.3.7.5.3 in the preprint.
Add new chapters as follows: "Chapter 9 - Heating" as shown below:

Chapter 9 Heating

9.1 Applicability.

9.1.1 This chapter shall apply to construction of new health care facilities except as noted in 9.1.2 and 9.1.3.

9.1.2 This chapter shall also apply to the altered, renovated, or modernized portions of existing systems or individual components. Existing construction or equipment shall be permitted to be continued in use when such use does not constitute a distinct hazard to life.

9.1.4 Definitions.

9.1.4.1* Humidity Control. The intentional addition or removal of moisture to or from a space in order to maintain a measured humidity level in that space.

9.1.4.2 Ventilation. The mechanical or natural movement of air.

9.2* System Category Criteria.

The health care facility's governing body that has the responsibility for the building system components as identified in this chapter shall designate, in accordance with the function of each space, building system categories in accordance with Sections 4.1 through 4.2.

9.3 General.

9.3.1 Heating, Cooling, Ventilating, Humidity Control, and Process Systems.

9.3.1.1 Heating, cooling, ventilating, humidity control, and process systems serving spaces or providing health care functions covered by this code or listed within ASHRAE 170 shall be provided in accordance with ASHRAE 170.

9.3.1.2 Laboratories shall comply with NFPA 45.

9.3.2 Energy Conservation. Heating, cooling, ventilating, humidity control, and process systems serving spaces or providing health care functions covered by this code shall comply with ASHRAE 90.1.

9.3.3 Commissioning.

9.3.3.1 Heating, cooling, ventilating, humidity control, and process systems serving spaces or providing health care functions covered by this code shall be commissioned in accordance with ASHRAE 90.1.

9.3.3.2 Commissioning shall follow ASHRAE Guidelines 0 and 1 or any other publically reviewed document acceptable to the authority having jurisdiction.

9.3.4 Piping. Heating, cooling, ventilating, humidity control, and process systems serving spaces or providing health care functions covered by this code shall utilize piping systems complying with ASME standards.

9.3.5 Ductwork. Heating, cooling, ventilating, humidity control and process systems serving spaces or providing health care functions covered by this code shall utilize ductwork systems complying with SMACNA standards.

9.3.6 Acoustics. Heating, cooling, ventilating, humidity control, and process systems serving spaces or providing health care functions covered by this code shall not exceed noise criteria for specific spaces as listed in the ASHRAE handbook.

9.3.7 Medical Gas Storage or Transfilling.

9.3.7.1 All gases, other than medical gases, shall be provided with ventilation per NFPA 55, Compressed Gases and Cryogenic Fluids Code.

9.3.7.2 Outdoor storage/installations for medical gases and cryogenic fluids shall be provided with ventilation per NFPA 55, Compressed Gases and Cryogenic Fluids Code.

9.3.7.3* Medical gases and cryogenic fluids that are in use per Chapter 115 shall not require special ventilation.

9.3.7.4 Transfilling area shall be provided with ventilation in accordance with NFPA 55.

9.3.7.5 Indoor storage or manifold areas and storage or manifold buildings for medical gases and cryogenic fluids shall be provided with natural ventilation or mechanical exhaust ventilation in accordance with 9.3.7.5.1 through 9.3.7.8.

9.3.7.5.1* For the purposes of this section, the volume of fluid (gas and liquid) to be used in determining the ventilation requirements shall be the volume of the stored fluid when expanded to standard temperature and pressure (STP) of either the largest single vessel in the enclosed space or of the entire volume of the connected vessels that are on a common manifold in the enclosed space, whichever is larger.

9.3.7.5.2 Natural Ventilation.

9.3.7.5.2.1 Natural ventilation shall consist of two non-closable louvered openings, each having an aggregate free opening area of at least 155 cm² (24 in²) per 35 L (1000 ft³) of fluid designed to be stored in the space and in no case less than 465 cm² (72 in²).
9.3.7.5.2.2 One opening shall be located within 30 cm (1 ft) of the floor and one located within 30 cm (1 ft) of the ceiling. The openings shall be located to ensure cross ventilation.

9.3.7.5.2.4 Natural ventilation openings shall be directly to the outside atmosphere without ductwork.

9.3.7.5.2.5 Mechanical ventilation shall be provided if natural ventilation requirements cannot be met.

9.3.7.5.3 Mechanical Ventilation.

9.3.7.5.3.1 Mechanical exhaust to maintain a negative pressure in the space shall be provided continuously unless an alternative design is approved by the authority having jurisdiction.

9.3.7.5.3.2 Mechanical exhaust shall be at a rate of 1 L/sec of air flow for each 300 L (1 cfm per 5 ft³ of fluid) designed to be stored in the space and not less than 24 L/sec (50 cfm) nor more than 235 L/sec (500 cfm).

9.3.7.5.3.3 Mechanical exhaust inlets shall be unobstructed and shall draw its air from within 300 mm (1 ft) of the floor and adjacent to the cylinder or containers.

