WEST VIRGINIA
SECRETARY OF STATE
KEN HECHLER
ADMINISTRATIVE LAW DIVISION

Form #2

Do Not Mark In this Box

FILED

Nov 18 4 06 PM '93

OFFICE OF WEST VIRGINIA SECRETARY OF STATE

NOTICE OF A COMMENT PERIOD ON A PROPOSED RULE

AGENCY: Department of Health and Human Resources TITLE NUMBER: 64

RULE TYPE: Legislative ; CITE AUTHORITY W. Va. Code §16-5B-8

AMENDMENT TO AN EXISTING RULE: YES X NO ___

IF YES, SERIES NUMBER OF RULE BEING AMENDED: 12

TITLE OF RULE BEING AMENDED: Hospital Licensure

IF NO, SERIES NUMBER OF NEW RULE BEING PROPOSED: ___

TITLE OF RULE BEING PROPOSED: ___

IN LIEU OF A PUBLIC HEARING, A COMMENT PERIOD HAS BEEN ESTABLISHED DURING WHICH ANY INTERESTED PERSON MAY SEND COMMENTS CONCERNING THESE PROPOSED RULES. THIS COMMENT PERIOD WILL END ON December 20, 1993 AT 4:30 p.m.

ONLY WRITTEN COMMENTS WILL BE ACCEPTED AND ARE TO BE MAILED TO THE FOLLOWING ADDRESS.

Comments may be hand delivered up to 4:30 p.m.

Regulatory Development
State Capitol Complex
Building 3, Room 265
Charleston, WV 25305
ATTN: Kay Howard

THE ISSUES TO BE HEARD SHALL BE LIMITED TO THIS PROPOSED RULE.

Ruth Ann Panepinto, Ph.D.
Secretary

ATTACH A **BRIEF** SUMMARY OF YOUR PROPOSAL

19.50

FISCAL NOTE FOR PROPOSED RULES

Rule Title: Hospital Licensure

Type of Rule: X Legislative _____ Interpretive _____ Procedural

Agency Department of Health and Human Resources

Address Building 3, Capitol Complex

Charleston, W. Va. 25305

1. Effect of Proposed Rule

	ANNUAL		FISCAL YEAR		
	Increase	Decrease	Current	Next	Thereafter
Estimated Total Cost	$	$	$ 0	$ 0	$ 0
Personal Services					
Current Expense					
Repairs and Alterations					
Equipment					
Other					

2. Explanation of above estimates.

The adoption of the proposed revisions of hospital licensure standards will neither increase or decrease the cost of the State licensure program.

3. Objectives of these rules:

The purpose of the proposed amendments to **Hospital Licensure** is to revise or delete certain outmoded hospital licensure standards which are creating problems due to their variance from current standards of good hospital practice. Additionally references to outdated State and national standards have been clarified and updated, and extensive stylistic revisions have been made for purposes of clarification, elimination of duplicated standards, and conformance with current Department procedures and legislative rule drafting standards.

4. Explanation of Overall Economic Impact of Proposed Rule.

A. Economic Impact on State Government.

None.

B. Economic Impact on Political Subdivisions; Specific Industries; Specific Groups of Citizens.

None.

C. Economic Impact on Citizens/Public at Large.

None.

Date November 19, 1993

Signature of Agency Head or Authorized Representative

Ruth Ann Panepinto, Ph.D., Secretary
Department of Health and Human Resources

RULE ABSTRACT

Agency: Department of Health and Human Resources

Rule Title: **Hospital Licensure**

CSR Title and Series: 64 CSR 12 Type: Legislative

Summary: The purpose of the proposed amendments to **Hospital Licensure** is to revise or delete certain outmoded hospital licensure standards which are creating problems due to their variance from current standards of good hospital practice. Additionally references to outdated State and national standards have been clarified and updated, and extensive stylistic revisions have been made for purposes of clarification, elimination of duplicated standards, and conformance with current Department procedures and legislative rule drafting standards.

The Department proposes substantive and major revisions to the rule are as follows:

1. A new Section 2.3 conforms with W. Va. Code §16-5B-1 regarding exemptions;

2. Former Section 4 was not consistent with the current rule-making procedures mandated by W. Va. Code §§29A-1-1 through 3 and has been deleted. Former Sections 5 and 6 have been revised for clarification and conformity with actual current administrative procedures and are now Sections 4, 5 and 6.

3. In Sections 3 and 7.3, criteria relative to consumers on hospital boards have been simplified in order to permit more individuals to be able to qualify as persons whose income is less than the national median income.

4. The requirement that verbal and telephone orders be given only to a registered professional nurse has been deleted. Section 10.3.1.h adopts the current federal and Joint Commission on the Accreditation of Health Care Organizations standard which permits individual hospitals to determine which licensed or certified personnel may receive verbal and telephone orders through policies and procedures set by the hospital's medical staff.

5. Section 11.11.4 adds a new set of requirements concerning the financial rights and responsibilities of hospitals and residents of extended care facilities operated by hospitals. These new standards limit the circumstances under which a resident may be discharged or transferred to another facility, require hospitals to provide protection against loss of resident funds administered by the hospital, and prohibit hospital employees from being named as committee or guardian for an extended care resident. These standards relate to financial matters and

have no impact on the reliance of hospitals on State law relating to advance directives regarding treatment or the 1993 Surrogate Health-Care Act related to selecting decision maker for an incapacitated adult who has no committee or guardian.

6. The requirement in Section 12.2 for a hospital to maintain an emergency service has been deleted, although the rule retains standards applicable if the service is provided. Small rural hospitals are no longer expected to maintain this type of service.

7. A recommendation that hospitals provide separate space for adjunct services such as EKG has been made mandatory in Section 13.4.1.

8. Provisions have been added to permit the use of health care personnel other than nurses to provide supportive nursing care services in emergency, cardiac and intensive care settings under the direction of a registered professional nurse.

For further information contact: John J. Jarrell, Program Administrator, or Lynda Kramer, Director, Office of Health Facility Licensure and Certification, Bureau of Public Health, Department of Health and Human Resources, Building 3, Capitol Complex, Charleston, West Virginia, 25305, telephone 558-0050 or the Office of Regulatory Development, Operations, Department of Health and Human Resources, telephone 558-3223.

11/19/93

[PROPOSED]
TITLE 64

WEST VIRGINIA ADMINISTRATIVE RULES
DIVISION OF HEALTH

HOSPITAL LICENSURE
64 CSR 12

199_

For Public Comment Period
November 19, 1993 to December 20, 1993

[PROPOSED]
WEST VIRGINIA ADMINISTRATIVE RULES
DIVISION OF HEALTH
HOSPITAL LICENSURE
64 CSR 12

TABLE OF CONTENTS

[PROPOSED]
TITLE 64
WEST VIRGINIA ADMINISTRATIVE RULES
DEPARTMENT OF HEALTH AND HUMAN RESOURCES

SERIES 12
HOSPITAL LICENSURE

§64-12-1. General.

1.1. Scope - ~~These legislative rules establish rules~~ This legislative rule establishes standards and procedures for the licensing of hospitals.

1.2. Authority - §16-5B-8.

1.3. Filing Date -

1.4. Effective Date -

1.5. Supersession and Repeal of Former Regulations - This rule ~~supersedes and repeals~~ amends and reenacts Hospital Licensure, ~~West Virginia Department of Health Legislative Rules, Series 12, 1983~~ 64 CSR 12, 1987.

§64-12-2. Application and Enforcement.

2.1. Application - ~~These legislative rules shall apply to every person, partnership, association, corporation or any local governmental unit or any division, department, board or agency thereof which shall operate or apply to operate a hospital as defined in these rules and in Chapter 16, Article 5B of the West Virginia Code of 1931, as amended, except as herein specified.~~ This rule applies to any person, partnership, association, corporation or local governmental unit or any division, department, board or agency thereof which establishes, maintains or operates a hospital or an extended care facility in connection with a hospital.

2.2. Enforcement - ~~The enforcement of these rules is vested with the West Virginia department of health.~~ This rule is enforced by the director of the division of health or his or her designee.

§64-12-3. Definitions.

(Note: In addition to changes in the text of various definitions, which are indicated by strike-through and underlining, the definitions have been rearranged in alphabetical order. Former Sections 7.2.2.a through j have been incorporated into the definition section.)

3.1. Applicable Hospital - ~~means all nonprofit hospitals,~~ A nonprofit hospital, whether governed by an in-state or out-of-state board of directors, ~~and all hospitals~~ or a hospital owned by a county, city or other political subdivision of the State of

West Virginia, except for existing nonprofit hospitals which are owned and ~~have been~~ were owned prior to March 9, 1983, by a corporation incorporated in another state.

~~3.1.~~ 3.2. Applicant - ~~Shall mean~~ The person who submits an application for a license, or a renewal of a license, to operate a hospital, sanitarium or extended care facility operated in connection with a hospital.

~~3.3.~~ 3.3. Bed Capacity - Means The greatest number of beds the hospital is licensed to offer for patient care. ~~No hospital shall admit more patients than the number of beds for which it is licensed except in the case of public catastrophe or emergency, and then only as a temporary measure.~~

3.4. Board of Directors or Board - means The voting members of the governing authority of ~~an applicable~~ a hospital, or if a religious organization holds a hospital license, means the hospital board established by the religious organization.

3.5. Consumer Representative - means A member of ~~an applicable hospital's~~ a Section 7.2.2 hospital's board of directors ~~who has been designated as such by the board by virtue of qualifying as a person from one (1) of the four (4) consumer categories and who is not a member of management of the applicable hospital nor a member of management of one (1) of its related organizations.~~ who is not a member of management of the hospital or one (1) of its related organizations, and who has been designated by the board as a person representing of one (1) of the following four (4) consumer categories: small businesses; organized labor; elderly persons; or persons whose income is less than the national median income.

3.6. Director - The director of the division of health of the department of health and human resources.

3.7. Elderly Persons - means ~~persons~~ Individuals who are sixty (60) years of age or older.

~~3.6.~~ 3.8. Extended Care Facility - Means A hospital or ~~a distinct part~~ unit thereof ~~engaged in providing to inpatients~~ which provides ~~skilled~~ nursing and related services for long-term care patients ~~(exclusive of tubercular or mentally ill persons)~~ who require medical, nursing and rehabilitation services.

3.9. Facility - Hospital or extended care facility.

3.10. Family - means A group of two (2) or more persons related by blood, marriage or adoption who reside together.

~~3.4.~~ 3.11. Hospital - Means Any institution, place, building or agency in which an accommodation of five (5) or more beds is maintained, furnished or offered for the hospitalization of

the sick or injured.

~~3.5.~~ 3.12. Hospitalization - ~~Is defined as~~ The reception, in-house accommodation, and care of any person for a continuous period longer than twenty-four (24) hours, for the purpose of providing room, board, ~~nursing service~~ and medical, nursing and other professional health care services. ~~and and other hospital facilities required in connection with diagnosis and treatment of any condition or infirmity.~~

~~3.7. License means The document issued by the state department of health and constitutes the authority to receive patients and perform services included within the scope of these regulations.~~

3.13. Member of Management - means Any individual having authority, in the interest of the employer, to hire, transfer, suspend, lay off, recall, promote, discharge, assign, reward or discipline other employees, or responsibly to direct them, or to adjust their grievances, or effectively to recommend ~~such action~~ these actions, if in connection with the foregoing the exercise of such authority is not of a merely routine or clerical nature, but requires the use of independent judgment.

3.14. Organized Labor Members - means Members of organized labor unions covered by the National Labor Relations Act, the Railroad Labor Act or other federal labor acts.

~~3.2.~~ 3.15. Person - ~~Shall include~~ Any individual, partnership, association, corporation, or any local governmental unit or any division, department, board, or agency thereof.

3.16. Persons Whose Income is Less than the National Median Income - means: ~~(1)~~ Individuals whose gross family income, ~~is less than the national median family income, or (2) individuals whose gross personal income is less than the national median income of unrelated individuals.~~ or gross individual income in the case of individuals not residing with a family member, is less than the national median family income. The director of ~~health~~ shall establish and periodically revise the national median family income ~~figures for families and unrelated individuals~~ figure after consideration of Bureau of Census Current Population Reports, Consumer Income, Series P-60.

3.17. Principal Stockholder - means Any person who beneficially owns, holds or has the power to vote ten percent (10%) or more of any class of securities issued by a corporation.

3.18. Section 6a Hospital - Applicable hospital.

3.19. Small Business Representatives - means Officers, directors, general partners, sole owner or principal stockholders of any activity subject to business taxation, which activity

employs fewer than one hundred (100) full-time employees or which had gross annual receipts of less than four (4) million dollars, based on 1984 dollars, in its last fiscal year.

3.20. Swing Bed - A bed which is approved for dual use and reimbursement under the federal medicare program for both acute and extended care.

3.8. 3.21. Violations - Means Failure to comply with the licensing law or any provisions of these regulations this rule. A violation constitutes a misdemeanor as set forth in Section 11, Article 5B, Chapter 16, Code of West Virginia, 1931, as amended W.Va. Code §16-5B-11.

§64-12-4. Procedures Governing Adoption, Amendment and Recision of Regulations

The state department of health, with the advice and counsel of the advisory board, shall have the power to make, enforce, modify, amend or rescind rules and regulations governing the operation and conduct of hospitals and other related institutions, as specified in Section 8, Article 5B, Chapter 16, Code of West Virginia, 1931, as amended.

§64-12-5. Inspections.

5.1. Duly authorized representatives of the state department of health shall have the right to enter upon or into the premises of any hospital in order to make whatever inspection is deemed necessary in accordance with the licensing authority vested in the department.

5.2. All institutions which are required to be licensed under the provisions of Article 5B, Chapter 16, Code of West Virginia, 1931, as amended, shall comply with and conform to all laws of the state of West Virginia, and all rules and regulations which provide minimum standards for the prevention of fire and for the protection of life and property against loss or damage by fire or panic. A certificate of approval shall be obtained from the State Fire Marshal by any institution required to be licensed. Written approval of the institution shall be filed with the state department of health and a copy of such certificate shall be posted in a conspicuous place on the premises of the licensee.

§64-12-6. The License.

6.1. Institutions To Be Licensed - A license is required of all places that are conducted as hospitals, within the meaning of the term as defined in Section 3, of these regulations and in Section 1, Article 5B, Chapter 16, Code of West Virginia, 1931, as amended, provided that such place is not specifically excluded by the Code.

6.2.--Institutions Exempted From These Regulations.

6.2.1.--Hospitals operated by the federal government or the state government.

6.2.2.--Institutions regularly licensed by the department of welfare, such as child caring institutions, day nurseries, child care centers and foster boarding homes.--However, institutions having dual functions, one (1) of which is clearly subject to licensure under these regulations, are not exempt.

6.2.3.--Homes or institutions regularly licensed by the West Virginia nursing home licensing board.

6.2.4.--First aid stations and emergency care facilities which do not provide accommodations for hospitalization.

6.3.--**Application For License.**

6.3.1.--Applicants for license shall file applications with the bureau of hospitals and medical facilities, state department of health upon forms prescribed by the department and shall pay an annual fee as required in Section 4, Article 5B, Chapter 16, Code of West Virginia as follows:--"Those with five beds but less than 50 beds shall pay a fee of $20.00; those with 50 beds or more and less than 100--beds shall pay a fee of $30.00; those with 100 beds or more and less than 200 beds shall pay a fee of $40.00; and those with 200 beds or more shall pay a fee of $50.00."--No such fee shall be refunded.

6.3.2.--Furnishing of an application form is in no way a guarantee that the completed application will be acceptable or that a license will be issued by the state department of health.

6.3.3.--Each new applicant must provide at least two (2) letters of reference from reputable citizens with whom he is personally acquainted and who certify to his character and qualifications.

6.3.4.--Each application for license shall specify the maximum number of beds established by the state department of health as the institution's legal bed capacity.

6.3.5.--Every hospital shall be specifically identified as such by an appropriate name, which shall be used in applying for the license.--It shall not be changed without the approval of the state department of health.

6.4.--**Issuance of License.**

6.4.1.--The license will be issued on a form prescribed by the state department of health and shall set forth the name, location, type of ownership, type of institution and number of

beds for which the institution is licensed.

6.4.2. The license shall be posted in a conspicuous place on the licensed premises.

6.4.3. The license is not transferable or assignable. The state department of health shall be immediately notified of any change relative to the ownership, locations or operation of the institution, and an application for a new license shall be requested.

6.4.4. Each license is separate and distinct and shall be issued to a specific licensee for a specific location which is to be indicated on the license certificate. The institution shall be operated and conducted in the name of the licensee as indicated on the license certificate.

6.4.5. Only one (1) license shall be required for any person, partnership, association, corporation, or any local governmental unit or any division, department, board or agency thereof who operates any combination of a hospital, sanatorium or extended care facility operated in connection with a hospital, or more than one (1) thereof, at the same location.

6.5. Expiration and Renewal of License.

6.5.1. All licenses shall expire on the thirtieth of June following the date of their issuance unless continued pursuant to the provisions of Section 4, Article 5B, Chapter 16, Code of West Virginia, 1931, as amended.

6.5.2. Applications for the renewal of licenses will be mailed to each institution, and shall be completed and returned by the applicant, with the required license fee, to the state department of health, before April 30. The renewal of a license shall be contingent upon evidence of compliance with the licensing law and all minimum standards and regulations. Each applicant will be duly notified of any noncompliances and shall comply with the provisions of the law rules and regulations before the issuance of a license.

