NFPA 99 Standard for Health Care Facilities

Major Changes Expected in the 2012 Edition

By Matt Baretich

Most of the NFPA codes and standards focus on the design and installation of equipment and systems. Although NFPA 99 is based on documents such as NFPA 70 National Electrical Code, it also addresses operational issues such as the testing and maintenance of systems. For example, NFPA 99 is the primary source for electrical safety test procedures.

When referring to any NFPA standard, it’s important to specify the edition because requirements are regularly updated. Although NFPA 99 is normally revised on a three year cycle, the current edition is dated 2005. After that edition was published, NFPA decided to completely review and rewrite the standard for a variety of reasons.

One of the reasons for a makeover was that, since its first edition in 1985, NFPA 99 has been sort of a mash-up of various earlier documents. A thorough review of scope and consistency was in order.

Another reason was to reposition NFPA 99 from “standard” to “code.” In NFPA jargon, standards are akin to guidelines that organizations may choose to follow. On the other hand, codes mandate minimum requirements suitable for adoption and enforcement by legal authorities. The two best known NFPA codes are NFPA 70 National Electrical Code and NFPA 101 Life Safety Code, both of which have the force of law in many jurisdictions.

A proposed 2010 edition of NFPA 99 was rejected by NFPA in June 2009 and returned to committee for further review. The primary concern was that the many changes in content and format needed to be better integrated. Also, some of the proposed changes were highly controversial. Following the review, a 2012 edition has been created and it will come to a vote at the NFPA Annual Meeting this June.

A fundamental change in the proposed 2012 edition is a move from basing requirements on occupancy to basing them on patient risk. In the current edition there are separate chapters for hospitals, nursing homes, and other occupancy types. Requirements for electrical and medical gas systems and equipment depend on the occupancy in which they are installed.

However, in recent years there has been a proliferation of different types of patient care facilities with substantial overlap in terms of patient acuity. In an alternative approach, the 2012 edition of NFPA 99 defines four levels of patient risk, ranging from Category 1 (life support) to Category 4 (no patient impact). For example, a medical gas system that provides life support must meet Category 1 requirements for reliability in operation.

The 2012 edition also offers the organization greater latitude in defining test procedures and schedules for medical equipment. This brings NFPA 99 into agreement
with current practice and the standards of accrediting agencies such as the Joint Commission.

A potentially far-reaching proposal would require electrical safety testing of medical devices for chassis leakage current (now referred to by the international terminology of touch current) and ground wire resistance only “before being put into service for the first time and after any repair or modification that might have compromised electrical safety.” This is in recognition of the evidence that routine scheduled electrical safety testing is unnecessary and should no longer be required.

In many hospitals a substantial portion of scheduled inspection and maintenance efforts consist of electrical safety testing. In the absence of a requirement for such testing it will be hard to justify the continued allocation of scarce resources for this purpose.

Some people I have talked to expect to continue routine electrical safety testing, at least temporarily, on the theory that it’s important for medical equipment to be regularly located and looked at, even if electrical safety testing itself is of little value. However, in the long run, we will need to move toward “evidence based maintenance” or “reliability centered maintenance” in which we focus our resources on activities that produce benefits worth their cost.

The proposed 2012 edition also includes clear language requiring equipment manufacturers to include useful operator and maintenance manuals. It’s not clear whether authorities having jurisdiction will enforce these requirements, but moving NFPA 99 from standard to code may make this more likely. It’s something worth watching over the next few years if the 2012 edition is adopted.

The most controversial change in the proposed 2012 edition is in regard to isolated power systems, particularly for operating rooms. As specified in NFPA 70 National Electrical Code, an isolated power system (and the associated line isolation monitor or LIM) are generally required in any operating room that is designated as a “wet location” as defined in the code. It’s important to keep in mind that, in this context, a “wet location” is not a place that simply gets wet from time to time; it’s a location in which patients and clinicians are normally subject to conditions that require the use of special electrical distribution systems to protect them from electrical shock.

Based on the best evidence, the consensus in the engineering community is that isolated power systems do not provide significant safety benefits for OR staff and patients, particularly when the cost of these systems is considered.

In the current edition of NFPA 99, the decision to designate an area as a wet location is made by the hospital’s governing board. Ideally, this decision is based on policies developed by the engineering staff.

However, in the proposed 2012 edition, an operating room is presumed to be a wet location unless a specified risk assessment process determines that it is not. In other words, despite the evidence and engineering consensus, the default would be installation of isolated power. I’m not alone in thinking that’s a step in the wrong direction.

So stay tuned. It’s likely that a new edition of NFPA 99 will be adopted soon and that at least some of these changes will begin to impact our work, for better or worse.

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