9.3.7.5.3.4 Mechanical exhaust air fans shall be supplied with electrical power from the essential electrical system.

9.3.7.5.3.5 Dedicated exhaust systems shall not be required permitted the system does not connect to spaces that contain combustible or flammable materials.

9.3.7.5.3.6 The exhaust duct material shall be non-combustible.

9.3.7.5.3.7 A means of make-up air shall be provided according to one of the following:

(1) Air shall be permitted to be transferred from adjacent spaces or outside the building that do not contain combustible of flammable materials via noncombustible ductwork.

(2) Air shall be permitted to be transferred from a corridor under the door up to the greater of 24 L/sec (50 cfm) or 15 percent of the room exhaust in accordance with NFPA 90A.

(3) Supply air shall be permitted to be provided from any building ventilation system that does not contain flammable or combustible vapors.

9.3.7.6 Discharge from the natural and mechanical ventilation systems shall be sited by a minimum separation distance in accordance with NFPA 55.

9.3.7.7 A storage room shall maintain a temperature no greater than 52°C (125°F).

9.3.7.8 A transfer or manifold room shall maintain a temperature no greater than 52°C (125°F) and no less than -7°C (20°F).

9.3.8 Waste Gas.

9.3.8.1 Removal of excess anesthetic gases from the anesthesia circuit shall be accomplished by WAGD as described in Chapter 5 or by an active or passive scavenging ventilation system.

9.3.8.1.1 Active Systems. A dedicated exhaust system with an exhaust fan shall be provided to interconnect all of the anesthesia gas circuits to provide sufficient air flow and negative pressure in the gas disposal tubing so that cross-contamination does not occur in the other circuits connected to the system.

9.3.8.1.2 Passive Systems.

9.3.8.1.2.1 A dedicated exhaust system with an exhaust fan shall be provided to exhaust snorkels at all of the anesthesia gas circuits to provide sufficient air flow to capture the gases, vapors, and particles expelled from the gas disposal tubing.

9.3.8.1.2.2 The snorkel shall include a minimum 25.4 mm (1 in.) diameter tubing connected to the exhaust system.

9.3.8.2 The exhausted air shall be vented to the external atmosphere.

9.3.8.3 The excess anesthetic gases shall be deposited into the exhaust stream either at the exhaust grille or further downstream in the exhaust duct.

9.3.9 Medical Plume Evacuation. Plumes from medical procedures including the use of lasers shall be captured by one of the following methods:

(1) Directly connected to a unfiltered dedicated exhaust system that discharges outside the building

(2) HEPA filtered and directly connected to a return or exhaust duct

(3) Chemically and thermally sterilized and returned to the space

9.3.10 Emergency Power System Room.

9.3.10.1 Heating, cooling, and ventilating of the emergency power system shall be in accordance with NFPA 110.

9.3.10.2 Maintenance of Temperature. The EPS shall be heated as necessary to maintain the water jacket temperature determined by the EPS manufacturer for cold start and load acceptance for the type of EPSS. [110:5.3.1]

9.3.10.3 Heating, Cooling, and Ventilating.

9.3.10.3.1* With the EPS running at rated load, ventilation airflow shall be provided to limit the maximum air temperature in the EPS room to the maximum ambient air temperature required by the EPS manufacturer. [110:7.7.1]

9.3.10.3.1.1 Consideration shall be given to all the heat rejected to the EPS equipment room by the energy converter, uninsulated or insulated exhaust pipes, and other heat-producing equipment. [110:7.7.1.1]

9.3.10.3.2 Air shall be supplied to the EPS equipment for combustion. [110:7.7.2]

9.3.10.3.2.1 For EPS supplying Level 1 EPSS, ventilation air shall be supplied directly from a source outside of the
building by an exterior wall opening or from a source outside the building by a 2-hour fire-rated air transfer system.

For EPS supplying Level 1 EPSS, discharge air shall be directed outside of the building by an exterior wall opening or to an exterior opening by a 2-hour fire-rated air transfer system.

Fire dampers, shutters, or other self-closing devices shall not be permitted in ventilation openings or ductwork for supply or return/discharge air to EPS equipment for Level 1 EPSS.

Ventilation air supply shall be from outdoors or from a source outside of the building by an exterior wall opening or from a source outside the building by a 2-hour fire-rated air transfer system.

Ventilation air shall be provided to supply and discharge cooling air for radiator cooling of the EPS when running at rated load.

Ventilation air supply and discharge for radiator cooled EPS shall have a maximum static restriction of 125 Pa (0.5 in.) of water column in the discharge duct at the radiator outlet.

Radiator air discharge shall be ducted outdoors or to an exterior opening by a 2-hour fire-rated air transfer switch.

Motor operated dampers, when used, shall be spring-operated to open and motor-closed. Fire dampers, shutters, or other self-closing devices shall not be permitted in ventilation openings or ductwork for supply or return/discharge air to EPS equipment for Level 1 EPSS.

The ambient air temperature in the EPS equipment room or outdoor housing containing Level 1 rotating equipment shall be not less than 4.5°C (40°F).