6.6. Revocation and Reissuance of License.

6.6.1. After an opportunity for a hearing, the state department of health may revoke the license of any institution found in violation of the licensing law or the rules and regulations issued pursuant thereto.

6.6.2. If a license is revoked, a new application for a license will be considered by the state department of health when the conditions upon which revocation was based have been corrected and evidence of this fact has been furnished.

~~6.6.3. Each license shall be returned by the licensee to the state department of health immediately upon its revocation, or when the institution voluntarily ceases operation.~~

§64-12-4. State Administrative Procedures.

4.1. License Required.

4.1.1. No person, partnership, association, corporation, or any local governmental unit or any division, department, board or agency thereof may establish, conduct or maintain in West Virginia any hospital or extended care facility operated in connection with a hospital without first obtaining a license: Provided, That only one (1) license is required for any person, partnership, association, corporation or any local governmental unit or any division, department, board or agency thereof who operates any hospital, extended care facility operated in connection with a hospital, or more than one thereof, at the same location.

4.1.2. A license is not transferable or assignable.

4.1.3. If the ownership of a facility with a valid unexpired license changes, the new owner shall immediately apply for a new license. The application of the new owner for a license has the effect of a valid license for three (3) months from the date the application is received by the director.

4.1.4. Any change in locations, the total or numbers of types of beds or other operation of the facility requires the issuance of a new license. The facility shall notify the director of any proposed change in the locations, the total or numbers of types of beds, or operation of the facility, and shall request an application form for a new license.

4.2. Application For License.

4.2.1. Applicants for a license shall complete and submit an application to the department on forms provided by the director and shall pay the annual fee as required by W.Va. Code §16-5B-4. The name used on the application forms shall be the legal name of the facility.

4.2.2. The application for license shall specify the facility's proposed total bed capacity and the numbers of beds categorized by service provided, including newborn, intensive care nursery and swing beds.

4.2.3. A section 6a hospital shall include a list of the voting members of its board of directors who have been designated as consumer representatives and which of the consumer members are women, members of racial minorities, or handicapped in its application for licensure.

4.3. Issuance of License.

4.3.1. The director shall issue a license if:

4.3.1.1. The facility is in compliance with this rule and applicable sections of W. Va. Code §§16-5B-1 et seq.;

4.3.1.2. The facility is in compliance with the rules of the State fire commission;

4.3.1.3. Has submitted a complete application, with all required documentation;

4.3.1.4. In the case of a project reviewable under W. Va. Code §16-2D-1 et seq., the State health planning and development agency has issued a finding, after a final conformance review, that the completed project conforms to the terms of the certificate of need decision issued for the project; and

4.3.1.5. In the case of a section 6a hospital, the composition of the hospital's board of directors is in conformance with Section 7.3 of this rule or a plan of correction has been accepted, except, a license shall not be withheld for noncompliance with Section 7.3 of this rule in the case of the corporation defined in W.Va. Code §18-11C-1(d).

4.3.2. The director issues a separate license for each separate and distinct location of the hospital or extended care facility.

4.3.3. The license states the legal name of the facility to which it applies, the location of the facility, the maximum number of beds classified by type for which it is granted, and the dates of issuance and expiration of the license.

4.4. Expiration and Renewal of License.

4.4.1. All licenses expire on the thirtieth day of June following the date of their issuance unless continued pursuant to the provisions of W. Va. Code §16-5B-4.

4.4.2. Licensed hospitals and extended care facilities shall annually complete and return applications for licensure renewal with the required license fee to the director on or before April 30. The director mails licensure renewal forms to each licensed hospital and extended care facility.

4.4.3. A section 6a hospital shall include a list of the voting members of its board of directors who have been designated as consumer representatives and which of the consumer members are women, members of racial minorities, or handicapped in its application for license renewal.

4.4.4. The director shall renew a license if:

4.4.4.1. The facility is in compliance with the provisions of this rule and W. Va. Code §§16-5B-1 et seq.;

4.4.4.2. The facility is in compliance with the rules of the State fire commission;

4.4.4.3. In the case of a project reviewable under W. Va. Code §16-2D-1 et seq., the State health planning and development agency has issued a finding, after a final conformance review, that the completed project conforms to the terms of the certificate of need decision issued for the project;

4.4.4.4. In the case of a section 6a hospital, the composition of the hospital's board of directors is in conformance with Section 7.3 of this rule or a plan of correction has been accepted; except, a license shall not be withheld for noncompliance with Section 7.3 of this rule in the case of the corporation defined in W.Va. Code §18-11C-1(d).

4.4.4.5. The facility has submitted the appropriate fee according to the provisions of W. Va. Code §16-5B-4.

4.5. Inspections.

4.5.1. The director has the right to enter upon or into the premises of any hospital or extended care facility in order to make inspections necessary to determine compliance with this rule.

4.5.2. The director shall notify a facility of any violations of this rule.

§64-12-5. Penalties.

5.1. After an opportunity for a hearing, the director may revoke the license of any hospital or extended care facility found in violation of this rule.

5.2. If the director revokes a license, the director shall consider a new application for a license when there is evidence that the conditions upon which revocation was based have been corrected.

5.3. A license shall be returned by the licensee to the director immediately upon its revocation, or when the hospital or extended care facility voluntarily ceases operation.

§64-12-6. Miscellaneous Requirements.

6.1. Every hospital shall be specifically identified as a hospital in its legal name, and it shall operate and conduct

business in this name. Any word which suggests a type of facility other than a hospital shall not be used in the name of a hospital.

6.2. A hospital may not change its name without the written approval of the director. A hospital shall submit a written request for a change in its name. An approved name change is shown in the next license issued.

6.3. All hospitals and extended care facilities are required to comply with applicable rules of the State fire commission and the State air pollution control commission.

6.4. The hospital or extended care facility shall post its license in a conspicuous place on the licensed premises.

6.5. No hospital shall admit more patients than the number of beds for which it is licensed except in the case of public catastrophe or emergency, and then only as a temporary measure.

§64-12-7. Administration of the Hospital.

7.1. Scope

The governing body, owner or board of trustees is the highest authority responsible for the management and control of the entire institution including employment of a hospital administrator and appointment of medical staff. The administrator is responsible for the direction and control of the hospital operation in accordance with policies established by the governing authority. The medical staff is responsible for the quality of medical care provided and for submitting reports on the quality of this care to the governing board of the hospital at frequent intervals.

7.2. Governing Authority.

7.2.1. There shall be a governing authority legally and morally responsible for the management and control of the hospital. In the discharge of its duties, the governing authority places responsibility for the care of patients upon the medical staff. It is responsible for the establishment of policies.

a. The governing authority shall adopt and amend bylaws which ~~shall~~ require ~~that body~~ it to:

(1) Appoint members to the medical staff;

(2) Approve the bylaws and regulations of the medical staff;

(3) Define the committees of the governing authority and the functions and responsibilities thereof;

(4) Develop and maintain suitable formal liaison with the medical staff by means of a joint conference committee;

(5) Appoint a full-time qualified administrator and delegate to him or her executive authority and responsibility; and

(6) Provide for the proper control of all assets and funds, including annual audits thereof.

b. Minutes of all meetings of the governing authority and of its committees, including a record of attendance, shall be recorded, signed and retained in the hospital as a permanent record.

c. The governing authority shall be responsible for providing a safe physical plant equipped and staffed to maintain adequate facilities and services for hospital patients.

7.3. Consumers on Boards of Directors of Certain Hospitals.

~~7.2.2.~~ 7.3.1. The boards of directors of ~~applicable~~ section 6a hospitals shall designate at least forty percent (40%) of their voting members as consumer representatives with an equal portion of ~~such~~ the representatives in the four (4) consumer categories of small business representatives, organized labor members, elderly persons and persons whose income is less than the national median income, except if, when 0.40 is multiplied by the number of the voting members, the product, when rounded to the next higher whole number, is not a multiple of four (4), then the number of representatives in the consumer categories may be unequal, provided that the number of representatives in any consumer category is only one (1) consumer in excess of the number of consumers in any other consumer category.

~~As used in subsections 7.2.2. through 7.2.9.:~~

(§§7.2.2.a through 7.2.2.j have been moved to §3, Definitions)

~~k. "Unrelated individuals" means persons fifteen (15) years old and over (other than inmates of institutions) who are not living with any person related to them by blood, marriage or adoption.~~

~~7.2.3. After the effective date of this rule all applicable hospitals shall include in their next application for hospital licensure a list of the voting members of its board of directors who have been designated as: (1) consumer representatives; and (2) such the members who are women, members of racial minorities, or who are handicapped.~~

7.3.2. No member of the board of directors of a section 6a hospital shall be designated by the hospital in more than one (1)

consumer representative category. ~~Within ninety (90) days of the effective date of these rules, all applicable hospitals shall either be in compliance with Section 7.2 of these rules or shall have on file with the department of health an accepted plan of correction for coming into compliance. Thereafter, 1) such information shall be provided annually to the department in the applicable hospital's license application, and 2) a license shall not be issued unless the composition of an applicable hospital's board of directors is in conformance with Section 7.2 of these rules or a plan of correction has been accepted; except, a license shall not be withheld for noncompliance with this regulation in the case of the corporation defined in West Virginia Code Chapter 18, Article 11C, Section 1, Subdivision (d) or in the case of Cabell County General Hospital as its board of directors exists under the authority of Chapter 157 of the Acts of the Legislature, regular session, 1945 and Chapter 166 of the Acts of the Legislature, regular session, 1947.~~

~~7.2.4.~~ 7.3.3. ~~An applicable~~ A section 6a hospital may change the designation of its consumer representatives from one (1) category to another by filing the change with the ~~department of health~~ director.

~~7.2.5.~~ 7.3.4. If a person designated as a consumer representative on ~~an applicable~~ a section 6a hospital's board of directors ceases to meet the definition of a consumer representative, then the person may retain his or her designation until the end of his or her term or until the next license application is submitted for the applicable hospital, whichever occurs first.

~~7.2.6 a.~~ 7.3.5. Each ~~applicable~~ section 6a hospital shall maintain a file containing affidavits by its consumer representatives as to their consumer category. The affidavits shall be in a form approved by the ~~department of health~~ director.

~~b.~~ 7.3.6. If a hospital's designation of a consumer representative is selected for verification or is the subject of a complaint received by the ~~department of health~~ director, upon request from the ~~department of health~~ director, the consumer representative ~~will be~~ is required to provide the ~~department~~ director with whichever of the following ~~which are~~ is applicable to document his or her consumer designation:

~~(1)~~ 7.3.6.1. For small business representatives, a copy of the business financial statement, workers' compensation filing or other evidence of business size acceptable to the ~~department of health~~ director;

~~(2)~~ 7.3.6.2. For organized labor members, written verification of membership from the union;

~~(3)~~ 7.3.6.3. For elderly persons, a birth certificate, driver's license copy or other evidence of age acceptable to the

department director;

~~(4)~~ 7.3.6.4. For persons whose income is less than the national median income, written verification by the Internal Revenue Service, as authorized by the board member, that the incomes of the persons are less than the established national median income, or copies of the signature pages of federal income tax returns, or an affidavit that the filing of ~~such~~ the returns with the federal government was not required.

~~c.~~ 7.3.7. If the consumer representative designation of a board member of ~~an applicable~~ a section 6a hospital is selected for verification or if the consumer representative designation of a board member of ~~an applicable~~ a section 6a hospital is the subject of a complaint and if, upon request by the ~~department of health~~ director, the consumer representative does not provide adequate documentation to justify ~~such~~ the designation, and if, after written notice to the ~~applicable~~ hospital, the board member has not been replaced before the then current license for the hospital is no longer in effect, the ~~department~~ director ~~may deem~~ shall consider the hospital to be out of compliance with Section ~~7.2.2 of these rules~~ 7.3 of this rule.

~~7.2.7.~~ 7.3.8. Each ~~applicable~~ section 6a hospital shall also maintain a file which ~~shall contain~~ contains the procedure established by the board of directors to assure the consideration of women, racial minorities and the handicapped in the selection of consumer representative board members and documentation that ~~such~~ the procedure has been followed, except no ~~such~~ file is required to be maintained by the corporation defined in ~~West Virginia Code Chapter 18, Article 11C, Section 1, Subdivision (d)~~ W.Va. Code §18-11C-1(d). ~~or by Cabell County General Hospital as its board of directors exists under the authority of Chapter 157 of the Acts of the Legislature, regular session, 1945 and Chapter 166 of the Acts of the Legislature, regular session, 1947.~~

~~7.2.8.~~ 7.3.9. In no event shall a board of directors of an ~~applicable~~ a section 6a hospital be required to be composed of more consumer representatives than are necessary to achieve forty ~~(40)~~ percent (40%) of the voting members of the board, regardless of the number of hospitals for which the board is the governing authority.

~~7.2.9.~~ 7.3.10. To the extent that any provisions of the charter or bylaws of ~~an applicable~~ a section 6a hospital regarding board member qualifications are in conflict with the requirements of ~~these regulations~~ this rule, ~~such~~ the provisions are null and void for purposes of complying with ~~these regulations~~ this rule.

~~7.3.~~ 7.4. **Hospital Administrator** - A hospital administrator qualified by education and experience shall be responsible at all times for directing, coordinating and supervising the administra-

tion of the hospital and for carrying out the policies of the governing authority and the rules and regulations of the medical staff. The administrator shall serve in an administrative liaison capacity between the medical staff and the governing authority.

§64-12-8. Physical Facilities.

8.1. General Requirement - The provisions of ~~this part shall~~ Section 8 of this rule apply to all hospitals ~~coming into existence after the effective date of these regulations~~ which were constructed or alterations completed subsequent to 1969 and prior to the effective date of this rule. If the director determines that changes necessary for compliance with ~~the new regulations~~ this rule would create undue hardship, ~~existing~~ hospitals or construction in existence at the time this rule becomes effective may be governed by ~~previously established requirements that have been approved by the state department of health~~ rules which were in effect at the time the hospital or construction was completed.

8.2. Site Selection.

8.2.1. The site of any hospital should be located in relation to the center of population, close to where patients live and where competent medical and surgical consultation is readily available and where employees can be recruited and retained. There shall be good drainage, ~~approved sewage disposal, safe water supply,~~ electricity, telephone, public transportation and other necessary facilities available on or near the site.

8.2.2. Local building codes and zoning restrictions shall be observed. Information as to zoning restrictions may be obtained from local civic authorities. Where local codes or regulations permit lower standards than required by ~~these regulations~~ this rule, the standards contained ~~herein~~ in this rule shall govern.

8.2.3. Institutions shall be located in an environment which is free from excessive noises of railroads, freight yards, traffic arteries, schools, playgrounds, airports, etc. The site shall not be exposed to smoke, foul odors or dust, or be subject to flooding.

8.2.4. Transportation shall be facilitated by roads which are kept passable at all times. There shall be walks and parking areas provided.

8.2.5. An inspection of the site for a proposed hospital shall be requested in writing and approval shall be obtained from the ~~state department of health~~ director before construction is started.

8.3. New Construction.

8.3.1. ~~For construction of new hospitals required to be licensed, the state department of health has adopted Appendix "A" of the public health service regulations, Part 53, Subpart N, general standards of construction and equipment, pertaining to the construction and modernization of hospital and medical facilities, as amended.~~ Hospitals constructed subsequent to the effective date of this rule shall comply with the General and Psychiatric Hospital sections, as applicable, of the 1992-93 edition of Guidelines for Construction and Equipment of Hospital and Medical Facilities.

8.3.2. ~~Drawings and outline specifications for any new hospital or buildings to be used as a part of or in conjunction with any institution required to be licensed under the provisions of Article 5B, Chapter 16, Code of West Virginia, as amended shall be presented in the schematic and preliminary stages to the state department of health for approval prior to the preparation and submission of final working drawings and specifications, and before construction is begun.~~ Complete construction drawings and specifications for any hospital construction project shall be submitted to the director for review prior to the beginning of work on the project. The drawings and specifications shall include architectural, structural and mechanical drawings and specifications and shall be prepared and signed by an architect registered to practice in West Virginia.

~~a. Such drawings shall be signed by an architect registered in West Virginia;~~

~~b. Drawn to a scale of not less than one eighth inch (1/8") equals a foot; and~~

~~c. Shall show, properly identified, the general arrangement and construction of the building and location of all fixed equipment.~~

8.4. **~~Additions and Alterations, Conversions and Changes in~~ Services** Additions; Renovations.

8.4.1. ~~Additions and alterations to all hospitals and related institutions shall conform to the minimum standards for new construction.~~ Additions to and renovation or alteration of any hospital, which addition, alteration or renovation is begun after the effective date of this rule, shall comply with the General and Psychiatric Hospital sections, as applicable, of the 1992-93 edition of Guidelines for Construction and Equipment of Hospital and Medical Facilities.

8.4.2. ~~Any institution required to be licensed shall, before making any structural changes to or any alteration in any building used or to be used as a part of or in conjunction with the licensed institution, including any changes in services, advise the state department of health in writing as to what is~~

~~intended.--Upon-the-department's--request,-there-shall-be-submitted-such-plans,-specifications-or-other-information-as-may-be required-for-approval-before-proceeding-with-the-proposed-changes.~~ Complete construction drawings and specifications for any hospital addition, alteration or renovation project shall be submitted to the director for review prior to the beginning of work on the project. The drawings and specifications shall include architectural, structural and mechanical drawings and specifications and shall be prepared and signed by an architect registered to practice in West Virginia.

