CODE APPLICATION NOTICE

CONNECTION TO PATIENT MEDICAL GAS SYSTEMS

CODE SECTION: Section 423A.1, CBC, and Section 4-3.1.1.9(a) and A-4-3.1.1.9(a) and A-4-6.1.2.1, Appendix A, 1996 1999 NFPA 99


4-3.1.1.9(a) General. The first sentence of 4-3.1.1.9(a) “The medical air compressor shall take its source from the outside atmosphere and shall not add contaminants in the form of particulate matters, odor, or other gases.” applies to both the distribution of the air in the piping system and to the use of a compressor as a source. It shall be connected only to the medical air piping distribution system and shall not be used for any other purpose.

A-4-3.1.1.9(a) It is the intent that the medical air piping distribution system support only the intended need for breathable air for such items as IPPB and long-term respiratory assistance needs, anesthesia machines, etc. and so forth. The system is not intended to be used to provide engineering, maintenance, and equipment needs for general hospital support use. It is the intent that the life safety nature of the medical air be protected by a system dedicated solely for its specific use. The medical air distribution system could also supply air-driven instruments that exhaust into the pharynx. This might be a dental or other surgical device.

As a compressed air supply source, a medical air compressor should not be used to supply air for other purposes because such use could increase service interruptions, reduce service life, and introduce additional opportunities for contamination.

A-4-6.1.2.1 Piping Systems. Piping systems supplying medical gases to patients should be reserved exclusively for that purpose so as to protect the patients from administration of gas other than that intended for their use. Therefore laboratory gas piping systems should not be used to pipe gas for use by hospital patients. This warning is also intended to apply to piping systems intended to supply gas to patients within a laboratory facility. Such a system should not be used to supply laboratory equipment other than that directly involved with the patient procedure.

INTERPRETATION:

Application: Hospitals, Skilled Nursing Facilities (SNF) and Intermediate Care Facilities (ICF)

Piping systems supplying medical compressed air and medical gases to patients shall be reserved exclusively for patient use.

OSHPD will allow connection of these piping systems to outlets in areas used for testing and maintenance of patient devices which operate using such gases. These patient devices include but are not limited to ventilators and anesthesia machines.

REVISION: September 17, 2004
The intent of NFPA 99, Section 4-3.1.1.9(a) is to avoid contamination of the medical compressed air system used for patient care by keeping it separate from other uses such as engineering, maintenance and equipment. The testing of patient medical devices that operate using medical compressed air must also be performed using the same medical compressed air system, in order to avoid contamination of the equipment used directly for patient care.

OSHPD will allow connection of these piping systems to outlets in areas used for testing and maintenance of patient devices that operate using such gases. These patient devices include but are not limited to ventilators and anesthesia machines.

REASON:

OSHPD views testing of patient devices requiring medical grade gases as a patient use. Therefore connection to these piping systems is consistent with NFPA 99.

ORIGINAL SIGNED 9/21/04
Kurt A. Schaefer Date
6. * Connections of surface-mounted medical gas rail systems to piping systems of dissimilar metals shall require plating of the connecting components to prevent interaction between dissimilar metals.

A-4-3.1.2.2(c)6 Typical plating would be nickel plating over copper or brass per Federal Specification QQ-N290, Class I, Type 7.

7. The installation of the surface-mounted medical gas rail system shall be tested per 4-3.1.2.3.

(d)* Gas Station Outlets. (See Appendix C-4.2.)

The use of station outlets for purposes other than medical gas is not condoned. Air station outlets designed for patient use, for example, should not be used for equipment blowdown, cleaning, etc. Since these applications are nonmedical, the gas supply should originate from a source other than the medical air source. (Station outlets in anesthesia workrooms for testing anesthesia machines would be acceptable since these machines require medical grade gases. These outlets are not used for cleaning, etc.)

Minimum flow characteristics for station outlets [see 4-3.4.1.3(b)] were established by the committee in 1993, and apply to the installation of new piped gas systems only. The committee did not believe it was realistic to establish requirements retroactively for existing station outlets.

When installing gas station outlets, it is a good practice to consider the space directly over the outlets as well as the distance between the outlets. Since oxygen and vacuum therapy equipment frequently have a height of 7 in. or more, installing outlets directly under overbed lights or under cabinets may cause the outlets to be useless.

Similarly, many suction canisters in use today are at least 7 in. or more in diameter. Thus, if oxygen, vacuum, and air are specified at a patient bed location, the best installation sequence would be oxygen-air-vacuum. This would allow the vacuum outlet and equipment to be on the end, not cramped between other equipment.

Another point to consider is the number of outlets installed at each patient bed location. For instance, it is usually better, and less expensive, to provide two separate oxygen outlets rather than to install a “twinning” device that plugs into one outlet and provides two outlets.

The use of old medical gas outlets in renovation projects should be avoided since manufacturers make improvements in flow characteristics in newer style outlets. In addition, because used outlets generally require extensive cleaning and refurbishing, with new O-rings and other seals the cost of a new outlet will most likely be comparable.

A-4-3.1.2.2(d) See 4-3.1.2.4 for additional requirements for station outlets used in systems at nonstandard pressures.

1. * Each station outlet for medical gases, whether threaded or noninterchangeable quick-coupler, shall be gas-specific and shall consist of a primary and