Units housed outdoors shall be heated as specified in 5.3.3 of NFPA 110, Standard for Emergency and Standby Power Systems.

Design of the heating, cooling, and ventilation system for the EPS equipment room shall include provision for factors including, but not limited to, the following:

1. Heat
2. Cold
3. Dust
4. Humidity
5. Snow and ice accumulations around housings
6. Louvers
7. Remote radiator fans
8. Prevailing winds blowing against radiator fan discharge air

Ventilation during construction shall be in accordance with AIA Guidelines for the Design and Construction of Health Care Facilities.

Category 1.

Category 1 heating systems shall be provided to maintain the space at minimum temperatures listed in ASHRAE/ANSI 170.

Redundant or standby heat generating sources shall be provided for Category 1 spaces such that if the largest piece of heat generating equipment fails, the remaining heat generating equipment shall be capable of maintaining the minimum temperature at all times.

Heating sources and their controls shall be powered from the essential electrical system.

Category 1 cooling systems shall be provided to maintain the space at maximum temperatures listed in ASHRAE/ANSI 170.

Redundant or standby cooling sources shall be provided for Category 1 spaces such that if the largest piece of cooling source equipment fails, the remaining cooling source equipment shall be capable of maintaining the maximum temperature at all times.

Self-contained cooling units that connect directly with outdoors through the building envelope shall not be permitted.

Category 1 humidity control shall be provided to maintain the space humidity consistent with ASHRAE/ANSI 170 or as required for the proper operation of life support equipment within the space, whichever is more strict.

Redundant or standby humidity control sources shall be provided for Category 1 spaces such that if the largest piece of humidity control source equipment fails, the remaining humidity control source equipment shall be capable of maintaining the maximum temperature at all times.