8.4.3. Any existing building, or portions thereof, whether or not ~~presently-used~~ in use as a hospital as of the effective date of this rule, shall, if converted for use as a ~~specialized~~ hospital within the meaning of ~~these-regulations~~ this rule, ~~be required-to-meet-all-standards-as-set-forth-for-new-construction~~ shall comply with the General and Psychiatric Hospital sections, as applicable, of the 1992-93 edition of **Guidelines for Construction and Equipment of Hospital and Medical Facilities.**

8.5. **Walls, Ceilings and Floors.**

8.5.1. Walls and ceilings ~~must~~ shall be of a material which permits frequent washing, cleaning or painting.

8.5.2. Floors shall be smooth, nonabsorbent and constructed for easy and effective cleaning. Approved carpeting may be used in areas other than those requiring a smooth washable surface.

8.6. **Heating and Ventilation.**

8.6.1. Provision shall be made to provide adequate heating to insure the comfort and safety of patients and personnel.

8.6.2. The heating plant shall be capable of maintaining a temperature of seventy degrees Fahrenheit (70° F) in severe weather in all rooms used for patients.

8.6.3. Special attention shall be given to the ventilation of patients' quarters so as to supply fresh air and to prevent accumulation of objectionable odors, and:

a. Rooms which do not have outside windows, such as utility rooms, toilets, bedpan rooms, baths, sterilizer rooms, sterilizer equipment chambers and food storage rooms shall be provided with forced or suitable ventilation to change the air.

b. Kitchens and laundries which are located inside the hospital building shall be ventilated by exhaust systems which will discharge the air above the main roof, remote from any window or venting intake system.

c. Rooms used for the storage of combustible anesthetic agents, paints and other highly flammable materials shall be

ventilated to the outside air with intake and discharge ducts.

~~d.--Oxygen storage and oxygen manifold rooms shall comply with the regulations set forth in the latest edition of the National Fire Protection Association, No. 56.~~

8.6.4. No recirculation of air shall be permitted in operating rooms, delivery rooms, etc., and adjacent service areas. The ventilation system for ~~such~~ these areas shall be constructed to perform separately from any other ventilation system for the hospital.

8.7. **Windows, Doors, Corridors and Screens.**

8.7.1. Each patient's room shall have at least one (1) window opening to the outside to permit ventilation and a source of natural light. The window area shall not be less than one-eighth (1/8) of the floor space.

8.7.2. Door widths at all patient rooms, treatment rooms, operating rooms, delivery rooms and any room where entrance of an assembled bed may be required shall be at least three feet, eight inches (3' 8") to permit easy removal of the occupied bed.

8.7.3. No door shall swing into the corridor except janitor or toilet room doors. Bathroom doors shall open outward into patient rooms.

8.7.4. Corridors, stairways and elevators shall be of a width and design that will easily accommodate the removal of patients by bed, including beds with traction equipment. They shall be constructed and maintained in compliance with all safety regulations and requirements. Usage of these areas for purposes other than for which they were originally designed shall not be permitted at any time.

8.7.5. Handrails shall be installed in all corridors, ramps, inclines and passageways used by patients in those units of an extended care facility operated in connection with a hospital or in any hospital or hospital unit specializing in chronic or convalescent care.

8.7.6. Screens shall be provided for all exterior openings except that where doors to the exterior are self-closing or kept closed, screen doors are not required. Where provided, screen doors shall open outward and shall be self-closing. Window screens shall be designed and installed so as not to block exit in case of emergency. Window screens are not required in rooms that are fully air-conditioned and where windows are never opened.

§64-12-9. Operational Services.

9.1. Sanitation, Housekeeping and Maintenance.

9.1.1. The water supply ~~must be approved by the state department of health~~ shall comply with Public Water Systems, 64 CSR 3. ~~There shall be an adequate supply of hot water available at all times.~~

9.1.2. ~~The~~ Sewage disposal ~~must be approved by the state department of health~~ shall comply with Sewage System Rules, 64 CSR 9.

9.1.3. Hospital housekeeping and maintenance services are ~~required to be such that~~ shall maintain safe, comfortable and sanitary living conditions for patients and employees. ~~are maintained constantly.~~

a. Accumulated waste material shall be removed daily or more frequently if necessary.

b. The grounds shall be kept in sanitary, safe and presentable condition.

c. The premises ~~must~~ shall be kept free from rodent and insect infestation.

d. There shall be sufficient supplies and equipment, properly stored and conveniently located, to permit frequent cleaning of floors, walls, woodwork, windows and screens and to facilitate all necessary building and ground maintenance.

e. Stairwells and corridors shall be kept free from obstruction at all times.

9.1.4. Toilet facilities shall be provided in reasonable ratio to the number of patients cared for in the institution. Conveniently located grab bars, ~~conveniently located,~~ shall be provided at commodes and bathing facilities. Toilet facilities shall be provided for the public.

9.1.5. All garbage shall be stored and disposed of in a manner that will not permit the transmission of disease, create a nuisance or provide a breeding place for insects and rodents.

a. All garbage containers shall be watertight, nonabsorbent, rodent proof and have tight fitting covers.

b. ~~They must~~ Garbage containers shall be emptied at frequent intervals and shall be thoroughly washed and sanitized before being used again.

9.1.6. ~~Adequate incineration facilities shall be provided so that infected dressings, surgical and obstetrical wastes and other similar materials can be handled and disposed of in a safe~~

~~and sanitary manner.~~ The hospital shall comply with Infectious Medical Waste, 64 CSR 56.

~~a. Incinerators shall be constructed, operated and maintained in such a manner as not to create nuisances.~~

~~b. Ashes and noncombustible material shall be removed frequently and disposed of according to methods approved by the state department of health.~~

~~c. The use of heating plant fire boxes for incineration is not considered satisfactory.~~

9.2. Lighting.

9.2.1. All rooms and areas in the hospital shall be provided with sufficient artificial illumination to enable personnel to properly carry out procedures normally performed ~~therein~~.

9.2.2. Emergency lighting shall be provided for exits, stairs, corridors, nurseries, emergency rooms, delivery rooms, operating rooms and other areas necessary for safe effective patient care. Emergency lighting shall be supplied by an automatic emergency generator or the equivalent and shall be checked periodically, preferably under load conditions, and the dates on which tested recorded in a permanent log.

9.3. Oxygen Systems - All hospitals shall ~~have available~~ provide oxygen and ~~oxygen~~ equipment required for the use of oxygen. ~~in accordance with recommendations of the national board of fire underwriters and national fire protection association.~~

9.4. Laundry.

9.4.1. The institution shall make provisions for the proper cleaning of linen and other washable goods with special provisions for handling and disinfecting contaminated linens. Hospitals maintaining and operating laundries shall provide ventilation for the elimination of steam and odors and proper insulation to prevent the transmission of noise to patient areas. The following are also required:

a. Soiled linen receiving, storing and sorting areas with handwashing facilities;

b. Washing, extracting, drying and ironing areas and equipment provided with all necessary safety appliances and sanitary requirements;

c. Storage area for laundry supplies;

d. Personnel toilets convenient to laundry.

9.4.2. If commercial laundry service is used, the following are required:

a. A soiled linen collection and storage area with handwashing facilities in the area;

b. A central clean linen storage room.

9.4.3. Each of the following classes of laundry shall be separately stored and washed: soiled diapers, newborn nursery linen, infected linen and all radioactive contaminated linen.

9.4.4. A supply of clean linen shall be provided sufficient for the hospital's capacity with particular attention given to assuring an adequate supply of clean linen during and after weekends, holidays and other periods when the laundry is not in operation.

9.5. **Central Sterilization and Supply** - Each hospital shall provide a central sterilizing and supply room to prepare, sterilize, store and dispense sufficient sterile supplies and equipment to all units of the hospital to insure that medical or surgical asepsis is maintained in carrying out diagnostic, treatment and personal care procedures. ~~according to categories and patients being admitted to inpatient and outpatient units.~~

a. The hospital shall use an accepted method for determining adequate sterilization of supplies;

b. A cabinet, cupboard or other suitable enclosed space shall be provided for keeping sterile equipment and supplies in a convenient and orderly manner.

9.6. **General Storage.**

9.6.1. If possible, all storage should be concentrated in one (1) area except mechanical maintenance items which may be in a separate area. Handwashing facilities should be in or convenient to work areas.

9.6.2. Separate storage rooms shall be provided for flammable materials and for oxygen gases.

§64-12-10. Paramedical Services.

10.1. **Pharmaceutical Service.**

10.1.1. Hospitals operating and maintaining a pharmacy or dispensary in which drugs are compounded for internal use shall be under the supervision of a pharmacist registered as required by the pharmacy laws and regulations of the West Virginia board of pharmacy. Hospitals that do not maintain a pharmacy shall have a drug room under the supervision of a consulting registered

pharmacist.

10.1.2. **Medication Storage** - All drugs shall be stored in proper containers and be plainly labeled. Poisons and medications for external use are to be kept in a separate compartment or section of the pharmacy or drug room.

a. All drugs on nursing units and hospital services shall be stored in a specially designated cabinet, closet or room, in or near each nurses' station, with one (1) or more sections for poisons and medications.

(1) The medicine cabinet shall have a compartment for the storing of medications for external use only.

(2) The medicine cabinet shall be well illuminated and have adequate space for the storing of medications and for their preparation and administration. It is to be provided with a lock and key; to be kept locked when not in use; and the key available only to authorized personnel.

10.1.3. **Narcotics** - Narcotics and controlled or dangerous drugs~~,~~ ~~such as~~ which are required to conform with state and/or federal regulations shall be kept under double lock and accessible only to authorized personnel. Double locked boxes firmly attached to cabinets shall be used for storage of narcotics. Obsolete or surplus narcotics to be disposed of ~~must~~ shall be handled according to federal law.

10.1.4. All unused medications shall be discarded when orders have been discontinued or the patient has been discharged from the hospital, except that in the event the physician desires continuation of the medication, the patient may be permitted to take the medicine home if so ordered on the chart by the physician.

10.2. **Blood Supply Service** - Blood and blood substitutes shall be readily available to the hospital at all times for emergency administration. Arrangements shall be made to readily secure types of blood not ordinarily kept in the hospital. Blood shall be obtained, processed, stored and administered under the supervision of a pathologist or designated physician.

10.3. **Medical Records and Reports.**

10.3.1. A hospital shall maintain a medical records department under the supervision of a medical records librarian or other person qualified by training and experience. The medical records department shall be conveniently located and adequate in size and equipment to enable physicians to complete medical records.

a. Accurate and complete medical records shall be written

for each patient admitted for care in the hospital and the record shall be retained in an easily accessible manner in the hospital.

b. A complete medical record is one which includes patient identification, date, complaints, history of present illness, personal and family history, physical examination, doctor's orders including dietary orders, special examinations and consultations, clinical laboratory, x-ray and other examinations, provisional or working diagnosis, treatment and medications given, surgical reports including operative and anesthesia records, gross and microscopic pathological findings, progress notes, final diagnosis, condition on discharge, discharge summary and autopsy findings, if performed.

c. A medical record for each newborn infant, separate from the mother's record, shall be kept.

d. A short form medical record may be used for ~~inpatients staying~~ patients who are in the hospital less than forty-eight (48) hours except in the case of maternity and newborn patients. The short form shall contain sufficient information for proper diagnosis and treatment.

e. Records, including records of patients treated in the emergency room or outpatient department, shall be preserved either in the original form or by microfilm or electronic data process.

f. All clinical information pertaining to patients shall be filed in the patient's medical record.

g. All orders for medication or treatment shall be in writing, signed by the physician in ink and filed in the patient's medical record.

h. There shall be maintained a system of nurses' clinical records and all doctors' orders shall be in writing and signed by the physician. ~~Telephone or verbal orders shall be given to a registered professional nurse and shall be signed by the physician as soon as possible thereafter.~~ Verbal and telephone orders shall be given to licensed or certified personnel that are authorized to receive these orders by the medical staff policies and procedures. Physicians shall countersign all verbal and telephone orders as determined by the medical staff bylaws.

i. All reports and entries in the patient's medical record shall be typewritten or written in ink and signed by the person making the entry.

j. Only abbreviations approved by the medical staff shall be used in preparing medical records.

k. Final ~~diagnosis~~ diagnoses shall be included in the pat-

ient's medical record and shall be expressed in terminology of a recognized system of disease nomenclature.

l. Medical records shall be completed promptly, authenticated and signed by the physician or dentist within ~~fifteen (15) days but not more than~~ forty-five (45) days following discharge of the patient.

m. Medical records shall be indexed according to disease, operation and physician and indexing shall be kept up to date.

~~n. Hospitals using automatic data processing may keep indexes on punch cards or reproduced on sheets bound in books.~~

~~o.~~ n. All medical records of services to outpatients and patients treated in the emergency room shall be maintained in the files of the medical records department.

10.3.2. **Births and Deaths Report** - A complete list of all births, deaths and fetal deaths occurring within the month in licensed hospitals ~~must~~ shall be reported by the tenth of the following month on ~~special blanks provided for the purpose~~ forms provided by or approved by the director or on a comparable computer printout approved by the director to the ~~division of~~ state registrar of vital statistics. ~~state department of health.~~ All completed birth certificates ~~should~~ shall be sent to the ~~county~~ state registrar of vital statistics ~~immediately after the end of the month~~ within ten (10) days following the birth.

10.3.3. **Communicable Disease Reports** - ~~Licensed institutions must report each case of communicable disease to the local health officer within twenty four (24) hours after the disease is discovered. Reporting post cards furnished by the state department of health may be used and shall be signed by the physician who diagnoses the case.~~ Licensed hospitals shall comply with Reportable Diseases, 64 CSR 7 and any other applicable rules regarding the reporting of diseases or laboratory test results to the State.

~~10.3.4. Venereal Disease Reports. Licensed hospitals shall report every previously unreported case of syphilis, gonorrhea and chancroid within forty eight (48) hours after a diagnosis is made or treatment started. The report shall be made to the state director of health on forms supplied by the state department of health.~~

~~a.~~ 10.3.4. ~~Information contained on medical records in licensed hospitals relative to venereal diseases shall be made available upon request to the state director of health.~~ The hospital shall make medical record information relative to sexually transmitted diseases available to the director on request.

~~b. Supervisors of all laboratories in licensed hospitals~~

~~that perform serologic or other tests for syphilis shall make a report of all positive or reactive laboratory tests for syphilis as stated in Chapter 2, Article 4, Section 1 of the regulations of the West Virginia state board of health. These reports shall be submitted on the 1st and 15th of each month, except positive darkfield tests which shall be submitted within twenty-four (24) hours. These reports shall be made to the state director of health on forms supplied by the state department of health.~~

~~10.3.5. Annual Reports. All institutions shall submit annual reports to the state department of health on forms which will be supplied for this purpose.~~

10.4. Dietary.

10.4.1. The food service of the hospital shall ~~be in full compliance with the West Virginia food service sanitation regulations, adopted by the West Virginia state board of health, effective April 10, 1965.~~ comply with Food Service Sanitation Rules, 64 CSR 17.

