

**Guidelines for  
Construction  
and  
Equipment of  
Hospital and  
Medical  
Facilities**

**1987 Edition**

**GUIDELINES**

The American Institute of Architects  
Committee on  
Architecture for Health  
with assistance from  
U.S. Department of Health and  
Human Services  
Public Health Service  
Health Resources and  
Services Administration  
Bureau of Maternal and  
Child Health and  
Resources Development  
Office of Health Facilities

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## Preface to the 1987 Edition

This is the latest in a 40-year series of guidelines to aid in the design and construction of hospital and medical facilities.

The original *General Standards* appeared in the *Federal Register* on February 14, 1947, as part of the implementing regulations for the Hill-Burton program. The standards were revised from time to time as needed. In 1973, the document was retitled *Minimum Requirements of Construction and Equipment for Hospital and Medical Facilities* to emphasize that the requirements were generally minimum, rather than recommendations of ideal, standards.

Sections 603(b) and 1620(2) of the Public Health Service Act require the secretary of the Department of Health and Human Services (HHS) to prescribe by regulation general standards of construction, modernization, and equipment for projects assisted under Title VI and Title XVI, respectively, of the act. Since Title VI and Title XVI grant and loan authorities have expired, there is no need to retain the standards in regulation.

In 1984, HHS removed from regulation the requirements relating to minimum standards of construction, modernization, and equipment of hospitals and other medical facilities, as cited in the *Minimum Requirements*, DHEW Publication No. (HRA) 81-14500. To reflect the nonregulatory status, the title was changed to *Guidelines for Construction and Equipment of Hospital and Medical Facilities*.

It is emphasized that projects with respect to which applications were approved or grants awarded under Titles VI and XVI, but for which full project reimbursement has not yet been made, may be subject to continuing compliance with the *Guidelines* as incorporated by reference in the Code of Federal Regulations, Title 42, Parts 53 and 124, at the time of the initial approval.

The *Guidelines* will be used by HHS to assess Department of Housing and Urban Development Section 242 applications for hospital mortgage insurance and the Indian Health Service construction projects. The *Guidelines* may also be used by other entities, such as state licensure agencies. For this reason, regulatory language was retained. The 1987 edition of the *Guidelines* follows these principles.

This edition of the *Guidelines* reflects the work of advisory groups from private, state, and federal sectors, representing expertise in design, operation, and construction of health facilities. Advisory group members reviewed the 1983-84 edition of the *Guidelines* line by line, revising details as necessary to accommodate current health care procedures and to provide a desirable environment for patient care at a reasonable facility cost.

As in the past, these *Guidelines* standards are performance oriented for desired results. Prescriptive measurements, where given, have been carefully considered relative to generally recognized standards and do not require detail specification. For example, experience has shown that it would be extremely difficult to design a patient bedroom smaller than the size suggested and have space for functions and procedures that are normally expected.

Authorities adopting these *Guidelines* standards should encourage design innovations and grant exceptions where the intent of the standards is met. These standards assume that appropriate architectural and engineering practice and compliance with applicable codes will be observed as part of normal professional service and require no separate detailed instructions.

In some facility areas or sections, it may be desirable to exceed the *Guidelines* standards for optimum function. For example, door widths for inpatient hospital rooms are noted as 3 feet 8 inches, which satisfies most applicable codes, to permit passage of patient beds. However, wider widths of 3 feet 10 inches or even 4 feet may be desirable to reduce damage to doors and frames where frequent movement of beds and large equipment may occur. The decision to exceed the standards should be made by the individuals involved.

This edition provides added emphasis on energy conservation measures to the extent that the quality of patient care is not reduced. Portions of the document *Energy Considerations for Hospital Construction and Equipment*, DHHS Publication No. (HRS-M-HF) 84-1A, have been incorporated into this edition as an appendix. Summaries of these and other major changes are outlined on the following pages.

As in previous editions, details of plan preparation, specifications, engineering procedures, etc., are omitted. These may appear in other technical manuals. Instances where details are mentioned are for emphasis only.

This publication supersedes DHHS Publication No. (HRS-M-HF) 84-1, DHEW Publication No. (HRA) 81-14500, DHEW Publication No. (HRA) 79-14500, and DHEW Publication No. (HRA) 76-4000.

Inquiries or questions on the *Guidelines* may be addressed to the following groups:

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Rockville, Maryland 20857

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26 Federal Plaza  
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# Major Additions and Revisions

The general format and technical content follow the previous document, *Guidelines for Construction and Equipment of Hospital and Medical Facilities*. When necessary, changes were made to clarify that these are model standards that may be adopted as requirements by authorities having jurisdiction or used as a basic guide for other standards.

Listed below are major document additions and revisions made in conformance with current needs and state-of-the-art medical and design procedures:

1. Portions of the document, "Energy Considerations for Hospital Construction and Equipment" have been incorporated as an appendix to emphasize the potential for energy conservation without adverse effect on patient care. While problems of providing capital for specific energy conservation projects relative to reimbursement procedures are recognized, projects should demonstrate cost-effectiveness beyond first cost considerations. It is hoped that the long-range economic benefits of life cycle analyses, including energy conservation measures, will be self-evident to those responsible for financial decisions even when no regulatory authority is involved. Fortunately in new work, the majority of energy conservation measures can be accomplished for continuing savings with very small or no additional capital expenditures.
2. Modernization guidelines now state that when 50 percent or more of the total area of a wing or building is changed due to construction, the entire wing or building should be changed to comply with applicable sections of the *Guidelines* and with appropriate parts of the National Fire Protection Association 101 Life Safety Code (NFPA 101) covering New Health Care Occupancies.
3. Design standards for insuring handicapped access are now based upon either the Uniformed Federal Accessibility Standards (UFAS) or the American National Standards Institute standard A117.1 (ANSI A117.1) in accordance with the local authority having jurisdiction. The exception is federally assisted construction, which must be based upon UFAS. Since design standards for the handicapped are based upon UFAS or ANSI A117.1, subsections A-P of section 1.3 have been deleted and referenced to these national standards.
4. For clarification, equipment has been classified as fixed, movable, and major technical.
5. The psychiatric nursing unit addresses the treatment of nonambulatory medical unit inpatients until the medical condition of such patients allows for transfer to the psychiatric nursing unit. Finishes, furnishings, and lighting that promote a residential rather than an institutional atmosphere are addressed, as well as appropriate fire safety considerations.
6. The minimum finish ceiling height has been revised from 8 feet (2.44 meters) to 7 feet 10 inches (2.38 meters). This permits the installation of a typical metal grid system to support a suspended ceiling on standard 8-foot (2.44-meter) gypsum dry wall panels. This avoids the need to cut 10-foot (3.04-meter) dry wall panels to obtain an 8-foot (2.44-meter) clear ceiling height, and thus eliminates considerable waste of dry wall.
7. Sections 7.27(A)(B) design foundations have been deleted; these items will be appropriately addressed by applicable federal, state, and local codes and standards.
8. To reflect current technology, a new section on nuclear medicine services has been added. The radiology section has also been updated to the state-of-the-art.
9. To reflect current trends in labor and delivery services, obstetrical facility areas have been reclassified. A new area is described for combination labor/delivery/recovery (LDR) rooms and labor/delivery/recovery/postpartum (LDRP) rooms as birthing facilities.
10. Ventilation standards (Table 3) have been clarified and revised to allow for design freedom. The relative humidity range in the operating room has been changed from 45 through 60 to 50 through 60 percent. To reflect the state-of-the-art, the following hospital areas have been added: LDR; soiled utility; clean utility; ethylene trioxide sterilizer room; general, nuclear medicine, pathology, and cytology laboratories. Table 3 is now used as the sole reference for ventilation standards of all occupancies covered in the document.
11. Accepted national codes are referred to as model codes and are not referenced with a date. In general, the latest issue may be considered as an interpretation or clarification of previous code requirements.
12. Section 10, Rehabilitation Facilities, is an addition to the document. It covers various configurations of rehabilitation facilities, such as organized departments within hospitals, outpatient clinics, and free-standing rehabilitation centers.

# Acknowledgments

The Committee on Architecture for Health of the American Institute of Architects (AIA) was privileged to convene and work with an interdisciplinary task force to revise the *Guidelines for Construction and Equipment of Hospital and Medical Facilities*.

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# 1. INTRODUCTION

## 1.1 General

- A. This document contains information intended as model standards for constructing and equipping new medical facility projects. For brevity and convenience these standards are presented in "code language." Use of words such as *shall* is mandatory only where applied by an adopting authority having jurisdiction. Insofar as practical, these standards relate to desired performance or results or both. Details of construction and engineering are assumed to be part of good design practice and local building regulations.
- B. This document covers health facilities common to communities in this country. Facilities with unique services will require special consideration. However, sections herein may be applicable for parts of any facility and may be used where appropriate.
- C. The model standards are not intended to restrict innovations and improvements in design or construction techniques. Accordingly, authorities adopting these standards as codes may approve plans and specifications which contain deviations if it is determined that the respective intent or objective has been met. Requests for interpretations may be submitted to HHS's Division of Assistance and Recovery, Bureau of Maternal and Child Health and Resources Development, Health Resources and Services Administration (HRSA), Parklawn Building, 5600 Fishers Lane, Rockville, Maryland 20857. However, the HRSA emphasizes that these standards are not federal regulations except when specifically adopted by authorities having jurisdiction. Where this document is used by other programs or agencies without the HRSA involvement, interpretations will be for intent only. Final implementation may be subject to requirements of the authority having jurisdiction.
- D. Some projects may be subject to the regulations of several different programs, including those of state, local, and federal authorities. While every effort has been made for coordination, individual project requirements should be verified, as appropriate. Some State authorities may require sprinklers throughout the facility regardless of the type of construction, while others will require unique seismic design considerations. Mental health projects may also be subject to standards such as those set forth in *Principles for Accreditation of Community Mental Health Service Programs*, prepared by the Joint Commission on Accreditation of Hospitals, 875 North Michigan Avenue, Chicago, Illinois 60611.
- E. The Health Care Financing Administration, which is responsible for Medicare and Medicaid reimbursement, has adopted the National Fire Protection Association 101 Life Safety Code (NFPA 101). Facilities participating in Medicare and Medicaid programs shall comply with that code.
- F. The sponsor shall provide for each project a functional program for the facility that describes the purpose of the project, the projected demand or utilization, staffing patterns, departmental relationships, space requirements, and other basic information relating to fulfillment of the institution's objectives. This program may include a description of each function or service; the operational space required for each function; the number of staff or other occupants of the various spaces; the numbers, types, and sizes (in net square feet) of all spaces; the major design features; the systems of operation; and the interrelationships of various functions and spaces. The functional program should include a description of those services necessary for the complete operation of the facility. Those services available elsewhere in the institution or community need not be duplicated in the facility. The functional program should also address the potential future expansion of essential services which may be needed to accommodate increased demand. The approved functional program shall be made available for use in the technical review of project drawings and specifications.

## 1.2 Modernization

- A. Where modernization or replacement work is done within an existing facility, all new work or additions, or both, shall comply, insofar as practical, with applicable sections of the *Guidelines* and with appropriate parts of NFPA 101, covering New Health Care Occupancies. Where major structural elements make total compliance impractical or impossible, exceptions should be considered. This does not guarantee that an exception will be granted, but does attempt to minimize restrictions on those improve-