Ventilation,

Outdoor Air.
9.4.4.1.1 Ventilation systems for Category 1 spaces shall be provided to introduce outdoor air into a building as required by the applicable building code and ASHRAE/ANSI 170 to achieve acceptable indoor air quality through the dilution of indoor air contaminants.
9.4.4.1.2 The location of the source of outdoor air shall comply with ASHRAE/ANSI 170.
9.4.4.2 Supply Air.
9.4.4.2.1 Ventilation systems for Category 1 spaces shall be provided to supply air into Category 1 spaces in accordance with ASHRAE/ANSI 170.
9.4.4.2.2 Redundant or standby supply air sources shall be provided such that if the largest piece of supply air source equipment fails, the remaining supply air source equipment shall be capable of maintaining the supply air flow.
9.4.4.2.3 Supply air systems for Category 1 spaces shall be provided with a smoke control system per NFPA 92A.
9.4.4.3 Return Air.
9.4.4.3.1 Ventilation systems for Category 1 spaces shall be provided to remove air not required to be exhausted from Category 1 spaces by ASHRAE 170 in accordance with ASHRAE 170.
9.4.4.3.2 Redundant or standby return air sources shall be provided such that if the largest piece of return air source equipment fails, the remaining return air source equipment shall be capable of maintaining the return air flow.
9.4.4.3.3 Return air systems for Category 1 spaces shall be provided with a smoke control system per NFPA 92A.
9.4.4.4 Exhaust Air.
9.4.4.4.1 Ventilation systems for Category 1 spaces shall be provided to remove air that is required to be exhausted from Category 1 spaces by ASHRAE 170 in accordance with ASHRAE 170.
9.4.4.4.2 Redundant or standby exhaust air sources shall be provided such that if the largest piece of exhaust air source equipment fails, the remaining exhaust air source equipment shall be capable of maintaining the exhaust air flow.
9.4.4.4.3 Exhaust air systems for Category 1 spaces shall be provided with a smoke control system in accordance with NFPA 92A.
9.4.5 Airborne Contaminant Control.
9.4.5.1 Ventilation systems for Category 1 spaces shall be provided to control contaminants in the air using air flow, dilution, and filtration in accordance with ASHRAE/ANSI 170.
9.4.5.2 Pressurization for Category 1 airborne contaminant control systems shall be a minimum of 0.01 wc (2.5 Pa) across each barrier used as an control mechanism required by ASHRAE 170.
9.4.5.3 Air movement relationships to adjacent areas (positive/negative/neutral) shall be in conformance with ASHRAE/ANSI 170.
9.4.5.4 Filtration shall be in conformance with ASHRAE/ANSI 170.
9.4.5.5 Wet coils or drain pans shall not be permitted in these spaces.
9.4.6 Process Systems. Process heating, cooling, and ventilating systems necessary to support equipment essential to the function of Category 1 areas shall be provided with standby or redundant generation sources such that if the largest piece of source equipment serving the processes fails, the remaining source equipment serving the processes shall be capable of serving the load.
9.4.7 On-Site Fuel Storage.
9.4.7.1 On-site fuel or the essential electrical system or both as required for proper operation of the system including controls shall be provided to serve heating, cooling, ventilating, humidity control, and process systems for Category 1 spaces.
9.4.7.2 On-site storage shall be provided for enough fuel to continue operations of Category 1 spaces for a minimum of 96 hours of normal operation.
9.5 Category 2.
9.5.1 Heating.
9.5.1.1 Category 2 heating systems shall maintain the space at minimum temperatures listed in ASHRAE/ANSI 170 while the space is in use.
9.5.1.2 Provisions to allow the system to continue to operate shall be provided.
9.5.1.2.1 On-site redundant or standby heating systems shall not be required.
9.5.1.2.2 Mobile or temporary systems shall be acceptable.
9.5.2 Cooling.
9.5.2.1 Category 2 cooling systems shall maintain the space at maximum temperatures listed in ASHRAE/ANSI 170 while the space is in use.
9.5.2.2 Provisions to allow the system to continue to operate shall be provided.
9.5.2.2.1 On-site redundant or standby cooling systems shall not be required.
9.5.2.2.2 Mobile or temporary systems shall be acceptable.
9.5.2.3 Self-contained cooling units that connect directly with outdoors through the building envelope shall not be permitted.
9.5.3 Humidity Control.
9.5.3.1 Category 2 areas shall require humidity control as required to maintain a minimal level of comfort as consistent with ASHRAE/ANSI 170 standards.
9.5.3.2 Humidity shall be permitted to exceed comfort ranges for a period of 36 consecutive hours unless this condition will create a hazard for life support equipment.
9.5.3.3 Redundancy for humidification control equipment shall not be required.
9.5.4 Ventilation.
9.5.4.1 Outdoor Air.
9.5.4.1.1 Ventilation systems for Category 2 spaces shall be provided to introduce outdoor air into a building as required by the applicable building code and ASHRAE/ANSI 170 to achieve acceptable indoor air quality through the dilution of indoor air contaminants.
9.5.4.1.2 The location of the source of outdoor air shall comply with ASHRAE/ANSI 170.
9.5.4.2 Supply Air.
9.5.4.2.1 Ventilation systems for Category 2 spaces shall be provided to supply air into Category 2 spaces in accordance with ASHRAE/ANSI 170.
9.5.4.2.2 Provisions to allow the system to continue to operate shall be provided.
9.5.4.2.2.1 On-site redundant or standby supply air systems shall not be required.
9.5.4.2.2.2 Mobile or temporary systems shall be acceptable.
9.5.4.2.3 Where required by NFPA 90A, supply air systems shall be provided with smoke detection and a supply air smoke damper in accordance with NFPA 90A.
9.5.4.2.4 The ventilation system shall be provided with controls such that the supply air smoke damper as required by NFPA 90A shall close when the supply fans are off and open when the supply fans are on unless smoke is detected in the supply air stream in which case the smoke damper will close and the supply fans will stop.
9.5.4.3 Return Air.
9.5.4.3.1 Ventilation systems for Category 2 spaces shall be provided to remove air not required to be exhausted from Category 2 spaces by ASHRAE 170 in accordance with ASHRAE 170.
9.5.4.3.2 Provisions to allow the system to continue to operate shall be provided.
9.5.4.3.2.1 On-site redundant or standby return air systems shall not be required.
9.5.4.3.2.2 Mobile or temporary systems shall be acceptable.
9.5.4.3.3 Ventilation systems for Category 2 spaces shall be provided with control dampers to either return the air removed from the space back into the supply air or to discharge it from the building.
9.5.4.3.4 Where required by NFPA 90A, return air systems shall be provided with smoke detection and return air smoke dampers in accordance with NFPA 90A.
9.5.4.3.5 Category 2 spaces shall be provided with area smoke detection per NFPA 72.
9.5.4.3.6 The ventilation system shall be provided with controls such that the return air smoke dampers as required by NFPA 90A shall close when the return fans are off.
9.5.4.3.7 If smoke is detected in a Category 2 space, then the return air smoke dampers as required by NFPA 90A in the duct path to the Category 2 space in which smoke has been detected shall remain open, the return fans shall continue to operate, and the control dampers shall be positioned such that all of the return air is discharged from the building and none of the return air is recirculated into the supply air.
9.5.4.3.8 If smoke is detected in the return air system but smoke is not detected in the Category 1 space, the smoke dampers required by NFPA 90A shall close and the return fans shall stop.
9.5.4.4 Exhaust Air.
9.5.4.4.1 Ventilation systems for Category 2 spaces shall be provided to remove air that is required to be exhausted from Category 2 spaces by ASHRAE 170 in accordance with ASHRAE 170.
9.5.4.4.2 Provisions to allow the system to continue to operate shall be provided.
9.5.4.4.2.1 On-site redundant or standby exhaust systems shall not be required.
9.5.4.4.2.2 Mobile or temporary systems shall be acceptable.
9.5.4.5 Airborne Contaminant Control.
9.5.4.5.1 Ventilation systems for Category 2 spaces shall be provided to control contaminants in the air using air flow, dilution, and filtration in accordance with ASHRAE 170.
9.5.4.5.2 Pressurization for Category 2 airborne contaminant control systems shall be a minimum of 0.01 wc (2.5 Pa) across each barrier used as a control mechanism required by ASHRAE 170.
9.5.4.5.2.1 Air movement relationships to adjacent areas (positive/negative/neutral) shall be in conformance with ASHRAE/ANSI 170.
9.5.4.5.2.2 Filtration shall be in conformance with ASHRAE/ANSI 170.
9.5.4.5.3 Wet coils or drain pans shall not be permitted in these spaces.
9.5.5 Process Systems. Provisions to allow process heating, cooling, and ventilating systems necessary to support equipment essential to the function of Category 2 areas shall be provided.