10.4.2. Organization - There shall be an organized food service, planned, equipped and staffed to serve nutritionally adequate meals according to physicians' orders. A qualified dietitian or other person with suitable training shall be designated to serve as director of the dietary department on a full-time basis or in smaller hospitals on a regularly scheduled consulting basis. If the services of a qualified dietitian cannot be obtained, a person with a baccalaureate degree with major studies in food and nutrition shall be considered suitable to direct the food service.

a. Hospitals which employ a shared or consulting dietitian shall have the dietary department under the full-time direction of a person whose with training and experience in food service administration. ~~is acceptable to the department.~~ Provision shall be made for continued inservice training of the designated food service supervisor.

b. The dietary department shall maintain in its office a written plan of its policies, organization, management and daily operating procedure. The following records shall be maintained:

(1) The number of persons, by job description, employed full-time or part-time in the dietary department, the number of hours each employee works weekly; and

(2) A job description of each type of dietary department position with verification that each employee has been familiarized with his or her duties and responsibilities.

c. Menus, planned at least one (1) week in advance for both therapeutic and general diets, shall be written and dated.

d. Menus shall be posted in appropriate places in the food preparation area and be available to administrative personnel.

e. Menus, as served, with all substitutions noted, shall be filed in the dietary department for at least four (4) weeks.

f. All therapeutic diets, including between meal nourishments, shall be prepared and served as prescribed by the attending physician. An up-to-date diet manual shall be used in planning therapeutic diets and shall be readily available to the medical and nursing staffs and dietary personnel.

g. Adequate personnel ~~with current food handlers permits~~ shall be employed to perform the functions of the dietary department.

h. There shall be procedures to ~~control~~ prevent the contamination of meals and other items prepared or served by the dietary department by ~~dietary~~ employees with respiratory ailments, infections and open lesions. ~~Health examinations for employees shall meet local, state and federal codes for food service personnel. Current health examination records of employees shall be on file.~~

i. There shall be an inservice training program designed to meet the needs of dietary employees, including training in proper handling of food and personal hygiene. ~~This is not a substitute for regular food handler training conferences conducted by the state department of health.~~

j. No personal belongings of personnel shall be stored in food preparation or serving areas or in the dishwashing and clean-dish storage areas.

k. Dietary personnel shall not be served food in preparation areas.

l. Lavatories specifically for handwashing, including hot and cold running water, soap and approved disposable towels, shall be conveniently located throughout the food preparation area for use by food handlers.

m. Adequate clean toilet facilities shall be provided for food handlers.

n. All food served shall ~~be from approved sources and shall meet the standards of quality as established by applicable laws and regulations. Food prepared outside the hospital shall be from sources that comply with existing laws and regulations.~~ comply with Food Service Sanitation Rules, 64 CSR 17, whether prepared inside or outside of the hospital. The hospital may contract with an outside food management company for dietary services if the outside company has a qualified dietitian who

serves the hospital on a full-time or part-time consulting basis, and if the company complies with Food Service Sanitation Rules, 64 CSR 17, or, if located outside of this State, complies with the applicable rules and regulations of the authority having jurisdiction over the company.

o. Dry or staple food items shall be stored at least twelve inches (12") off the floor in well-ventilated rooms which are not subject to contamination by sewage ~~or wastes~~, water backflow, ~~or contamination~~ contaminated water, leakage, rodents or vermin.

p. Potentially perishable foods shall be maintained at a temperature of forty-five degrees Fahrenheit (45° F) or below. Refrigerators and storerooms used for perishable foods shall be equipped with reliable thermometers.

q. All ice used in contact with food or drink shall be ~~obtained from a source meeting state department of health standards for drinking water. It shall be stored, handled and dispensed in a sanitary manner.~~ comply with Public Water Systems, 64 CSR 3.

r. ~~Milk and milk products shall be obtained from a source and in a manner approved by the state department of health.~~ Milk shall be served to patients in the distributor's original individual containers or from approved bulk dispensers to be located in each patient area.

s. A sample of potentially hazardous foods from the menu of each meal shall be retained under adequate refrigeration for a period of at least twenty-four (24) hours after serving. By this method, proper samples of food are available for laboratory examination in the event of a food-borne disease outbreak.

t. Poisonous and toxic materials shall bear warning labels, be stored separately from food or equipment used in preparing and serving food and shall be used only in ~~such~~ ways that ~~they~~ will neither contaminate food nor be hazardous to employees.

u. Food being served or transported shall be protected from contamination and held at proper temperature in clean containers, cabinets or serving carts.

v. Garbage and refuse shall be placed in impervious containers equipped with tightly fitting covers. Containers shall be stored in a safe area or refrigerated space pending removal and shall be removed from the premises and sanitized daily.

~~w. Hospitals contracting for food service with an outside food management company shall meet the requirements provided the company has a qualified dietitian who serves the hospital on a full time or part time consulting basis and the company fulfills the minimum standards listed herein.~~

§64-12-11. Patient Care Department.

11.1. **General Requirement** - All patient care areas and units shall be segregated from areas used by the public or occupied by hospital service facilities. This includes administration, adjunct diagnostic treatment, dietary, laundry, etc.

11.2. **Patient Care Unit.**

11.2.1. Patient care unit means a designated area of the hospital that provides a bedroom or a grouping of bedrooms with supporting facilities and services to provide adequate nursing care and clinical management of inpatients and that is thereby planned, organized, operated and maintained to function as a separate distinct unit. All nursing units shall contain the facilities listed below. For the most part, these are the same for medical, surgical, pediatric, maternity, communicable and other nursing units. Any difference or special requirement for a particular service is noted.

a. **Private and Multiple Bedrooms** - There shall be provision for private bedrooms to meet the needs of patients and programs of the hospital. There should be no more than four (4) beds per patient bedroom. No bedrooms shall be located below ground level. There should be no more than approximately thirty-five (35) patient beds in a patient care unit. Larger units are permissible if additional facilities are provided.

b. **Bedroom Size** - Each one-bed room shall contain a minimum floor area of one hundred (100) square feet. Each multiple-bed room shall contain a minimum floor area of eighty (80) square feet per bed with three feet (3') between beds and two feet (2') from the walls at the sides of the beds. The area is to be taken in an unobstructed space contained in a square or rectangle.

c. **Windows** - ~~Each patient room shall have a minimum window area equal to one eighth (1/8) of the floor area.~~ Privacy for the patient and control of light shall be provided at each window.

d. **Entries** - Each patient bedroom shall have direct entry from a corridor. ~~Such entry shall have a door at least equal in fire resistance to one and three fourths inches (1 3/4") thick solid core wood. The door opening shall be at least three feet eight inches (3'8") in clear width (four feet (4') of clear width is recommended) and shall not swing into the corridor.~~

e. **Lighting** - Artificial light shall be provided and include: (1) general illumination; (2) other sources of sufficient illumination for reading and observations, examinations and

treatments; (3) night light controlled at the door of the ~~bedroom*~~ bedroom; and (4) quiet-operating ~~switches*~~ switches.

f. **Handwashing Facilities** - A lavatory complete with mixing faucet, blade controls, soap and sanitary hand-drying accommodations shall be provided in each patient bedroom. The lavatory may be installed within the toilet room in private rooms and two-bed rooms where the toilet serves only one (1) room. There shall be adequate handwashing facilities throughout existing institutions.

g. **Toilet Facilities** - Toilet facilities shall be provided immediately adjacent to private or multiple bedrooms in the ratio of one (1) toilet for not more than four (4) patient beds and shall include: (1) bedpan and urinal flushing equipment; (2) wastepaper receptacles with removable impervious liner; and (3) approved grab bars convenient for safety of patients.

h. **Bathing Facilities** - Patient bathing facilities shall be provided in the ratio of one (1) tub or shower for each ten (10) patients. Approved grab bars shall be sufficient to provide space for wheelchair movement.

11.2.2. **Patient Equipment** - Patient bedrooms shall have movable furniture and be equipped with the following for each patient:

a. Adjustable ~~beds~~ bed with safety side rails;

b. Cabinet or bedside table;

c. Overbed table;

d. Wastepaper receptacle with impervious disposable liner or disposable waste receptacle;

e. Complete personal care equipment sanitized before each patient's use, ~~and~~ including water carafe, mouthwash cup, emesis basin, washbasin, bedpan and urinal;

f. ~~Each patient shall be provided with~~ Separate closet or locker; and

g. ~~Each patient shall be furnished with an adequate~~ Nurses' call system.

11.2.3. **Service Areas** - The following service areas shall be provided and located conveniently for patient care:

a. Nurses' station, equipped with a nurses' call system

~~*Not required in existing facilities.~~

from patients, a communication system with other departments of the hospital and to the outside. There shall be at least one (1) nurses' station on each floor containing patient bedrooms.

b. Medical record charting facilities.

c. Medicine preparation area.

d. Clean holding area.

e. Soiled holding area.

f. Janitor's closet.

g. Stretcher and wheelchair storage area.

11.2.4. **Nurses' Station** - Nurses' ~~station~~ stations shall be adequately designed and equipped.

a. The medication preparation areas shall be equipped with: (1) cabinets with suitable locking devices to protect drugs stored ~~therein~~ in the cabinets; (2) a refrigerator equipped with thermometer and used exclusively for pharmaceutical storage; (3) counter work space; (4) a sink with approved handwashing facilities; and (5) antidote, incompatibility and metriapothecary conversion charts. Only medications, equipment and supplies for their preparation and administration shall be stored in the medication preparation area. Test reagents, general disinfectants, cleaning agents and other similar products shall not be stored in the medication preparation area.

11.2.5. **Clean Holding (Utility) Room** - The clean holding room shall be equipped with: (1) a counter sink with mixing faucet, blade controls, soap and sanitary hand-drying facilities; (2) a waste receptacle with cover (foot control recommended) and impervious disposable liner; and (3) cupboards or carts for supplies. There shall be a separate closed area in the clean holding supply area for clean linens and supplies on carts or in cabinets.

11.2.6. **Soiled Holding (Utility) Room** - The soiled holding rooms shall be equipped with: (1) a suitable counter sink with mixing faucet, blade controls, soap and sanitary handwashing facilities; (2) a waste receptacle with cover (foot control recommended) and impervious liners; (3) a soiled linen cart or hamper with impervious liners; (4) accommodations and provisions for enclosing soiled articles; (5) space for short-time holding of specimens awaiting delivery to the laboratory; and (6) adequate shelf and counter space.

11.2.7. **Janitor's Closet** - The janitor's closet shall be equipped with: (1) a sink, preferably depressed or floor mounted with mixing faucet; (2) a hook strip for mop handles from which

soiled mops have been removed; (3) shelving for cleaning materials; and (4) a waste receptacle with impervious liner. The area should be adequate to store mop buckets on a roller carriage, a wet and dry vacuum machine and a floor scrubbing machine.

11.2.8. **Personnel Toilet Facilities** - Toilet facilities shall be provided for personnel on each patient care unit.

11.3. **Maternity Services.**

11.3.1. Maternity facilities, including accommodations for mothers and infants, and the delivery suite shall be a self-contained unit including the required facilities in Section 11.2 of this rule, and shall be segregated from all other parts of the hospital.

a. The administration of the obstetrical department shall be under the direction of a qualified, professional registered nurse currently registered in West Virginia. Nurses caring for obstetrical patients ~~are not to~~ shall not care for other types of patients.

b. Visiting rules shall be posted conspicuously.

11.3.2. **Labor-delivery Unit** - The labor-delivery unit, the maternity nursing unit and the nursery facilities should be planned in relation to each other so that prenatal, natal and postnatal processes are a continuous, safe and satisfying experience for mother and infant.

a. A designated special labor room is desired and one (1) labor bed for each ten (10) maternity beds is recommended. Rooms for labor shall have a lavatory with nonmanual controls, access to bedpan facilities and access to a toilet room which is under the supervision of nursing personnel. There shall be facilities for examination and preparation of patients as required by attending physicians.

b. One (1) delivery room is required and one (1) additional delivery room for each twenty (20) maternity beds is recommended. This room shall not be used for any other purpose, and it shall be used only for delivery of non-infected patients. Patients with any evidence of infection or possible infection shall be delivered in a separate, private room.

(1) There shall be a suitable delivery table equipped for operative deliveries and treatment for shock.

(2) The delivery room shall be furnished with suitable tables or stands for instruments and necessary supplies.

(3) An adequate supply of sterile utensils, linens, dressings, gloves and face masks shall be in readiness for all deliv-

eries.

(4) Sterile equipment for administration of blood transfusions and intravenous or subcutaneous therapeutic solutions shall be readily available.

(5) There shall be ready at all times equipment for general anesthesia, and a supply of drugs and anesthetics ordinarily needed for spinal and/or pudendal anesthesia.

(6) A heated bassinet or incubator shall be ready for the reception and care of the newborn infant in the delivery room.

(7) There shall be equipment for resuscitation as ordered by the physician and facilities for the administration of oxygen shall be available.

(8) ~~One-(1)-or-two-(2)-drops-of-a-one-percent-(1%)-solution of-silver-nitrate~~ The contents of a single-use tube of an opthalmic ointment containing one percent (1%) tetracycline or one-half of one percent (0.5%) erythromycin or the equivalent dosage of these medications or other appropriate medication approved by the director for the prevention of inflamation of eyes of the newborn shall be instilled in the eyes of the newborn baby immediately upon its birth.

(9) An acceptable means of identification for each infant shall be available in each delivery room and shall be applied at the time of delivery in the delivery room.

~~(10)---All-infant-births-shall-be-properly-recorded-in-a delivery-room-record-book-in-accordance-with-the-rules-and-regulations-of-the-state-department-of-health.~~

11.3.3. Nursery Unit - A separate nursery unit shall be provided for the care of newborn infants. This nursery unit is not to be used for any other purpose. It shall be conveniently located with reference to the mothers' rooms and shall be preferably an outside room so located as to receive sunshine some portion of the day.

a. Nurseries shall ~~be-of-sufficient-size-to~~ provide twenty-four (24) square feet of floor space per bassinet with at least twelve inches (12") between bassinets.

b. There shall be handwashing facilities with nonmanual controls in the nursery unit.

c. A viewing window shall be provided between each nursery and the corridor so that visitors may see the infants without entering the nursery.

d. There shall be provision for adequate control of atmo-

spheric conditions in the nursery and heating shall be sufficient to maintain a temperature of seventy-five degrees Fahrenheit (75° F). There shall be a reliable room thermometer near the bassinets and approximately at bassinet level.

e. A separate bassinet for each infant shall be provided with suitable equipment.

f. Accurate scales shall be provided for each nursery.

g. Covered cans for waste shall be provided and emptied at frequent intervals.

h. One (1) rectal thermometer shall be provided for each infant and the thermometers shall be kept in an antiseptic solution in individual containers.

i. There shall be adequate space within or adjacent to the nursery unit for all equipment and supplies required to provide adequate and safe care to newborn infants.

j. Other essential equipment required includes incubators, resuscitators and oxygen apparatus.

11.3.4. Formula. Room.

~~a. This room is for the sole purpose of preparing the infant formula and shall have no direct access to the nursery or workroom. The following shall be provided unless commercially prepared formula is used:~~

~~(1) Work counter with built in sink with gooseneck type spout and knee or foot control;~~

~~(2) Lavatory;~~

~~(3) Hot plate;~~

~~(4) Refrigerator;~~

~~(5) Sterilizer (autoclave);~~

~~(6) Bottle washer.~~

~~(b)~~ If Commercially prepared formula ~~is to be used or other modifications are proposed in formula preparation and processing, the formula room shall include such the space and equipment as are necessary to accommodate formula processing and handling.~~ shall be handled and prepared in a manner consistent with the requirements of Food Service Sanitation Rules, 64 CSR 17.

11.3.5. Isolation Facilities - Immediate segregation and isolation of all infants with communicable infections shall be

provided. All equipment shall be kept completely separate for each infant.

a. Infants born outside the hospital shall be isolated for at least seventy-two (72) hours after admission.

11.3.6. **Clothing and Linen** - Infant's clothing and diapers shall be furnished by the hospital.

a. Nursery linen shall be washed separately from other hospital linen and care taken to avoid contamination of freshly laundered articles ~~and autoclaved before use~~.

b. Infant's clothing and diapers shall be freshly laundered ~~and autoclaved~~ before use.

11.3.7. **Nursing Procedures** - Each hospital shall establish definite nursing procedures for delivery room, nursery and antepartum and postpartum care of patients.

a. In order to insure uniformity of nursing practices within a hospital, ~~it is required that~~ all nursing routines shall be in written form and available to all personnel in the maternity section.

b. Instructions for feeding and care of the infant shall be given to the mother in accordance with the physician's recommendations.

11.3.8. Noninfected gynecologic patients may be admitted to the maternity service of the hospital provided ~~the plan setting forth the~~ the hospital medical staff shall approve written policies, procedures and conditions for ~~such~~ the combined service. ~~has been submitted to and approved by the state department of health.~~

11.4. **Surgical Unit.**

11.4.1. The surgical suite shall be a self-contained unit, under the direction of a surgical supervisor who is a qualified professional registered nurse, currently ~~registered~~ licensed in West Virginia, and shall be so located that traffic in and out can be controlled and there is no through traffic to any other part of the hospital. The surgical suite shall be separated physically from the delivery suite and emergency unit.

a. The surgical department shall be under the supervision of the chief of surgery who ~~is~~ shall be: ~~duly~~ licensed in West Virginia; competent in the practice of surgery; ~~and~~ practicing in the town or city in which the hospital is located; and ~~who is~~ available at all times.

b. The term "competent" is intended to mean a surgeon hold-

ing a certificate from the American Board of Surgery, or a fellow of the American College of Surgeons or eligible for ~~such~~ membership, or a surgeon who has had two (2) years or more experience as the regular assistant in seventy-five percent (75%) or more of the operations of a major nature performed during ~~such~~ the two-year period by a senior surgeon who performs a large amount and variety of major surgery in an approved hospital. ~~Above~~ The assistantship shall have been served within a five-year period immediately preceding the date of the hospital license application.

11.4.2. Operating rooms shall be provided with adequate standard equipment and supplies to insure safe surgical care.

a. Adequate provisions shall be made for the storage of sterile surgical supplies and instruments.

b. A room or area for an emergency supply of clean and sterile goods and equipment is required.

11.4.3. Emergency lighting shall be provided in the surgical suite and should be connected with an automatic transfer switch which will throw the circuit to the emergency circuit in case of current failure.

11.4.4. Separate scrub-up facilities with nonmanual controls readily accessible to each operating room are required.

11.4.5. **Utility Areas** - Clean and soiled utility rooms properly equipped are required.

a. Doctors' and nurses' dressing rooms are required with showers and lockers recommended.

b. A janitor's closet for the surgical unit is required.

11.4.6. An ungrounded electrical distribution system shall be provided. Conductive flooring, furniture, mattresses and pads, rubber tubing and parts, belting, plastics, sheeting, shoes, electrical wiring and equipment shall comply with the national fire protection association, No. 56.

11.4.7. Heating and air-conditioning systems installed shall have provisions made to prevent the recirculation of air.

11.5. **Recovery Room.**

11.5.1. There should be adequate provisions for immediate postoperative care in a separate room.

11.5.2. **Location** - The recovery room should be located on the same floor and adjacent to the surgical suite.

