Health Care Facilities Code Handbook

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With the complete text of the 2015 edition of NFPA® 99, *Health Care Facilities Code*

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NFPA- 99: Health Care Facilities Code Handbook (Y2015 Edition)

The following are important excerpts regarding medical equipment located in medical facilities with respect to electrical safety inspections.

Key Points

NFPA-99: NFPA 99, Health Care Facilities Code (Y2015) applies to a range of systems, equipment, and planning specific to buildings in which various levels of health care are provided to patients. **View NFPA-99 Code (Preface)**

NFPA-99: Purpose and Application: For safety inspections, the purpose of this code is to provide minimum requirements for the *inspection, testing, maintenance, performance*, and safe practices for *equipment, and appliances.* This code shall apply to all health care facilities other than home care and veterinary care. **View NFPA Code (Ch. 1)**

NFPA-99: What and Where to Test: All electrical equipment appliances used for diagnostic, therapeutic, or monitoring purposes of patients located in areas where patients are intended to be examined or treated. **View NFPA Code (Ch. 3)**

NFPA-99: Types of Electrical Measurements: certain types of electrical values are tested and recorded under various operating conditions to ensure electric shock hazards are minimized. **View NFPA Code (Ch. 10)**

NFPA-99: Documentation: The minimum acceptable documentation should identify what was tested, when it was tested, and whether it performed successfully. **View NFPA Code (Ch. 10)**

NFPA-99: Qualified Personnel: It is essential that equipment be serviced by qualified personnel only. **View NFPA Code (Ch. 10)**

Preface

NFPA 99, Health Care Facilities Code, applies to a range of systems, equipment, and planning specific to buildings in which various levels of health care are provided to patients. These facilities range from hospitals, ambulatory health care centers, and clinics to medical and dental offices, nursing homes, and limited care facilities. **Return**

Chapter 1 - Administration

§ 1.2 Purpose

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

§ 1.3 Application

1.3.1 This code shall apply to all health care facilities other than home care and veterinary care.

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. **Return**

Chapter 3 - Definitions

§ 3.3 General Definitions

3.3.125 Patient Bed Location. The location of a patient sleeping bed, or the bed or procedure table of a critical care space.

3.3.126 Patient-Related Electrical Equipment. Electrical equipment appliance that is intended to be used for diagnostic, therapeutic, or monitoring purposes in a patient care vicinity.

3.3.127* Patient Care Space. Any space of a health care facility wherein patients are intended to be examined or treated.

A.3.3.127 Patient Care Space. Business offices, corridors, lounges, day rooms, dining rooms, or similar areas typically are not classified as patient care spaces.

3.3.127.1* Category 1 Space. Space in which failure of equipment or a system is likely to cause major injury or death of patients, staff, or visitors. (FUN)

A.3.3.127.1 Category 1 Space. These spaces, formerly known as critical care rooms, are typically where patients are intended to be subjected to invasive procedures and connected to line-operated, patient care–related appliances. Examples include, but are not limited to, special care patient rooms used for critical care, intensive care, and special care treatment rooms such as angiography laboratories, cardiac catheterization laboratories, delivery rooms, operating rooms, post-anesthesia care units, trauma rooms, and other similar rooms.

3.3.127.2* Category 2 Space. Space in which failure of equipment or a system is likely to cause minor injury to patients, staff, or visitors.

A.3.3.127.2 Category 2 Space. These spaces were formerly known as general care rooms. Examples include, but are not limited to, inpatient bedrooms, dialysis rooms, in vitro fertilization rooms, procedural rooms, and similar rooms.

3.3.127.3* Category 3 Space. Space in which the failure of equipment or a system is not likely to cause injury to patients, staff, or visitors but can cause discomfort.

A.3.3.127.3 Category 3 Space. These spaces, formerly known as basic care rooms, are typically where basic medical or dental care, treatment, or examinations are performed. Examples include, but are not limited to, examination or treatment rooms in clinics, medical and dental offices, nursing homes, and limited care facilities.

3.3.127.4* Category 4 Space. Space in which failure of equipment or a system is not likely to have a physical impact on patient care.

A.3.3.127.4 Category 4 Space. These spaces were formerly known as support rooms. Examples of support spaces include, but are not limited to, anesthesia work rooms, sterile supply, laboratories, morgues, waiting rooms, utility rooms, and lounges.