9.5.5.1 On-site redundant or standby exhaust systems shall not be required.

9.5.5.2 Mobile or temporary systems shall be acceptable.

9.5.6 On-Site Fuel Storage.

9.5.6.1 On-site fuel or the essential electrical system or both as required for proper operation of the system including controls shall be provided to serve heating, cooling, ventilating, humidity control, and process systems for Category 1 spaces.

9.5.6.2 On-site storage shall be provided for enough fuel to continue operations of Category 1 spaces for a minimum of 24 hours of normal operation.

9.6 Category 3.

9.6.1 Heating.

9.6.1.1 Category 3 heating systems shall maintain the space at minimum temperatures listed in ASHRAE/ANSI 170 while the space is in use.

9.6.1.2 Redundant or standby heating systems shall not be required.

9.6.2 Cooling.

9.6.2.1 Category 3 cooling systems shall maintain the space at maximum temperatures listed in ASHRAE/ANSI 170 while the space is in use.

9.6.2.2 Redundant or standby cooling systems shall not be required.

9.6.2.3 Self-contained cooling units that connect directly with outdoors through the building envelope shall not be permitted.

9.6.3 Humidity Control.

9.6.3.1 Category 3 areas shall require humidity control as required to maintain a minimal level of comfort as consistent with ASHRAE/ANSI 170 standards.

9.6.3.2 Redundancy for humidification control equipment shall not be required.

9.6.4 Ventilation.

9.6.4.1 Outdoor Air.

9.6.4.1.1 Ventilation systems for Category 3 spaces shall be provided to introduce outdoor air into a building as required by the applicable building code and ASHRAE/ANSI 170 to achieve acceptable indoor air quality through the dilution of indoor air contaminants.

9.6.4.1.2 The location of the source of outdoor air shall comply with ASHRAE/ANSI 170.

9.6.4.2 Supply Air.

9.6.4.2.1 Ventilation systems for Category 3 spaces shall be provided to supply air into Category 2 spaces in accordance with ASHRAE/ANSI 170.

9.6.4.2.2 Redundant or standby supply air systems shall not be required.

9.6.4.2.3 Supply air systems shall comply with NFPA 90A.

9.6.4.3 Return Air.

9.6.4.3.1 Ventilation systems for Category 3 spaces shall be provided to remove air not required to be exhausted from Category 3 spaces by ASHRAE 170 in accordance with ASHRAE 170.

9.6.4.3.2 Redundant or standby heating systems shall not be required.

9.6.4.3.3 Return air systems shall comply with NFPA 90A.

9.6.4.4 Exhaust Air.

9.6.4.4.1 Ventilation systems for Category 2 spaces shall be provided to remove air that is required to be exhausted from Category 2 spaces by ASHRAE 170 in accordance with ASHRAE 170.

9.6.4.4.2 Redundant or standby heating systems shall not be required.

9.6.4.4.3 Exhaust air systems shall comply with NFPA 90A.

9.6.4.5 Airborne Contaminant Control.

9.6.4.5.1 Ventilation systems for Category 3 spaces shall be provided to control contaminants in the air using air flow, dilution, and filtration in accordance with ASHRAE 170.

9.6.4.5.2 Pressurization for Category 3 airborne contaminant control systems shall be a minimum of 0.01 wc (2.5 Pa) across each barrier used as an control mechanism required by ASHRAE 170.

9.6.4.5.3 Air movement relationships to adjacent areas (positive/negative/neutral) shall be in conformance with ASHRAE/ANSI 170.

9.6.4.5.4 Filtration shall be in conformance with ASHRAE/ANSI 170.

9.6.4.5.5 Wet coils or drain pans shall not be permitted in these spaces.

9.6.5 Process Systems. Redundant or standby heating systems shall not be required.

9.6.6 On-Site Fuel Storage. On-site fuel or the essential electrical system shall not be required to serve heating,
cooling, ventilating, humidity control, and process systems for Category 3 spaces.

A.9.1.4.1 Standard temperature and pressure is 21.1°C and 101.325 kPa (70°F and 14.696 psi).

A.9.2 Table A.9.2 represents a typical analysis for a health care facility. The governing body, or its designate, should complete a system's analysis based on its functional program. A table similar to Table A.9.2 can be developed to transfer information from the governing body to designers and/or authorities having jurisdiction.