11.5.3. **Size and Equipment.**

a. The size of the recovery room is dependent upon the maximum number of patients to be accommodated at one (1) time. It is suggested that in hospitals with one to four (1-4) operating rooms there be one (1) recovery bed for each operating room plus one (1) additional recovery bed; in hospitals having from five to eight (5-8) operating rooms there be one (1) recovery bed for each operating room plus two (2) additional recovery beds; and in hospitals having from nine to twelve (9-12) operating rooms there be one (1) recovery bed for each operating room plus three (3) additional recovery beds.

b. For each bed, sufficient area should be allowed to permit space for bulky equipment and to afford access of personnel on all sides of the bed, including the head.

c. Beds should be arranged in ~~such a manner~~ so that all patients can be observed simultaneously.

d. Adequate utility facilities shall be provided in addition to a nurses' station, charting area, medication storage and preparation space and clinical sink.

e. Approved oxygen and suction outlets shall be provided for each patient.

f. Necessary items of equipment and adequate supplies shall be provided including space for proper storage.

g. There shall be a sufficient number of electrical outlets and emergency electrical power provided. Sufficient artificial lighting shall be provided.

h. Provisions for adequate control of atmospheric conditions shall be available. Cooling and heating shall be sufficient to maintain a comfortable average temperature.

i. An emergency call system and telephone shall be provided as a means of summoning physicians or additional nursing personnel when needed.

11.5.4. **Staffing.**

a. The recovery room shall be under the direction of a registered professional registered nurse, experienced and trained in the care and management of post-operative surgical patients.

b. The number of nurses and other personnel required to staff the recovery room is dependent upon the number of patients in the unit at different times of the day and the length of time the patients remain in the unit.

(1) Usually one (1) nurse experienced in the post-operative care of surgical patients, with the assistance of a nurses' aide or orderly, can care for four (4) patients, if supplies and equipment are provided assembled ready for use from a central supply unit.

11.5.5. **Records** - A record for each patient while in the recovery room shall include the physicians' orders, respiration, pulse and blood pressure readings, treatment and medications given and the patient's condition on admission and transfer. A special recovery record form may be used; however, the same clinical record forms as used on other hospital units may be used.

11.6. **Anesthesia Department.**

11.6.1. There shall be an organized anesthesia department under the direct supervision of a physician duly licensed in West Virginia.

a. When anesthetics are administered under the supervision of a physician and not by him or her, the individual administering the anesthetic shall be specially trained in anesthetic techniques.

b. ~~Definite~~ Safeguards in the use of various types of general anesthetics shall be established. ~~in view of the known hazards in administration and handling, and shall conform to the latest requirements of national fire protection association, No. 56, code for the use of flammable anesthetics.~~

c. All equipment for the administration of anesthesia and oxygen shall be readily available and there shall be provided safe suction and resuscitation apparatus, all kept clean and in good repair.

11.7. **Pediatrics Department** - Institutions providing ~~this~~ pediatric care shall have proper facilities apart from the services for adult patients. There shall be proper facilities and procedures for the isolation of children with infectious, contagious or communicable diseases.

11.8. **Provision for Contagious Disease Patients** - Many institutions do not have specialized contagious disease departments, but they do find it necessary, from time to time, to care for patients with contagious disease. Occasionally, patients admitted for treatment of some other condition will later be found to have a contagious disease. There may also be contagious disease patients in the community for whom hospitalization is necessary for proper care and treatment. Therefore, all institutions shall make provision for isolation in the event that this becomes necessary, except for hospitals or alterations built before 1969. In planning new institutions, or additions to existing institutions, there shall be one (1) or more suitable

rooms for this purpose in accordance with the size of the institution and the needs of the community. Rooms planned for isolation of patients shall have lavatory and toilet facilities. There shall be adequate facilities for sanitizing bedpans and other equipment used in the care of the patient. ~~Such~~ The units are most efficient when provided with a utility room equipped with a sink, drainboard and utensil sterilizer.

11.9. **Coronary Care Unit.**

11.9.1. **Definition** - Coronary care unit means a specialized area of the hospital containing a grouping of single bedrooms or enclosures accommodating not more than six (6) beds or less than two (2) beds wherein constant, intensive visual observation and immediate emergency treatment can be provided. When ~~such~~ a coronary care unit is provided, the requirements ~~listed herein~~ of Sections 11.9.1, 11.9.2 and 11.9.3 shall be observed:

a. The coronary care unit ~~should~~ shall be organized under the direction of a specially created committee of the medical staff, preferably headed by a cardiologist. The ultimate authority in determining policies of admission, length of stay and discharge, and in instances where operational problems arise ~~must~~ shall be clearly delineated through policies developed cooperatively by administrative, nursing and medical staffs. Most importantly, a qualified physician ~~must~~ shall be available to the unit at all times. Essential to the effectiveness of the coronary care unit is the development of a highly skilled nursing staff.

b. The nursing service shall be under the supervision of a registered professional nurse qualified by training, experience and ability. At least a minimum of one (1) qualified, registered professional nurse with special training shall be on duty at all times to give direct patient care. ~~Additional nursing personnel shall be available consistent with the nursing care required by the patients.~~ Coronary care unit staff shall be under the supervision of a registered professional nurse and may include registered professional nurses, practical nurses and other health care personnel qualified by training and State law to provide emergency care services.

c. Adjunctly, the organization of a cardiac arrest team composed ideally of an internist, an anesthesiologist, a surgeon and appropriate auxiliary staff should be undertaken to provide immediate emergency care both within the unit and throughout the hospital on a twenty-four (24) hour basis.

d. A system shall be established for calling selected emergency personnel to the unit. The patient should have an intercom system to the nurses' station; the nurses' general monitoring console should also be linked by intercom to an adjacent nursing station (to summon additional aid when needed), to the nurses'

and doctors' lounge and the family waiting room.

11.9.2. Size and Equipment of the Coronary Care Unit.

a. The area of the coronary care unit shall be sufficient in size to allow movable equipment to be placed on either side of the bed(s). A separate enclosed space approximately eleven feet x by twelve feet (11' x 12') should be provided for individual patient areas to ensure an adequate working area in time of emergency. A minimum of at least eighty (80) square feet per bed in multiple bedrooms and one hundred (100) square feet in single bedrooms is required. Space for storage of commonly used equipment, supplies and drugs shall be provided within the unit.

b. A nurses' station located and so arranged for direct surveillance of all patients in the unit should be provided.

c. A medication preparation room and a clean and a soiled utility room shall be provided in immediate proximity to the bedrooms or within the ~~enclosure~~ unit.

d. A lavatory complete with mixing faucets, blade controls, soap and sanitary hand-drying accommodations shall be provided in each room.

e. In addition to normal lighting, a bright light should be available for examinations and in time of emergency.

f. Bedside vacuum and oxygen outlets should be installed at each patient's bed.

g. Adequate air-conditioning should be provided to control temperature and humidity.

h. The selection of specialized equipment to be installed in the coronary care unit is to be determined by the committee of the medical staff. However, certain basic equipment is essential for satisfactory function of the unit, namely:

(1) Variable height, adjustable beds or carriages with safety sides and bedboards;

(2) Bedside cabinets;

(3) ~~Intravenous rods installed in ceilings, walls or attached to beds~~ Provision for intravenous delivery systems;

(4) Electrocardiographic monitor with an alarm system, via chest or limb electrodes, and pacemaker equipment ~~must~~ shall be available for immediate activation. The electrocardiograph should be displayed instantly on a bedside oscilloscope or a slave oscilloscope shall be available for constant viewing by the nurse;

(5) External defibrillator;

(6) Respiratory resuscitative equipment;

(7) Oxygen administration equipment;

(8) Emergency call system at each bed.

11.9.3. Satisfactory provision should be made for adequate electrical circuits with necessary voltage for mounting and connecting equipment as well as safe and adequate uniform grounding of all circuits. Electrical interference problems **must** shall be obviated. The electrical system shall be connected to the emergency power system.

11.10. **Intensive Care Unit.**

11.10.1. **Definition** - Intensive care unit means a specialized area of the hospital containing a grouping of single-bed rooms or enclosures wherein critically and seriously ill patients requiring highly skilled nursing care and close and frequent, if not constant, nursing observation are assigned.

11.10.2. **Organization** - The intensive care unit should be organized under the direction of a specially created committee of the medical staff with written policies developed cooperatively by administrative, nursing, and the medical staffs concerning admission, types of patients, length of stay, discharge, records and other operational aspects.

11.10.3. **Size and Equipment** - Generally, the number of beds, staffing patterns, equipment and supply requirements, and the administrative and operational procedures of the intensive care unit depend upon patterns of medical practice, patient load, types of patients treated, staff requirements, physical arrangement, dietary services and housekeeping facilities of the hospital.

a. A minimum of at least eighty (80) square feet in multiple bedrooms and one hundred (100) square feet in single bedrooms is required. It is recommended that for each bed sufficient area should be allowed to permit space for special equipment and access of personnel on all sides of the bed.

b. Beds in the intensive care unit should be arranged to enable the nurse to observe all the patients closely and frequently from the nurses' station and work area.

c. **Approved** Oxygen and suction outlets shall be provided for each patient.

d. Sufficient artificial lighting, adequate number of electrical outlets and emergency electrical power shall be provided

in addition to patients' call button.

e. Provision shall be made for an emergency call system and telephone as a means in summoning physicians or additional nursing personnel.

f. A nurses' station, toilet, charting area, medication storage and preparation area, clinical sink and adequate utility and storage space shall be provided within the unit for storage of bulky equipment.

g. Control of atmospheric conditions shall be provided to insure comfortable heating, cooling and humidity and assure an aseptic atmosphere within the unit. The ventilation requirements and the need for temperature and humidity conditions within certain specific limits ~~will~~ shall be dictated by the type of clinical conditions treated.

h. It is recommended that a relatives' waiting room be provided near the intensive care unit with toilet facilities and telephone booth.

11.10.4. **Staffing.**

a. The staffing pattern ~~will~~ shall depend on the type patients admitted, the degree or intensity of the illness, as well as the utilization of ~~nonprofessional~~ practical nurses and other health care personnel qualified by training and State law to provide intensive care services, and the size and physical arrangement of the unit.

b. ~~The nursing service~~ The intensive care unit staff shall be under the supervision and direction of an experienced registered professional nurse especially trained in caring for critically and seriously ill patients.

(1) The same complement of staff should be provided for the full twenty-four (24) hours.

(2) Generally, one (1) registered professional nurse and one (1) ~~nonprofessional~~ practical nurse per unit of six (6) patients for each shift are sufficient for proper patient care.

11.11. **Extended Care Unit.**

11.11.1. **General Requirement** - The extended care unit shall be located in a segregated area of the hospital and shall include the usual complement of ancillary facilities required in the conventional care unit and meet the general rules and regulations for hospitals.

11.11.2. **Special Requirements** - Adequate space shall be provided for dining and recreation areas, special equipment stor-

age, training toilets, showers and bath facilities. Handrails, drinking fountains, lavatories, thresholds and telephone alcoves shall be designed to meet the requirements of patients using crutches, walkers and wheelchairs.

11.11.3. **Organization and Staffing** - The extended care unit shall be organized under the direction of a specially created committee of the medical staff with written policies developed by professional personnel including at least one (1) registered professional nurse.

a. The nursing service shall be under the direction of a registered professional nurse responsible for meeting the nursing needs required to implement the policies developed.

b. A registered professional nurse shall be in charge of the extended care unit on each tour of duty with sufficient other personnel to assure adequate patient care.

11.11.4. **Financial Rights and Responsibilities.**

a. Extended care residents shall be liable only for charges which have been included in the admission contract between the resident and the hospital or any written modification thereof, except in the case of emergency services which could not have been reasonably anticipated when the contract was signed or amended.

b. If emergency services provided are not included in the extended care admission contract, the hospital shall, when feasible, obtain the prior written consent of the extended care resident or other financially responsible person or agency, stating the amount of the applicable charges.

c. No extended care resident shall be transferred from or discharged by a hospital except for medical reasons, for the resident's welfare or safety or the welfare or safety of other residents, for nonpayment for his or her stay, or upon the resident's consent or request.

d. An extended care resident whose cost of care is reimbursed under Titles XVIII or XIX of the Social Security Act shall be discharged for nonpayment only in accordance with the provisions of the Social Security Act and any related applicable rules and regulations.

e. Extended care residents or their representatives lawfully authorized to manage fiscal matters on behalf of the resident have the right to manage their own personal financial affairs.

f. A hospital which manages or holds personal funds for extended care residents shall do so only upon written prior authorization of the resident, and shall hold such funds separately

and in trust.

g. The hospital shall administer the funds on behalf of the resident in the manner directed by the depositor.

h. The hospital shall render a true and complete account upon request to the depositor and at least quarterly to the resident on forms designated by the director.

i. Upon termination of the deposit, the hospital shall account to the depositor for all funds received, expended and held on hand on forms specified by the director.

j. If the hospital manages or holds personal funds for extended care residents, it shall make provision for the protection, in the form of insurance or other means providing equivalent protection, of the funds from theft or other forms of loss in an amount equal to at least the total amount of patient fund handled within the hospital's fiscal year.

k. When a hospital determines on the basis of medical judgment that a resident appears unable to manage his or her financial affairs, the administrator of the hospital shall notify the resident's next of kin to initiate guardianship or incompetency proceedings.

l. A hospital may initiate guardianship or incompetency proceedings on behalf of the resident if the resident has no family or if the family, once notified, fails to acts.

m. An employee of the hospital, or a person having a financial interest in the hospital is prohibited from accepting appointment as guardian, committee or conservator of the estate of an extended care resident, or from accepting a power of attorney for an extended care resident unless the employee or person is related to the resident within the degree of consanguinity of second cousin.

n. An individual serving in a prohibited capacity under Subsection 11.11.4.m of this rule as of the effective date of this rule shall initiate proceedings within thirty (30) days of the effective date of this rule to have him or herself removed from the prohibited capacity and to have another qualified person appointed.

§64-12-12. Outpatient Services.

12.1. Outpatient Department.

12.1.1. Medical service for ambulatory patients shall be organized as a definite outpatient department of the hospital under the supervision and direction of a qualified administrative official of the hospital.

a. The outpatient department shall be easily accessible for any ambulatory patients receiving treatment.

b. The outpatient department shall be conveniently located to other hospital facilities such as x-ray, laboratory and physical therapy departments.

c. Adequate and properly arranged accommodations and facilities shall be provided for the physical comfort and convenience of patients, medical staff and personnel, in addition to the equipment necessary for efficient professional care of patients.

12.1.2. **Personnel** - The outpatient department shall be provided with sufficient personnel, physicians, nurses and clerical assistants to assure proper care of patients.

a. The medical staff of the outpatient department shall meet the same requirements and qualifications which apply to the attending medical staff of the hospital.

12.1.3. **Records** - Accurate and complete medical records, including social and scientific data, shall be written on all patients, and shall be filed and indexed in ~~such a manner as to~~ be a form readily available at any time for reference, restudy and statistical and chronological research.

12.2. **Emergency Department.**

12.2.1. ~~All general hospitals shall provide~~ If the hospital provides emergency services, it shall have an emergency room ~~to be~~ which is located ~~within~~ so as to permit easy access from automobiles and ambulances.

a. The emergency service of the hospital shall be under the direct control of the director of the outpatient department.~~who is responsible for the efficient function of these services.~~

b. The emergency ~~rooms~~ service shall be of a size comparable to the need imposed upon it and shall be adequately equipped to provide whatever life-saving measures may be needed for patients admitted to this service.

12.2.2. **~~Personnel~~** ~~There shall be available~~ Professional personnel ~~at all times who are~~ trained in emergency life-saving measures shall be available at all hours the emergency service is open. ~~Also,~~ Either a physician who is a member of the ~~professional~~ medical staff of the hospital shall be available ~~at all times~~ to the emergency department or the hospital shall make arrangements for physician availability. Emergency room staff shall be under the supervision of a registered professional nurse and may include registered professional nurses, practical nurses and other health care personnel qualified by training and State law to provide emergency care services.

12.2.3. **Records**—- Adequate and complete records shall be kept on all patients treated in the emergency department.

12.3. **Dental Unit** - In a general hospital with one hundred (100) or more beds, it is recommended that consideration be given to the inclusion of a separate dental unit under the supervision of a dental surgeon ~~duly~~ licensed in West Virginia. Standard dental equipment, including all necessary anesthetic and sterilization equipment, should be provided for the diagnosis and treatment of diseases of the teeth and their related structures, rehabilitation and replacement of defective teeth and oral surgery.

§64-12-13. Adjunct Diagnostic and Treatment Departments.

13.1. ~~**Adjunct Diagnostic and Treatment Departments.**~~ <u>General.</u>

13.1.1. Those adjunct services which are to be used by patients should be located conveniently to inpatient areas and to the outpatient reception point of the hospital. The ground or first floor is usually the most desirable place for adjunct services.

a. A waiting area or room for patients with space for patient reception and control shall be provided.

b. Toilets for ambulatory patients and the public are required.