3.3.128 Patient Care Vicinity. A space, within a location intended for the examination and treatment of patients, extending 1.8 m (6 ft) beyond the normal location of the bed, chair, table, treadmill, or other device that supports the patient during examination and treatment and extending vertically to 2.3 m (7 ft 6 in.) above the floor.

Note: The dimensions of a patient care vicinity are based on the possible reach of the patient touching, or the reach of an attendant, either of who might be touching the bed with one hand and touching a piece of apparatus with the other. In this case, the category does not matter, it is based simply on the vicinity in which a patient is receiving care. The dimensions include a small safety factor in the event of unforeseen circumstances. **Return**

Chapter 10 - Electrical Equipment

Chapter 10 covers the requirements for electrical equipment in health care facilities. Although much of this chapter applies to portable equipment, there are also provisions for fixed equipment, and there is extensive information on administrative issues. Many of the requirements in this chapter harmonize with international standards.

Note: Other standards include UL544, ANSI/AAMI ES60601, AND IEC 60601-1

§ 10.1 Applicability

10.1.1 This chapter shall apply to the performance, maintenance, and testing of electrical equipment in health care facilities, as specified above in §1.3.1 and §1.3.1.1.

This subsection specifies the applicability of Chapter 10 in relation to existing health care facilities through reference back to Section 1.3. This applies to all new equipment coming into the facility. The testing and maintenance of the equipment, which should be applied over its useful lifetime, will need to be applied to that equipment once it is in the facility.

Note: Chapter 10 goes on to cover the Testing Requirements used in the electrical safety inspection of the facility's medical devices. The NFPA-99 code text is long and challenging to understand, but such testing includes, at a minimum, physical examination of power cords (§10.2.2, §10.2.3 and §10.3.1); measurement of leakage current through the ground conductor of the power supply cord (§10.2.5); measurement of leakage (touch) current through the enclosure (§10.2.6); measurement of the grounding conductor resistance (§10.3.2); and measurement of leakage current through the device leads (such as ECG leads - (§10.3.6)).

FEO Solutions uses NIST-calibrated testing systems designed to measure those electrical parameters defined in all standards. **Return**

In accord with CMS §482.41(c)(2), Chapter 10 also provides guidelines for documentation of testing procedures and results (§10.5.6.2).

10.5.6.2* Documentation.

A.10.5.6.2 Although several approaches to documentation exist in hospitals, the minimum acceptable documentation should identify what was tested, when it was tested, and whether it performed successfully. Adopting a system of exception reporting can be the most efficient form of record keeping for routine rechecks of equipment or systems, thereby minimizing technicians' time in recording the value of each measurement taken. For example, once a test

protocol is established, which simply means testing the equipment or system consistent with Chapter 10, the only item (value) that needs to be recorded is the failure or the deviation from the requirements of the chapter that was detected when a corrective action (repair) was undertaken. This approach can serve to eliminate, for example, the need to keep individual room sheets to record measured results on each receptacle or to record measurement values of all types of leakage current tests.

10.5.6.2.1 A record shall be maintained of the tests required by this chapter and associated repairs or modifications.

10.5.6.2.2 At a minimum, the record shall contain all of the following:

(1) Date
(2) Unique identification of the equipment tested
(3) Indication of which items have met or have failed to meet the performance requirements of 10.5.6.2

10.5.6.3 Records Retention. The records shall be maintained and kept for a period of time in accordance with a health care facility's record retention policy.

FEO Solutions cloud-based, on-line equipment inventory database program ensures your facility meets this requirement. **Return**

Lastly, also in accord with CMS §482.41(c)(2), Chapter 10 also provides guidelines for certifying the Qualification of personnel working on facility equipment (§10.5.8.3).

10.5.8.3* Equipment shall be serviced by qualified personnel only.

A.10.5.8.3 Qualification for equipment servicing does not always include manufacturer training, as required knowledge and skills can be obtained by other means.

Because of the complexity and hard usage of patient care–related appliances in health care facility environments and the necessity for patient and staff safety, it is essential that qualified professionals do the service work. These professionals need to have received the appropriate preparatory technical education, as well as continuing technical and interdisciplinary training, as part of routine facility operations. Supporting information and training is available through a variety of resources, including professional societies, equipment manufacturers, educational organizations, and the Internet. The code does not specify the source of the qualified personnel.

FEO Solutions' president, Roy Williams, Ph.D., is a Biomedical Engineering holding his Professional Engineering license (PE) and is therefore qualified under NFPA-99

guidelines. He performs and/or signs off on all work performed by FEO Solutions. His active PE License is kept in the facility equipment notebook. **Return**