***INSERT TABLE A.9.2 HERE***

A.9.3.7.3 This section only covers fluids that are stored in enclosed spaces.

A.9.3.7.5.1 Table A.9.3.7.5.1 shows the cylinder volumes and weights of typical medical gas cylinders.

****INSERT Table A.9.3.7.5.1 Typical Medical Gas Cylinders’ Volume and Weight of Available Contents here***

A.9.3.10.3.1 During operation, EPS and related equipment reject considerable heat that needs to be removed by proper ventilation or air-cooling. In some cases, outdoor installations rely on natural air circulation, but enclosed installations need properly sized, properly positioned ventilation facilities, to prevent recirculation of cooling air. The optimum position of air-supply louvers and radiator air discharge is on opposite walls, both to the outdoors. [110: A.7.7.1]

A.9.4.7.2 The intent of this code is not for the facility to store 96 hours of fuel for the peak load on-site. The intent is for the on-site storage to be sized such that the loads of the Category 1 spaces, including heat, ventilation and emergency power multiplied by the amount of fuel needed for 96 hours for Category 1 and 24 hours for Category 2 is stored on-site. The oil can be used in accordance with the management plan of the facility or as required by the particular circumstances. This formula only calculates the size of the storage, not how it is used. No special provisions for shutting down portions of the facility to preserve the fuel levels for specific uses are implied by this. The ahj can modify the requirements for the storage capacity as necessary.

**Substantiation:** This new chapter on Heating Systems was developed because NFPA 99 did not address this important system used in health care facilities. The committee correlated with the ASHRAE documents that address heating, cooling, ventilation, humidity control and commissioning. Many of the other requirements for transfiling and storage of medical gases and ventilation were consolidated from other chapters of NFPA 99.

**Committee Meeting Action:** Accept
<table>
<thead>
<tr>
<th>Function</th>
<th>Heating</th>
<th>Cooling</th>
<th>Ventilating</th>
<th>Humidity</th>
<th>Process</th>
<th>Fuel</th>
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<td>2</td>
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<tr>
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<td>3</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Class B surgical procedures</td>
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<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
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<td>1</td>
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<td>1</td>
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Table A.9.3.7.5.1 Typical Medical Gas Cylinders’ Volume and Weight of Available Contents. [All Volumes at 21.1°C (70°F) and 101.325 kPa (14.696 psi)].

<table>
<thead>
<tr>
<th>Cylinder Style and Nominal Volume</th>
<th>Dimensions</th>
<th>Contents</th>
<th>Carbon Dioxide</th>
<th>Helium</th>
<th>Nitrogen</th>
<th>Nitrous Oxide</th>
<th>Oxygen</th>
<th>Helium</th>
<th>CO₂</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>1.43 kPa (87)</td>
<td>5778 (838)</td>
<td>370 (13)</td>
<td>—</td>
<td>13100 (1900)</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>8.89 x 33 cm</td>
<td>370 (13)</td>
<td>200 (7)</td>
<td>0.68 (1–8)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

(3 x ½ in. O.D. x 13 in.)

|                                  | D           | 2.88 kPa (176) | 13100 (1900) | 5778 (838) | 11032 (1600) | 370 (13) | 940 (33) | 370 (13) | 940 (33) | 400 (14) | 300 (11) | 400 (14) | 1.73 (3–13) | — | — | 1.73 (3–13) | — | * | * |
|                                  | L           | 10.8 x 43 cm  | 375 (13)     | 940 (33)  | 300 (11)   | 370 (13) | 940 (33) | 400 (14) | 300 (11) | 400 (14) | 1.73 (3–13) | — | — | 1.73 (3–13) | — | * | * |

(4 ½ in. O.D. x 17 in.)

|                                  | E           | 4.80 kPa (293) | 13100 (1900) | 5778 (838) | 11032 (1600) | 370 (13) | 940 (33) | 370 (13) | 940 (33) | 400 (14) | 300 (11) | 400 (14) | 1.73 (3–13) | — | — | 1.73 (3–13) | — | * | * |
|                                  | L           | 1000 x 43 cm  | 625 1590 500 500 610 1590 660 500 660

99/LCP400/R/A2011/ROP
<table>
<thead>
<tr>
<th>Diameter</th>
<th>Volume</th>
<th>Weight</th>
<th>Pressure</th>
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</thead>
<tbody>
<tr>
<td>10.8 x 66 cm</td>
<td></td>
<td>10.8 ft³</td>
<td>22 lb-oz</td>
</tr>
<tr>
<td>4 x ½ in. O.D. x 26 in.</td>
<td></td>
<td>17.8 ft³</td>
<td>2850 lb</td>
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<tr>
<td>7 in. O.D. x 43 in.</td>
<td></td>
<td>21.6 ft³</td>
<td>5050 lb</td>
</tr>
<tr>
<td>8 x in. O.D. x 51 in.</td>
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<td>23.5 ft³</td>
<td>6550 lb</td>
</tr>
<tr>
<td>9 in. O.D. x 51 in.</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

99/LCP400/R/A2011/ROP
Notes: These are computed contents based on nominal cylinder volumes and rounded to no greater variance than ±1%.