13.2. **Laboratory.**

13.2.1. Laboratory facilities with adequate space, equipment and supplies shall be provided in accordance with services to be rendered. A minimum of two hundred (200) to two hundred twenty-five (225) square feet exclusive of washing and sterilizing area, depending upon arrangement, is recommended for minimum services.

a. Minimal services include at least routine chemical and hematological laboratory procedures. Additional space ~~will~~ <u>shall</u> be ~~needed~~ <u>provided</u> for pathological, bacteriological and serological services if these are provided.

b. Space ~~must~~ <u>shall</u> be provided for clean-up and sterilizing and for administrative activities. It is recommended that these be separate rooms.

c. Hospitals of twenty-five (25) beds or less ~~shall not be~~ <u>are not</u> required to provide their own laboratory facilities if there is an approved laboratory available for use and located reasonably near ~~such~~ <u>the</u> hospitals.

13.2.2. Personnel - It is desirable that the laboratory be under the supervision and direction of a physician licensed to practice medicine in the state of West Virginia and who preferably has received special training in pathology.

a. If the laboratory director is not ~~in reality full time~~ in the laboratory or readily available to the laboratory, ~~there must be in the laboratory at all other times during its working hours a capable assistant to the~~ the assistant laboratory director who has full authority and responsibility for the activities of the laboratory in the absence of the laboratory director shall be present in the laboratory during laboratory working house.

b. ~~Qualifications of director:~~ The laboratory director ~~must~~ shall have minimal qualifications as follows:

(1) He or she ~~must~~ shall be a college graduate with major work for his or her degree in one (1) or more of the biological or chemical sciences commonly employed in clinical laboratories; or

(2) If such a person is not available, the laboratory director may be a person who is, or is eligible to become a registered medical technologist with the Board of Registry of the American Society of Clinical Pathologists; or

(3) A high school graduate who has had five (5) years' experience under a qualified clinical pathologist. Two (2) years of this required experience ~~must~~ shall have occurred within the five (5) years immediately preceding ~~such~~ employment.

(4) The laboratory director ~~must~~ shall also have had at least three (3) years' experience performing clinical or public health laboratory analyses in two (2) or more of the various fields of clinical laboratory activity in a clinical or public health laboratory ~~acceptable to the state department of health~~. Each year of resident post-graduate study in fundamental medical sciences which has been satisfactorily completed in a college or university accredited for granting a post-graduate degree in one (1) or more of these sciences, or in an institution accredited for ~~such~~ the post-graduate training by the Council on Medical Education and Hospitals of the American Medical Association, may be substituted year for year for the required experience, up to a maximum of two (2) years.

c. ~~Qualifications of~~ The assistant ~~to the~~ laboratory director shall:

(1) ~~Must~~ Be a college graduate with major work for his or her degree in one (1) or more of the biologic or chemical sciences commonly employed in clinical laboratories, or the equivalent as described in paragraphs (1), (2) and (3) of the qualifications of the laboratory director, except that a high school graduate

who has had four (4) years' experience under a qualified clinical pathologist may be ~~deemed to have satisfied~~ accepted as satisfying this requirement. Two (2) years of this required experience ~~must~~ shall have occurred within the five (5) years immediately preceding ~~such~~ employment by the hospital as the assistant laboratory director; and

(2) ~~Must~~ Have had at least one (1) year's experience or the equivalent, as described in paragraph (4) of the qualifications of the laboratory director.

d. ~~Qualifications for~~ Additional technical laboratory workers other than students or trainees ~~Must~~ shall be at least high school graduates with a minimum of one (1) year of technical training in one (1) or more of the sciences or procedures commonly employed in a clinical laboratory. ~~Such~~ The training ~~must~~ shall have been received in an accredited college or university, or in a laboratory approved for ~~such~~ this training by the Council of Medical Education and Hospitals of the American Medical Association, or in a laboratory directed by a qualified clinical pathologist, or in a nationally recognized public health laboratory.

~~e. Personnel Exempt from These Requirements. Paragraphs a, b, c, and d above do not apply to a person in a given laboratory who was employed at the time these regulations first became effective.~~

13.2.3. Equipment - The following basic items or their technological equivalents, in good condition, are required in any laboratory:

a. Laboratory sink;

b. Cabinets for reagents, and small equipment;

c. Microscope and lamp;

d. Refrigerator of at least six (6) cubic feet capacity;

e. Adequate gas and electric outlets;

f. Adequate glassware and reagents;

g. Adequate centrifuge;

h. Adequate working tables;

i. Adequate filing system;

j. Current laboratory reference texts;

k. Adequate colorimeter or spectrophotometer;

l. Hot air sterilizer with internal dimensions of at least 18" x 14" x 14" ~~i.d.~~ or the equivalent;

m. Bacteriological incubator, which for accuracy of temperature control should ~~be~~ have internal dimensions of at least 20" x 20" x 24" ~~i.d.,~~ or the equivalent;

n. Autoclave;

o. Balance and weights of suitable accuracy;

p. Still or demineralizer, properly operated.

If serological tests for syphilis are carried out, the following additional equipment, maintained in good condition, is required:

q. Serologic shaker and/or rotator;

r. Adequate water bath facilities.

~~13.2.4. **Reports** — The director or the assistant to the director of each hospital laboratory shall submit to the state department of health an annual report of the laboratory facilities and personnel on forms provided by the state department of health.~~

~~13.2.5.~~ 13.2.4. Nothing contained in or required by ~~these regulations~~ this rule and no action taken pursuant ~~thereto~~ to this rule shall be construed as constituting an approval by the ~~state department of health~~ director of any laboratory for proficiency to perform any specific laboratory test or technique explicitly required by any public health law or regulation.

13.3. Radiology.

13.3.1. All hospitals shall have facilities for at least one (1) radiographic room with adjoining darkroom, toilet and office. Hospitals of one hundred fifty (150) beds and over should have at least one (1) additional radiographic room. The size of the radiological department ~~will~~ shall depend upon the volume and types of services offered.

13.3.2. The radiological department shall be under the supervision of a licensed physician or a competent, well-trained x-ray technician.

13.3.3. **Requirements**— The following are minimum requirements for the x-ray service area:

a. One (1) radiographic room with adequate x-ray and fluoroscopic equipment;

b. Darkroom;

c. Office, viewing facilities and film filing for both active and inactive records. (May be one (1) room in a small radiology department.);

d. Dressing booths with adjoining toilet and lavatory for ambulatory patients;

e. Waiting space under the supervision of qualified personnel for stretcher and wheelchair patients and for outpatients, if served;

f. Utility area with sink and counter space;

g. Supply and equipment space;

h. Proper shielding of walls, floors and ceilings in area and shielded control areas for operators of x-ray equipment shall be provide by the institution. Plans for ~~such~~ this protection ~~must be approved by the state department of health~~ shall comply with Radiologic Health Regulations, 64 CSR 23.

13.3.4. Therapeutic x-ray and radiological isotopes may be provided with due consideration for the safety of patients and personnel being given to all aspects of the physical plant and equipment utilized in the radiology department.

13.4. Other Services.

13.4.1. Examination and Treatment Rooms (BMR, EKG, etc.) - All hospitals shall have at least one (1) all-purpose room for examination, treatment, private conferences, etc., in the adjunct service area. Separate space shall be provided for each service provided. ~~rooms for various functions are recommended where patient service is of such volume as to require them.~~ A lavatory with nonmanual controls is required in ~~such~~ each of these rooms.

13.4.2. Physical and Occupational Therapy - Space and equipment required ~~will~~ shall depend upon services provided. All hospitals admitting patients with diseases which lead to any incapacitation or disability should have facilities to provide inpatients with physical therapy, occupational therapy and speech therapy.

~~a. In hospitals of one hundred (100) beds and over, it is desirable that space be provided for electrotherapy, hydrotherapy, massage and exercise.~~

~~b.~~ If physical therapy is provided in the institution, it ~~must~~ shall be under the supervision of a physician ~~duly~~ licensed in the state of West Virginia.

13.4.3. **Morgue and Autopsy** - In hospitals of fifty (50) or more beds, complete morgue and autopsy facilities are recommended. A morgue is not required in small hospitals if mortuary facilities are available to the hospital.

§64-12-14. Professional Standards.

14.1. **Medical Staff.**

14.1.1. **Medical Staff** - Each hospital shall have an organized medical staff which includes fully licensed physicians and may include other licensed health care professionals who are privileged by law and by agreement with the hospital to attend patients, as defined in the hospital's governing and medical staff bylaws. The medical staff shall be accountable to the hospital's governing body for quality of medical care provided to hospital patients and for the ethical and professional conduct of its members while functioning in the hospital.

a. All hospitals which admit two (2) or more physicians to practice in the institution shall have an organized medical staff responsible to the governing authority for the fitness, adequacy and quality of medical care provided to patients in the hospital. Satisfactory evidence shall be maintained by the hospital of ~~such~~ the organization.

b. The term "staff" ~~is defined here as~~ refers to the group of physicians and other licensed health care professionals who are members in accordance with Section 14.1.1 of this rule and practice in the hospital. ~~inclusive of all groups, such as the active medical staff, the associate medical staff and the courtesy medical staff.~~

c. **Membership** - The medical staff shall be appointed by the governing body of the hospital in accordance with its bylaws, rules and regulations.

1. Each member of the medical staff shall be qualified for membership and the exercise of clinical privileges granted to him or her as evidenced by a current license to practice his or her profession in the State of West Virginia.

2. Clinical privileges of each medical staff member shall be delineated in writing.

3. Members of the medical staff ~~must~~ shall be legally, professionally and ethically qualified.

d. **Rules and Regulations** - The medical staff shall initiate and, with the approval of the governing board of the hospital, adopt rules, bylaws and regulations governing its professional organization and functional work. All medical staff members shall sign a document which specifies that the bylaws, rules and

regulations have been read. These rules and regulations, and policies shall specifically provide:

(1) That staff meetings be held at least once each month unless the hospital medical staff has monthly meetings in each department. In the latter case, only quarterly meetings of the full medical staff are required;

(2) That the staff review and analyze at the monthly staff meeting their clinical experiences in the various departments of the hospital such as medicine, surgery, obstetrics and the other specialties. The clinical records of patients shall be the basis of ~~such~~ the review and analysis;

(3) ~~The medical staff shall provide in its bylaws, rules and regulations~~ For the performance of committee functions in at least the following areas: credentials, medical records, case and utilization review, quality assurance, hospital infections, casualties, pharmacy and therapeutic practices and such other committees as the hospital board may deem necessary;

(4) ~~There shall be~~ For a chief of staff with direct responsibility for the organization and administration of the medical staff in accordance with the terms of the medical staff constitution, bylaws, rules and regulations; and

(5) For the chief of staff ~~shall~~ to be responsible for the functioning of the clinical organization of the hospital and ~~shall keep~~ keeping, or ~~cause~~ causing to be kept, careful supervision over the clinical work in all departments of the hospital.

14.2. Nursing Department.

14.2.1. A department of nursing shall be organized to provide comprehensive, effective nursing care to each patient under the direction of a registered professional nurse designated by the governing authority of the hospital, currently licensed in West Virginia and with ~~such~~ the education and experience to enable him or her to properly execute his or her functions and responsibilities.

14.2.2. There should be a written ~~departmental~~ nursing department plan of administrative authority with delineation of responsibilities and duties of each category of nursing personnel. The following documents shall be maintained:

a. A statement of the policy and objectives of the nursing department.

b. Current job descriptions and specifications for each category of personnel subject to review at least annually.

14.2.3. The following records shall be available in the

nursing department:

a. A list of all licensed nursing personnel, including private duty and per diem nurses, with each individual's current West Virginia license number.

b. Personnel records including employment application forms and verification of credentials and character references for each nursing department employee.

c. The current nursing care policy and procedure manuals.

d. Minutes and records of attendance at all meetings.

e. A list of the nursing department committees and other committees on which nursing is represented.

f. A master staffing plan for the current year.

14.2.4. There shall be an adequate number of registered professional nurses to meet the following minimum staff requirements:

a. Assistants to the director of nursing for evening and night services.

b. Supervisory personnel qualified by experience, education and ability for each specialty division of the nursing department, including but not limited to operating room, emergency, outpatient, maternity, newborn, pediatrics, intensive care, coronary care and medical and surgical services.

c. Staff personnel to provide direct nursing care as needed and to supervise nonprofessional personnel.

d. A registered professional nurse ~~shall be~~ on duty and immediately available for bedside care of any patient when needed on each shift, twenty-four (24) hours per day and seven (7) days a week.

e. ~~Licensed~~ Practical nurses as needed to supplement registered professional nurses in appropriate ratio to the registered professional nurses.

f. Auxiliary workers as needed to provide physical care and assist with simple nursing and clerical procedures not requiring professional judgment.

14.2.5. A registered professional nurse shall plan, supervise and evaluate the nursing care for each patient.

a. A written nursing care plan for each patient shall be kept current daily.

b. A copy of the current nursing care policy and procedure manual shall be available in each nursing unit.

c. Written nursing notes shall be maintained for each patient.

14.2.6. In order to assure well-established working relationships with other services of the hospital, both administrative and professional, a member of the nursing department, preferably a registered professional nurse, shall be represented on committees concerned with interdepartmental policies affecting nursing services and nursing care to patients.

14.2.7. Planned meetings shall be held monthly by the nursing department to discuss patient care, nursing service problems, administrative policies and to analyze the quality of nursing care rendered to patients.

14.2.8. Continuing planned educational activities shall be held for all nursing personnel. These activities shall include, but not be limited to, on-the-job training and development programs. Records of these program activities shall be maintained including the methods used and an evaluation of their effectiveness.

§64-12-15. Specialized Hospitals and Other Institutions.

15.1. **Tuberculosis Hospital** - To be licensed as a tuberculosis hospital, an institution ~~must~~ shall be devoted exclusively to the care of tuberculosis patients, have on the staff professional personnel especially qualified in the diagnosis and treatment of tuberculosis and meet the requirements for a general hospital. Maternity services need not be provided if provision is made for adequate maternity care at some readily available licensed hospital.

15.2. **Mental Hospital** - To be licensed as a mental hospital, an institution ~~must~~ shall be devoted exclusively to the care of mental patients, have on the staff professional personnel especially qualified in the diagnosis and treatment of mental illness and have adequate facilities for the protection of the patients and staff against physical injury by patients becoming violent. The requirements for a general hospital ~~must~~ shall be met except that maternity facilities need not be provided if provision is made for adequate maternity care at some readily available licensed hospital.

15.3. **Orthopedic Hospital** - To be licensed as an orthopedic hospital, an institution ~~must~~ shall be devoted exclusively to the care of orthopedic patients, have on the staff professional personnel especially qualified in the diagnosis and treatment of orthopedic conditions and ~~must~~ shall meet the requirements for a general hospital except that maternity facilities need not be

provided if provision is made for adequate maternity care at some readily available licensed hospital.

15.4. **Chronic Disease Hospital** - To be licensed as a chronic disease or convalescent hospital, an institution ~~must~~ shall be devoted exclusively to the care of patients requiring hospitalization because of prolonged illness or who are not acutely ill and not in need of general hospital care but who do require continuing medical care, skilled nursing care and related medical services. It ~~must~~ shall have a professional staff who are qualified in the diagnosis and treatment of chronic diseases, and it ~~must~~ shall meet the requirements for a general hospital except that maternity services are not to be provided.

§64-12-16. Administrative Due Process.

Those persons adversely affected by the enforcement of this rule desiring a contested case hearing to determine any rights, duties, interests or privileges shall do so in a manner prescribed in Rules of Procedure for Contested Case Hearings and Declaratory Rulings, 64 CSR 1.

§64-12-17. Severability.

The provisions of this rule are severable. If any provisions of this rule are held invalid, the remaining provisions remain in effect.

GUIDELINES FOR
CONSTRUCTION
AND EQUIPMENT OF

1992-93 HOSPITAL AND MEDICAL FACILITIES

■ The American Institute of Architects Committee on Architecture for Health with assistance from the U.S. Department of Health and Human Services

The American Institute of Architects Press
WASHINGTON, D.C.

The American Institute of Architects Press
1735 New York Avenue, N.W.
Washington, D.C. 20006

Printed in the United States
ISBN 1-55835-086-1

Library of Congress Cataloging-in-Publication Data
Guidelines for construction and equipment of hospitals and medical facilities/The American Institute of Architects Committee on Architecture for Health, with assistance from the U.S. Dept. of Health and Human Services—1992–93 ed.
p. cm.
ISBN 1-55835-086-1
1. Hospitals—United States—Design and construction. 2. Clinics—United States—Design and construction. I. American Institute of Architects. Committee on Architecture for Health. II. United States. Bureau of Maternal and Child Health and Resources Development.
RA967.G83 1993
725'.51'0973—dc20 92-42212
CIP

Cover design by Whitney-Edwards, Easton, Maryland
Layout and type by Studio 405, Washington, D.C.

CONTENTS

1. INTRODUCTION

1.1 General

1.1.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. Design and construction shall conform to the requirements of these Guidelines. Requirements set forth in these Guidelines shall be considered as minimum. For aspects of design and construction not included in these Guidelines, local governing building codes shall apply. Where there is no local governing building code, the prevailing model code used within the geographic area is hereby specified for all requirements not otherwise specified in these Guidelines. (See Section 1.4 for wind and seismic local requirements.)

Where ASCE 7-92 is referenced, similar provisions in the model building code are considered substantially
▲ equivalent.

1.1.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.

▼ **1.1.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. Final implementation may be subject to requirements of the authority having jurisdiction.

1.1.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. Should requirements be conflicting or contradictory, the authority having pri-
▲ mary responsibility for resolution should be consulted.

1.1.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.

1.1.F.
The health-care provider shall supply 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 quantity of staff or other occupants of the various spaces; the numbers, types, and areas (in net square feet) of all spaces; the special 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 development of project design and construction documents.

1.2 Renovation

1.2.A.
Where renovation 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 these 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 consid-
▼ ered. This does not guarantee that an exception will be granted, but does attempt to minimize restrictions on those improvements where total compliance would not substantially improve safety, but would create an unreasonable hardship. These standards should not be construed as prohibiting a single phase of improvement.

(For example, a facility may plan to replace a flammable ceiling with noncombustible material but lacks
▲ funds to do other corrective work.) However, they are not intended as an encouragement to ignore deficiencies when resources are available to correct life-threatening problems. (See Section 1.4.A.)

1.2.B.
When construction is complete, the facility shall satisfy functional requirements for the appropriate classification (general hospital, skilled nursing facility, etc.) in an environment that will provide acceptable care and safety to all occupants.

1.2.C.
In renovation projects and those making additions to existing facilities, only that portion of the total facility affected by the project shall comply with applicable sections of the Guidelines and with appropriate parts of NFPA 101 covering New Health Care Occupancies.

1.2.D.
Those existing portions of the facility which are not included in the renovation but which are essential to the functioning of the complete facility, as well as existing building areas that receive less than substantial amounts of new work shall, at a minimum, comply with that section of NFPA 101 for Existing Health Care Occupancies.

1.2.E.
Conversion to other appropriate use or replacement should be considered when cost prohibits compliance with acceptable standards.

1.2.F.
When a building is converted from one occupancy to another, it shall comply with the new occupancy requirements. For purpose of life safety, a conversion from a hospital to a nursing home or vice versa is not considered a change in occupancy.

1.2.G.
When parts of an existing facility essential to continued overall facility operation cannot comply with particular standards, those standards may be temporarily or permanently waived if patient care and safety are not jeopardized.

1.2.H.
Renovations, including new additions, shall not diminish the safety level that existed prior to the start of the work; however, safety in excess of that required for new facilities is not required to be retained.

1.2.I.
Nothing in these Guidelines shall be construed as restrictive to a facility that chooses to do work or alterations as part of a phased long-range safety improvement plan. It is emphasized that all hazards to life and safety and all areas of noncompliance with applicable codes and regulations, should be corrected as soon as possible in accordance with a plan of correction.

1.3 Design Standards for the Disabled

▼ In July of 1990, President Bush signed into law the Americans with Disabilities Act (ADA). This new law extends comprehensive civil rights protection to individuals with disabilities. Under Titles II and III of the ADA, public, private, and public service hospitals and other health care facilities will need to comply with the *Accessibility Guidelines for Buildings and Facilities* (ADAAG) for alterations and new construction. United States government facilities are exempt from the ADA as they must comply with the *Uniform Federal Accessibility Standards* (UFAS), which was effective August 7, 1984.

Also available for use in providing quality design for the disabled is the American National Standards Institute (ANSI) A117.1 *American National Standard for Accessible and Usable Buildings and Facilities.*

State and local standards for accessibility and usability may be more stringent than ADA, UFAS, or ANSI A117.1. Designers and owners, therefore, must assume responsibility for verification of all applicable requirements.

*1.4 Provisions for Disasters

In locations where there is a history of hurricanes, tornadoes, flooding, earthquakes, or other regional disasters, planning and design shall consider the need to protect the life safety of all health care facility occupants and the potential need for continuing services following such a disaster.

1.4.A. Wind and Earthquake Resistant Design for New Buildings
Facilities shall be designed to meet the requirements of the building codes specified in Section 1.1.A., provided these requirements are substantially equivalent to ASCE 7-92. Design shall meet the requirements of ASCE 7-92 Section 9.1.4.2, "Seismic Hazards Exposure Groups."

The following model codes and provisions are essentially equivalent to the ASCE 7-92 requirements:

1988 NEHRP Provisions
1991 ICBO Uniform Building Code
1992 Supplement to the BOCA National Building Code
1992 Amendments to the SBCC Standard Building Code

1.4.A1. For those facilities that must remain operational after a disaster, special design is needed to protect essential building services such as power, medical gas systems, and, in certain areas, air conditioning. In addition, consideration must be given to the likelihood of temporary loss of externally supplied power, gas, water, and communications.

1.4.A2. The owner shall provide special inspection during construction of seismic systems described in Section A.9.1.6.2 and testing in Section A.9.1.6.3 of ASCE 7-92.

1.4.A3. Roof coverings shall be securely fastened or ballasted to the supporting roof construction and shall provide weather protection for the building at the roof. Roof covering shall be applied on clean and dry decks in accordance with the manufacturer's instructions, these Guidelines, and related references. In addition to the wind force design and construction requirements specified, particular attention shall be given to roofing, glazing, and flashing details to minimize uplift and other damage that might allow entry of water that could seriously impair functioning of the building.

1.4.B.
Flood Protection, Executive Order No. 11296, was issued to minimize financial loss from flood damage to facilities constructed with federal assistance. In accordance with that order, possible flood effects shall be considered when selecting and developing the site. Insofar as possible, new facilities shall *not* be located on designated flood plains. Where this is unavoidable, consult the Corps of Engineers regional office for the latest applicable regulations pertaining to flood insur-
▲ ance and protection measures that may be required.

1.4.C.
Should normal operations be disrupted, the facility shall provide adequate storage capacity for, or a functional program contingency plan to obtain, the following supplies: food, sterile supplies, pharmacy supplies, linen, and water for sanitation. Such storage capacity or plans shall be sufficient for at least four continuous days of operation.

1.5 Codes and Standards

1.5.A.
Every health facility shall provide and maintain a safe environment for patients, personnel, and the public.

1.5.B.
References made in these Guidelines to appropriate model codes and standards do not, generally, duplicate wording of the referenced codes.

NFPA's standards, especially the NFPA 101, are the basic codes of reference; but other codes and/or standards may be included as part of these standards. In the absence of state or local requirements, the project shall also comply with approved nationally recognized building codes except as modified in the latest edition of the NFPA 101, and/or herein.

▼ Design standards for insuring accessibility for the handicapped may be based upon either ADA or UFAS, in accordance with the local authority having jurisdiction.
▲ Federally assisted construction shall comply with UFAS.

Referenced code material is contained in the issue current at the time of this publication. The latest revision of code material is usually a clarification of intent and/or general improvement in safety concepts and may be used as an explanatory document for earlier code editions. Questions of applicability should be addressed as the need occurs.

1.5.C. Equivalency
Insofar as practical, these model standards have been established to obtain a desired performance result. Prescriptive limitations, when given, such as exact minimum dimensions or quantities, describe a condition that is commonly recognized as a practical standard for normal operation. For example, reference to a room area is for patient, equipment, and staff activities; this avoids the need for complex descriptions of procedures for appropriate functional planning.

In all cases where specific limits are described, equivalent solutions will be acceptable if the authority having jurisdiction approves them as meeting the intent of these standards. *Nothing in this document shall be construed as restricting innovations that provide an equivalent level of performance with these standards in a manner other than that which is prescribed by this document, provided that no other safety element or system is compromised in order to establish equivalency.*

▼ National Fire Protection Association (NFPA) document 101M is a technical standard for evaluating equivalency to certain Life Safety Code 101 requirements. The Fire Safety Evaluation System (FSES) has become widely recognized as a method for establishing a safety level equivalent to the Life Safety Code. It may be useful for evaluating *existing* facilities that will be affected by renovation. For purposes of these Guidelines, the FSES
▲ is not intended to be used for *new* construction.

1.5.D. English/Metric Measurements
Metric standards of measurement are the norm for most international commerce and are being used increasingly in health facilities in the United States. Where measurements are a part of this document, English units are given as the basic standards with metric units in parenthesis.

1.5.E. List of Referenced Codes and Standards

Codes and standards which have been referenced in whole or in part in the various sections of this document are listed below. Names and addresses of originators are also included for information. The issues available at the time of publication are used. Later issues will normally be acceptable where requirements for function and safety are not reduced; however, editions of different dates may have portions renumbered or retitled. Care must be taken to insure that appropriate sections are used.

▼ American National Standards Institute. Standard A17.1 (ANSI A17.1), *American National Standard Safety Code for Elevators, Dumbwaiters, Escalators, and Moving Stairs.*

American Society of Civil Engineers. ASCE 9-72, formerly ANSI A58.1, *Minimum Design Loads for* ▲ *Buildings and Other Structures.*

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). *Handbook of Fundamentals.*

American Society of Heating, Refrigerating, and Air-Conditioning Engineers. Standard 52-76 (ASHRAE 52-76), *Method of Testing Air Cleaning Devices Used in General Ventilation for Removing Particulate Matter.*

▶ Americans with Disabilities Act (ADA)

Building Officials and Codes Administrators International, Inc. *The BOCA Basic Building Code.*

Building Officials and Codes Administrators International, Inc. *The BOCA Basic Plumbing Code.*

Code of Federal Regulations. Title 10, parts 20 and 35, *Handling of Nuclear Materials.*

Code of Federal Regulations. Title 29, part 1910, *Employee Safety and Health.*

▼ College of American Pathologists. *Medical Laboratory* ▲ *Design Manual.*

Compressed Gas Association (CGA). *Standards for Medical-Surgical Vacuum Systems in Hospitals.*

DOP Penetration Test Method. MIL STD no. 282. *Filter Units, Protective Clothing, Gas-Masking Components and Related Products: Performance Test Methods.*

General Services Administration, Department of Defense, Department of Housing and Urban Development, U.S. Postal Service. *Uniform Federal Accessibility Standard* (UFAS).

Health Education and Welfare. HEW publication no. (FDA)78-2081 (available through GPO), *Food Service Sanitation Manual.*

Hydronics Institute. *Boiler Ratings: I-B-R, Cast Iron, and SBI Steel Boilers.*

Illuminating Engineering Society of North America. IESNA publication CP29, *Lighting for Health Facilities.*

International Conference of Building Officials (ICBO). *Uniform Building Code.*

National Association of Plumbing-Heating-Cooling Contractors (PHCC). *National Standard Plumbing Code.*

▼ National Bureau of Standards Interagency Report. NBSIR 81-2195, *Draft Seismic Standards for Federal Buildings Prepared by Interagency Committee on Seismic Safety in Construction* (available from NTIS as ▲ no. PB81-163842).

National Council on Radiation Protection (NCRP). *Medical X-ray and Gamma Ray Protection for Energies up to 10 MeV Equipment Design and Use.*

▼ National Council on Radiation Protection (NCRP). *Medical X-ray and Gamma Ray Protection for Energies up to 10 MeV Structural Shielding Design and* ▲ *Evaluation.*

National Council on Radiation Protection (NCRP). *Radiation Protection Design Guidelines for 0.1pi29100, MeV Particle Accelerator Facilities.*

National Fire Protection Association. NFPA 20. *Centrifugal Fire Pumps.*

NFPA 70. *National Electrical Code.*

NFPA 72. *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems.*

NFPA 72E. *Standard for Automatic Fire Detectors.*

NFPA 80. *Standard for Fire Doors and Windows.*

NFPA 82. *Standard on Incinerators, Waste and Linen Handling Systems and Equipment.*

NFPA 90A. *Standard for the Installation of Air Conditioning and Ventilating Systems.*

NFPA 96. *Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment.*

▶ NFPA 99. *Standard for Health Care Facilities.*

NFPA 101. *Life Safety Code.*

NFPA 110. *Emergency and Standby Power Systems.*

NFPA 253. *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.*

NFPA 255. *Standard Method of Test of Surface Burning Characteristics of Building Materials.*

NFPA 258. *Standard Research Test Method for Determining the Smoke Generation of Solid Materials.*

NFPA 701. *Standard Method of Fire Tests for Flame-Resistant Textiles and Films.*

NFPA 801. *Recommended Fire Protection Practice for Facilities Handling Radioactive Materials.*

Southern Building Code Congress International, Inc. *Standard Building Code.*

Underwriter's Laboratories, Inc. Publication no. 181.

▼ U.S. EPA. *Methodology for Assessing Health Risks Associated with Indirect Exposure to Combustor Emissions—International.* EPA/600/6-90/003.

U.S. EPA. *The Risk Assessment Guidelines of 1986.*
▲ EPA/600/8-87/045.

1.5.F. Availability of Codes and Standards

The codes and standards that are government publications can be ordered from the Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, D.C. 20402.

Copies of nongovernment publications can be obtained at the addresses listed below.

Air Conditioning and Refrigeration Institute
1501 Wilson Boulevard
Arlington, Va. 22209

American National Standards Institute
1430 Broadway
New York, N.Y. 10018

American Society of Civil Engineers
345 East 47th Street
New York, N.Y. 10017

American Society of Heating, Refrigerating, and Air-Conditioning Engineers
1741 Tullie Circle, NE
Atlanta, Ga. 30329

American Society for Testing and Materials (ASTM)
1916 Race Street
Philadelphia, Pa. 19103

Architectural and Transportation Barriers Compliance Board (ATBCB)
Office of Technical Services
330 C Street, SW
Washington, D.C. 20202

Building Officials and Code Administrators, Inc.
4051 West Flossmoor Road
Country Club Hills, Ill. 60477

Compressed Gas Association
1235 Jefferson Davis Highway
Arlington, Va. 22202

Hydronics Institute
35 Russo Place
Berkeley Heights, N.J. 07922

Illuminating Engineering Society of North America (IESNA)
IES Publication Sales
345 East 47th Street
New York, N.Y. 10017

International Conference of Building Officials
5360 South Workman Mill Road
Whittier, Calif. 90601

National Association of Plumbing-Heating-Cooling Contractors
Box 6808
180 South Washington Street
Falls Church, Va. 22046

National Council on Radiation Protection and Measurement
7910 Woodmont Avenue, Suite 1016
Bethesda, Md. 20814

National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, Mass. 02269-9101

National Technical Information System (NTIS)
5285 Port Royal Road
Springfield, Va. 22161

Naval Publications and Form Center
5801 Tabor Avenue
Philadelphia, Pa. 19120
(for DOP Penetration Test Method)

Southern Building Code Congress International, Inc
900 Montclair Road
Birmingham, Ala. 35213

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, Ill. 60062

▼ U.S. Department of Justice
▲ Americans with Disabilities Act

2. ENERGY CONSERVATION

2.1 General

The importance of energy conservation shall be considered in all phases of facility development or renovation. Proper planning and selection of mechanical and electrical systems, as well as efficient utilization of space and climatic characteristics, can significantly reduce overall energy consumption. The quality of the health facility environment must, however, be supportive of the occupants and functions served. Design for energy conservation shall not adversely affect patient health, safety, or accepted personal comfort levels. New and innovative systems which accommodate these considerations while preserving cost effectiveness are encouraged. A discussion of energy conservation considerations is included as Appendix B.

3. SITE

3.1 Location

3.1.A. Access
The site of any medical facility shall be convenient both to the community and to service vehicles, including fire protection apparatus, etc.

3.1.B. Availability of Transportation
Facilities should be located so that they are convenient to public transportation where available.

3.1.C. Security
Health facilities shall have security measures for patients, personnel, and the public consistent with the conditions and risks inherent in the location of the facility. These measures shall include a program designed to protect human and capital resources.

3.1.D. Availability of Utilities
Facilities shall be located to provide reliable utilities (water, gas, sewer, electricity). The water supply shall have the capacity to provide normal usage plus fire-fighting requirements. The electricity shall be of stable voltage and frequency.

3.2 Facility Site Design

3.2.A. Roads
▼ Paved roads shall be provided within the property for access to all entrances and to loading and unloading docks (for delivery trucks). Hospitals with an organized emergency service shall have the emergency access well marked to facilitate entry from the public roads or streets serving the site. Other vehicular or pedestrian traffic should not conflict with access to the emergency station. In addition, access to emergency services shall be located to incur minimal damage from floods and other natural disasters. Paved walkways shall be provided for pedestrian traffic. ▲

3.2.B. Parking
Parking shall be made available for patients, personnel, and the public, as described in the individual sections for specific facility types.

3.3 Environmental Pollution Control

▼ **3.3.A. Environmental Pollution**

The design, construction, renovation, expansion, equipment, and operation of hospitals and medical facilities are all subject to provisions of several federal environmental pollution control laws and associated agency regulations. Moreover, many states have enacted substantially equivalent or more stringent statutes and regulations, thereby implementing national priorities under local jurisdiction while additionally incorporating local priorities (e.g., air quality related to incinerators and gas sterilizers; underground storage tanks; hazardous materials and wastes storage, handling, and disposal; storm water control; medical waste storage and disposal; and asbestos in building materials).

The principal federal environmental statutes under which hospitals and medical facilities may be regulated include, most notably, the following:

- National Environmental Policy Act (NEPA)
- Resource Conservation and Recovery Act (RCRA)
- Superfund Amendments and Reauthorization Act (SARA)
- Clean Air Act (CAA)
- Safe Drinking Water Act (SDWA)
- Occupational Safety and Health Act (OSHA)
- Medical Waste Tracking Act (MWTA).

Consult the appropriate U.S. Department of Health and Human Services (HHS) and U.S. Environmental Protection Agency (EPA) regional offices and any other federal, state, or local authorities having jurisdiction for the latest applicable state and local regulations pertaining to environmental pollution that may affect the design, construction, or operation of the facility, including the management of industrial chemicals, pharmaceuticals, radionuclides, and wastes thereof, as well as trash, noise, and traffic (including air traffic).