* The pressure and weight of mixed gases will vary according to the composition of the mixture.

† 275 ft³/7800 L cylinders at 2490 psig are available upon request.

Source: Compressed Gas Association, Inc.
Add new chapters as follows: "Chapter 8 - Plumbing" as shown below:

**Chapter 8 Plumbing**

8.1 Applicability.

8.1.1 This chapter shall apply to construction of new health care facilities except as noted in 8.1.2 and 8.1.3.

8.1.2 This chapter shall also apply to the altered, renovated, or modernized portions of existing systems or individual components.

8.1.3 Existing construction or equipment shall be permitted to be continued in use when such use does not constitute a distinct hazard to life.

8.1.4 Definitions.

8.1.4.1 Nonmedical Compressed Air. Air that is used for purposes other than patient care or medical devices that provide direct patient care.

8.2* System Category Criteria.

The health care facility’s governing body that has the responsibility for the building system components as identified in this chapter shall designate, in accordance with the function of each space, building system categories in accordance with Sections 4.1 through 4.2.

8.3 General Requirements.

8.3.1 Potable Water. Potable water systems shall comply with applicable plumbing codes.

8.3.2 Nonpotable Water. Nonpotable water systems shall comply with applicable plumbing codes.


8.3.4 Water Conditioning. Water shall be treated or heated to control pathogens in the water.

8.3.5 Nonmedical Compressed Air.

8.3.5.1 Nonmedical air compressors shall comply with UL and ASME.

8.3.5.2 Nonmedical compressed air shall not be used for medical instruments or for human respiration.

8.3.6 Special Use Water Systems. When special use water systems are required, application of standards shall be provided in accordance with appropriate publicly reviewed nationally published standards.

8.3.7 Grease Interceptors.

8.3.7.1 Sizing for grease interceptors shall be permitted per local plumbing codes on an engineered calculation factoring meals served per day.

8.3.7.2 Grease interceptors shall be sized to capture grease from kitchen cooking and cleaning functions and shall prohibit introduction of grease into the sanitary sewer system.

8.3.8 Fixtures. Plumbing fixtures shall be suitable for the intended use.

8.3.9 Black Waste Water. Black waste water shall be discharged to a sanitary sewer or private on-site waste treatment system as permitted by applicable plumbing codes.

8.3.10 Grey Waste Water.

8.3.10.1 Grey waste water shall be permitted to be stored on-site and used for nonpotable water systems as permitted by applicable plumbing codes.

8.3.10.2 Grey waste water shall not be used for any system that aerosolizes the water in a breathing zone or has direct contact with humans.

8.3.10.3 Excess grey waste water shall be discharged to a sanitary sewer or private on-site waste treatment system as permitted by applicable plumbing codes.

8.3.11 Clear Waste Water.

8.3.11.1 Clear waste water shall be permitted to be stored on-site and used for nonpotable water systems as permitted by applicable plumbing codes.

8.3.11.2 Clear waste water that has been treated to potable water standards shall be permitted to be used as nonpotable water.

8.3.11.3 Clear waste water that has not been treated to potable water standards shall not be used for any system that aerosolizes the water in a breathing zone or has direct contact with humans.

8.3.11.4 Excess clear waste water shall be discharged to a storm sewer, held in detention ponds, or recharged into the water table as permitted by applicable plumbing codes.

8.4 Category 1.
8.4.1 Potable Water. Redundant or standby potable water sources shall be provided for Category 1 uses such that if the primary source of potable water fails, then the Category 1 uses of nonpotable water shall be capable of operating.

8.4.2 Nonpotable Water. Redundant or standby nonpotable water sources shall be provided for Category 1 uses such that if the primary source of nonpotable water fails, then the Category 1 uses of nonpotable water shall be capable of operating.

8.4.3 Water Heating. Redundant or standby water heating sources shall be provided for Category 1 uses such that if the largest piece of potable water heating equipment fails, the remaining potable water heating equipment shall be capable of maintaining the minimum temperature at all times.

8.4.4 Water Conditioning. Redundant or standby water conditioning systems shall be provided for Category 1 spaces such that if the largest piece of water conditioning equipment fails, the remaining water conditioning equipment shall be capable of maintaining the load.

8.4.5 Nonmedical Compressed Air. Redundant or standby nonmedical compressed air sources shall be provided for Category 1 spaces such that if the largest piece of nonmedical compressed air source equipment fails, the remaining non-medical compressed air source equipment shall be capable of maintaining the required flow and pressure to serve all Category 1 uses.

8.4.6 Special Use Water Systems. Redundant or standby special use water sources shall be provided for Category 1 spaces such that if the largest piece of special use water equipment fails, the remaining special use water equipment shall be capable of maintaining the flow and pressure to serve all Category 1 uses.

8.5 Category 2.

8.5.1 Potable Water. Provisions to allow the potable water system to continue to operate shall be provided.

8.5.1.1 On-site redundant or standby potable water sources shall not be required.

8.5.1.2 Mobile or temporary systems shall be acceptable.

8.5.2 Nonpotable Water. Provisions to allow the nonpotable water system to continue to operate shall be provided.

8.5.2.1 On-site redundant or standby nonpotable water sources shall not be required.

8.5.2.2 Mobile or temporary systems shall be acceptable.

8.5.3 Water Heating. Provisions to allow the water heating system to continue to operate shall be provided.

8.5.3.1 On-site redundant or standby water heating sources shall not be required.

8.5.3.2 Mobile or temporary systems shall be acceptable.

8.5.4 Water Conditioning. Provisions to allow the water conditioning system to continue to operate shall be provided.

8.5.4.1 On-site redundant or standby water conditioning sources shall not be required.

8.5.4.2 Mobile or temporary systems shall be acceptable.

8.5.5 Nonmedical Compressed Air. Provisions to allow the nonmedical compressed air system to continue to operate shall be provided.

8.5.5.1 On-site redundant or standby nonmedical compressed air sources shall not be required.

8.5.5.2 Mobile or temporary systems shall be acceptable.

8.5.6 Special Use Water Systems. Provisions to allow the special use water system to continue to operate shall be provided.

8.5.6.1 On-site redundant or standby special use water sources shall not be required.

8.5.6.2 Mobile or temporary systems shall be acceptable.

8.6 Category 3.

8.6.1 Potable Water. Redundant or standby potable water systems shall not be required.

8.6.2 Nonpotable Water. Redundant or standby nonpotable systems shall not be required.

8.6.3 Water Heating. Redundant or standby water heating systems shall not be required.

8.6.4 Water Conditioning. Redundant or standby water conditioning systems shall not be required.

8.6.5 Nonmedical Compressed Air. Redundant or standby nonmedical compressed air systems shall not be required.

8.6.6 Special Use Water Systems. Redundant or standby special use water systems shall not be required.

A.8.2 Table A.8.2 represents a typical analysis for a health care facility. The governing body, or its designate, should complete a system's analysis based on its functional program. A table similar to Table A.8.2 can be developed to transfer information from the governing body to designers and/or authorities having jurisdiction.

***Insert table A.8.2 here***

(99_LCP401_R_Tb A.8.2 (cut & pasted from preprint)
<table>
<thead>
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<th>Function</th>
<th>Potable</th>
<th>Nonpotable</th>
<th>Special Use</th>
<th>Water Conditioning</th>
<th>Water Heating</th>
<th>Process Air</th>
<th>Fuel</th>
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<td>n/a</td>
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<td>n/a</td>
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Previously NFPA 99 did not address plumbing. This is new chapter on plumbing addresses issues such as potable water, non-potable water, water conditioning, non medical compressed air, grease interceptors, black and gray waste water, clear water and special use water supplies. These systems are used in health care facilities with very little guidance until now.

Committee Meeting Action: Accept

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(B) 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. Mechanical ventilation shall be at a rate of not less than 0.3048 m³/min/m² (1 ft³ min/ft²) of floor area over the area of storage or use. A means of makeup air shall be provided.

Mechanical ventilation for medical gas storage is extremely important. And also as important is the mechanical ventilation rate that removes asphyxiant gasses that can displace oxygen in the room due to the low ventilation rate. When mechanical ventilation was added to the NFPA 99 standard, no reference to ventilation rates was defined. We find 10 ft x 10 ft storage rooms with the same ventilation designs as 50 ft by 50 ft storage rooms. The mechanical rate listed above is listed in the national and local mechanical and building codes as well as NFPA 55.

This is not original material; its reference/source is as follows:
NFPA 99, 2005 handbook; NFPA 55; IMC, IBC, NFPA 5000

Committee Meeting Action: Accept in Principle

See Committee Action on Proposal 99-145 (Log #131). This proposal will be given to the TC on MEC.

Committee Statement: This proposal will be given to the TC on MEC for action. The TC on PIP recommends this proposal be accepted.

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(A) Where the total volume of medical gases connected and in storage is greater than 84,950 L (3000 ft³) at STP, 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. Walls that are shared with other enclosures or with buildings shall be permitted to not have openings but mechanical ventilation shall be installed.

Ventilation of some means should be required, if you can not install louvered openings in the building wall because of occupancy on the other side, then install an exhaust fan or duct to existing exhaust.

This proposal is on chapter 5, Gas and Vacuum Systems but the subject of ventilation is addressed with the TC on Mechanical Systems. Outdoor storage ventilation requirements are covered in NFPA 55, therefore section 5.1.3.3.3 is being deleted. See section 9.3.7.2 in the preprint.
Technical Committee on Mechanical Systems,

Recommendation: Delete the existing chapter 6.

Substantiation: The new TC on Mechanical Systems has generated a new chapter on Heating (Chapter 9) that will address the issues of ventilation and other issues that are currently in Chapter 6.

Committee Meeting Action: Accept