Hospital and medical facilities regulated under federal, state, and local environmental pollution laws may be required to support permit applications with appropriate documentation of proposed impacts and mitigations. Such documentation is typically reported in an Environmental Impact Statement (EIS) with respect to potential impacts on the environment and in a Health Risk Assessment (HRA) with respect to potential impacts upon public health. The HRA may constitute a part or appendix of the EIS. The scope of the EIS and HRA is typically determined via consultation with appropriate regulatory agency personnel and, if required, via a "scoping" meeting at which members of the interested public are invited to express their particular concerns.

Once the EIS and/or HRA scope is established, a *Protocol* document shall be prepared for agency approval. The *Protocol* shall describe the scope and procedures to be used to conduct the assessment(s). The EIS and/or HRA shall then be prepared in accordance with a final *Protocol* approved by the appropriate agency or agencies. Approval is most likely to be obtained in a timely manner and with minimum revisions if standard methods are initially proposed for use in the EIS and/or HRA. Standard methods suitable for specific assessment tasks are set forth in particular EPA documents.

3.3.B. Equipment

Equipment should minimize the release of chlorofluorocarbons (CFCs) and any potentially toxic substances that may be used in their place. For example, the design of air conditioning systems should specify CFC alterna- ▲ tives and recovery systems as may be practicable.

4. EQUIPMENT

4.1 General

▼ **4.1.A.**
An equipment list showing all items of equipment necessary to operate the facility shall be included in the contract documents. This list will assist in the overall coordination of the acquisition, installation, and relocation of equipment. The equipment list should include the classifications identified in Section 4.2 below and whether the items are new, existing to be relocated, owner provided, or not-in-contract.

4.1.B.
The drawings shall indicate provisions for the installation of equipment that requires dedicated building services, or special structures, or that illustrate a major function of the space. Adjustments shall be made to the construction documents when final selections are made.

4.1.C.
Space for accessing and servicing fixed and building service equipment shall be provided.

4.1.D.
Some equipment may not be included in the construction contract but may require coordination during construction. Such equipment shall be shown in the construction documents as owner-provided or not-in-contract for purposes of coordination.

4.2 Classification

Equipment will vary to suit individual construction projects and therefore will require careful planning. Equipment to be used in projects shall be classified as building service equipment, fixed equipment, or movable equipment.

4.2.A. Building Service Equipment
Building service equipment shall include such items as heating, air conditioning, ventilation, humidification, filtration, chillers, electrical power distribution, emergency power generation, energy management systems, conveying systems, and other equipment with a primary function of building service.

4.2.B. Fixed Equipment (Medical and Nonmedical)

4.2.B1. Fixed equipment includes items that are permanently affixed to the building or permanently connected to a service distribution system that is designed and installed for the specific use of the equipment. Fixed equipment may require special structural designs, electromechanical requirements, or other considerations.

a. Fixed medical equipment includes, but is not limited to, such items as fume hoods, sterilizers, communication systems, built-in casework, imaging equipment, radiotherapy equipment, lithotripters, hydrotherapy tanks, audiometry testing chambers, and lights.

b. Fixed nonmedical equipment includes, but is not limited to, items such as walk-in refrigerators, kitchen cooking equipment, serving lines, conveyors, mainframe computers, laundry, and similar equipment.

4.2.C. Movable Equipment (Medical and Nonmedical)

*4.2.C1. Movable equipment includes items that require floor space or electrical connections but are portable, such as wheeled items, portable items, office-type furnishings, and monitoring equipment.

a. Movable medical equipment includes, but is not limited to, portable X-ray, electroencephalogram (EEG), electrocardiogram (EKG), treadmill and exercise equipment, pulmonary function equipment, operating tables, laboratory centrifuges, examination and treatment tables, and similar equipment.

b. Movable nonmedical equipment includes, but is not limited to, personal computer stations, patient room furnishings, food service trucks, and other portable equipment.

*4.3 Major Technical Equipment

Major technical equipment is specialized equipment (medical or nonmedical) that is customarily installed by the manufacturer or vendor. Since major technical equipment may require special structural designs, electromechanical requirements, or other considerations, close coordination between owner, building designer, installer, construction contractors, and others is required.

4.4 Equipment Shown on Drawings

Equipment which is not included in the construction contract but which requires mechanical or electrical service connections or construction modifications shall, insofar as practical, be identified on the design development documents to provide coordination with the architectural, mechanical, and electrical phases of construction.

4.5 Electronic Equipment

Special consideration shall be given to protecting computerized equipment such as multiphasic laboratory testing units, as well as computers, from power surges and spikes that might damage the equipment or programs. Consideration shall also be given to the addition of a constant power source where loss of data input
▲ might compromise patient care.

5. CONSTRUCTION

5.1 Construction Phasing

Projects involving alterations and/or additions to existing buildings should be programmed and phased to minimize disruptions of retained, existing functions. Access, exits, and fire protection shall be so maintained that the occupants' safety will not be jeopardized during construction.

5.2 Nonconforming Conditions

▼ It is not always financially feasible to renovate the entire existing structure in accordance with these Guidelines. In such cases, authorities having jurisdiction may grant approval to renovate portions of the structure if facility operation and patient safety in the renovated areas are not jeopardized by the existing features of sections retained without complete corrective
▲ measures.

6. RECORD DRAWINGS AND MANUALS

6.1 Drawings

Upon occupancy of the building or portion thereof, the owner shall be provided with a complete set of legible drawings showing construction, fixed equipment, and mechanical and electrical systems, as installed or built. Drawings shall include a fire protection plan for each floor reflecting NFPA 101 requirements.

6.2 Equipment Manuals

Upon completion of the contract, the owner shall be furnished with a complete set of manufacturers' operating, maintenance, and preventive maintenance instructions; parts lists; and procurement information with numbers and a description for each piece of equipment. Operating staff shall also be provided with instructions on how to properly operate systems and equipment. Required information shall include energy ratings as needed for future conservation calculations.

6.3 Design Data

The owners shall be provided with complete design data for the facility. This shall include structural design loadings; summary of heat loss assumption and calculations; estimated water consumption; and electric power requirements of installed equipment. All such data shall be supplied to facilitate future alterations, additions, and changes, including, but not limited to, energy audits and retrofit for energy conservation (see Appendix B).

7. GENERAL HOSPITAL

7.1 General Considerations

7.1.A. Functions

There shall be for each project a functional program for the facility in accordance with Section 1.1.F

7.1.B. Standards

The general hospital shall meet all the standards described herein. Deviations shall be described and justified in the functional program for specific approval by the authorities having jurisdiction.

▼ ### 7.1.C. *Sizes*

Department size and clear floor areas will depend upon program requirements and organization of services within the hospital. Some functions may be combined or shared providing the layout does not compromise safety standards and medical and nursing practices.

7.1.D. Parking

Each new facility, major addition, or major change in function shall have parking space to satisfy the needs of patients, personnel, and public. *A formal parking study is desirable.* In the absence of such a study, provide one space for each bed plus one space for each employee normally present on any single weekday shift. This ratio may be reduced in an area convenient to public transportation or public parking facilities, or where carpool or other arrangements to reduce traffic have been developed. Additional parking may be required to accommodate outpatient and other services. Separate and additional space shall be provided for service delivery vehicles and vehicles utilized for emergency patients.

7.1.E. Swing Beds

When the concept of swing beds is part of the functional program, care shall be taken to include requirements for all intended categories. Facility design for swing beds often requires additional corridor doors and provisions for switching nurse call operations from one nurse station to another depending on use. ▲

7.2 Nursing Unit (Medical and Surgical)

See other sections of this document for special-care area units such as recovery rooms, critical care units, pediatric units, rehabilitation units, and skilled nursing care or other specialty units.

Each nursing unit shall include the following (see Section 1.2 for waiver of standards where existing conditions make absolute compliance impractical):

▼ **7.2.A. Patient Rooms**
Each patient room shall meet the following standards:

7.2.A1. Maximum room capacity shall be two patients.

Note: In new construction, the maximum room capacity shall be two patients. Where renovation work is undertaken and the present capacity is four patients, maximum room capacity may be four patients.

7.2.A2. In new construction, patient rooms shall have a minimum of 100 square feet (9.29 square meters) of clear floor area per bed in multiple-bed rooms and 120 square feet (10.8 square meters) of clear floor area for single-bed rooms, exclusive of toilet rooms, closets, lockers, wardrobes, alcoves, or vestibules. The dimensions and arrangement of rooms should be such that there is a minimum of 3 feet (0.91 meter) between the sides and foot of the bed and any wall or any other fixed obstruction. In multiple-bed rooms, a clearance of 4 feet (1.22 meters) shall be available at the foot of each bed to permit the passage of equipment and beds. Minor encroachments, including columns and lavatories, that do not interfere with functions may be ignored when determining space requirements for patient rooms. Where renovation work is undertaken, patient rooms shall have a minimum of 80 square feet (7.43 square meters) of clear floor area per bed in multiple-bed areas and 100 square feet (9.29 square meters) of clear floor area in single-bed rooms.

Note: These areas are recognized as minimums and do not prohibit the use of larger rooms where required for needs and functions. The degree of acuteness of care being provided should be the ▲ *determining factor.*

7.2.A3. Each patient room shall have a window in accordance with Section 7.28.A10.

Note: Windows are important for the psychological well-being of many patients, as well as for meeting fire safety code requirements. They are also essential for continued use of the area in the event of mechanical ventilation system failure.

7.2.A4. Nurse calling systems for two-way voice communication shall be provided in accordance with Section 7.32.G.

7.2.A5. In new construction, handwashing facilities shall be provided in each patient room. In renovation projects, the handwashing fixture may be omitted from the bedroom where a water closet and handwashing fixture are provided in a toilet room designed to serve one single-bed room or one two-bed room. This exception does not apply to postpartum rooms. (See Section 7.8.B2.)

7.2.A6. Each patient shall have access to a toilet room without having to enter the general corridor area. One toilet room shall serve no more than four beds and no more than two patient rooms. The toilet room shall contain a water closet and a handwashing fixture and the door should swing outward or be double acting. The handwashing fixture may be omitted from a toilet room if each patient room served by that toilet contains a handwashing fixture.

7.2.A7. Each patient shall have within his or her room a separate wardrobe, locker, or closet suitable for hanging full-length garments and for storing personal effects.

7.2.A8. In multiple-bed rooms, visual privacy from casual observation by other patients and visitors shall be provided for each patient. The design for privacy shall not restrict patient access to the entrance, lavatory, or toilet.

▼ **7.2.A9.** See Sections 7.31 and 7.32 for ventilation, ▲ oxygen, vacuum, air, and electrical standards.

7.2.B. Service Areas
Provision for the services listed below shall be in or readily available to each nursing unit. The size and location of each service area will depend upon the numbers and types of beds served. Identifiable spaces are required for each of the indicated functions. Each service area may be arranged and located to serve more than one nursing unit but, unless noted otherwise, at least one such service area shall be provided on each nursing floor. Where the words *room* or *office* are used, a separate, enclosed space for the one named function is intended; otherwise, the described area may be a specific space in another room or common area.

▼ **7.2.B1.** Administrative center or nurse station. This area shall have space for counters and storage and shall have convenient access to handwashing facilities. It may be combined with or include centers for reception and communication. Preferably, the station should permit visual observation of all traffic into ▲ the unit.

7.2.B2. Dictation area. This area should be adjacent to but separate from the nurse station.

7.2.B3. Nurse or supervisor office.

7.2.B4. Handwashing fixtures, conveniently accessible to the nurse station, medication station, and nourishment center. One handwashing fixture may serve several areas if convenient to each.

7.2.B5. Charting facilities.

▼ **7.2.B6.** Toilet room(s) conveniently located for staff
▲ use (may be unisex).

7.2.B7. Staff lounge facilities shall be provided. These facilities may be on another floor.

7.2.B8. Securable closets or cabinet compartments for the personal articles of nursing personnel, located in or near the nurse station. At a minimum, these shall be large enough for purses and billfolds. Coats may be stored in closets or cabinets on each floor or in a central staff locker area.

7.2.B9. Multipurpose room(s) for staff, patients, patients' families for patient conferences, reports, education, training sessions, and consultation. These rooms must be accessible to each nursing unit. They may be on other floors if convenient for regular use. One such room may serve several nursing units and/or departments.

▼ **7.2.B10.** Examination/treatment room(s). Such rooms may be omitted if all patient rooms in the nursing unit are single-bed rooms. Centrally located examination and treatment room(s) may serve more than one nursing unit on the same floor. Such rooms shall have a minimum floor area of 120 square feet (10.8 square meters). The room shall contain a handwashing fixture; storage facilities; and a desk, counter, or shelf space for writing.

7.2.B11. Clean workroom or clean supply room. If the room is used for preparing patient care items, it shall contain a work counter, a handwashing fixture, and storage facilities for clean and sterile supplies. If the room is used only for storage and holding as part of a system for distribution of clean and sterile materials, the work counter and handwashing fixture may be omitted. Soiled and clean workrooms or holding rooms shall be separated and have no direct connection.

7.2.B12. Soiled workroom or soiled holding room. This room shall be separate from the clean workroom and shall have separate access doors. The soiled workroom shall contain a clinical sink (or equivalent flushing-rim fixture). The room shall contain a lavatory (or handwashing fixture). The above fixtures shall both have a hot and cold mixing faucet. The room shall have a work counter and space for separate covered containers for soiled linen and waste. Rooms used only for temporary holding of soiled material may omit the clinical sink and work counter. If the flushing-rim clinical sink is eliminated, facilities for cleaning bedpans shall be provided
▲ elsewhere.

7.2.B13. Medication station. Provision shall be made for 24-hour distribution of medications. This may be done from a medicine preparation room or unit, from a self-contained medicine dispensing unit, or by another approved system.

▼ a. Medicine preparation room. This room shall be under visual control of the nursing staff. It shall contain a work counter, a sink adequate for handwashing, refrigerator, and locked storage for controlled drugs, and shall have a minimum area of 50 square feet (4.65 square meters). When a medicine preparation room is to be used to store one or more self-contained medicine dispensing units, the room shall be designed with adequate space to prepare medicines with the self-contained medicine dispensing unit(s) present.

b. Self-contained medicine dispensing unit. A self-contained medicine dispensing unit may be located at the nurse station, in the clean workroom, or in an alcove, provided the unit has adequate security for controlled drugs and adequate lighting to easily identify drugs. Convenient access to handwashing facilities shall be provided. (Standard cup-sinks provided in many self-contained units are not adequate for handwashing.)

7.2.B14. Clean linen storage. Each nursing unit shall contain a designated area for clean linen storage. This may be within the clean workroom, a separate closet, or an approved distribution system on each floor. If a closed cart system is used, storage may be in an alcove. It must be out of the path of normal traffic and under staff control.

7.2.B15. Nourishment station. There shall be a nourishment station with sink, work counter, refrigerator, storage cabinets, and equipment for hot and cold nourishments between scheduled meals. The nourishment station shall include space for trays and dishes used for nonscheduled meal service. Provisions and space shall be included for separate temporary storage of unused and soiled dietary trays not picked up at meal time. Handwashing facilities shall be in or immediately accessible from the nour-
▲ ishment station.

7.2.B16. Ice machine. Each nursing unit shall have equipment to provide ice for treatments and nourishment. Ice-making equipment may be in the clean work room/holding room or at the nourishment station. Ice intended for human consumption shall be from self-dispensing ice makers.

▼ **7.2.B17.** Equipment storage room or alcove. Appropriate room(s) or alcove(s) shall be provided for storage of equipment necessary for patient care and as required by the functional program. This room may serve more than one unit on the same floor. Its location shall not interfere with the flow of ▲ traffic.

7.2.B18. Storage space for stretchers and wheelchairs shall be provided in a strategic location, without restricting normal traffic.

▼ **7.2.B19.** Showers and bathtubs. When individual bathing facilities are not provided in patient rooms, there shall be at least one shower and/or bathtub for each 12 beds without such facilities. Each bathtub or shower shall be in an individual room or enclosure that provides privacy for bathing, drying, and dressing. Special bathing facilities, including space for attendant, shall be provided for patients on stretchers, carts, and wheelchairs at the ratio of one per 100 beds or a fraction thereof. This may be on a separate floor if convenient for use.

7.2.B20. Patient toilet room(s), in addition to those serving bed areas, shall be conveniently located to multipurpose room(s) and to each central bathing facility. Patient toilet rooms serving multipurpose ▲ rooms may also be designated for public use.

7.2.B21. Emergency equipment storage. Space shall be provided for emergency equipment that is under direct control of the nursing staff, such as a cardiopulmonary resuscitation (CPR) cart. This space shall be located in an area appropriate to the functional program, but out of normal traffic.

7.2.B22. Housekeeping room. One housekeeping room shall be provided for each nursing unit or nursing floor. It shall be directly accessible from the unit or floor and may serve more than one nursing unit on a floor. At least one housekeeping room per floor shall contain a service sink or floor receptor and provisions for storage of supplies and housekeeping equipment.

▼ ***Note:*** *This housekeeping room may not be used for other departments and nursing units that require* ▲ *separate housekeeping rooms.*

7.2.C. Infectious Isolation Room(s)

Note: Details and numerical ratios of this section apply to those areas of the facility covered by new design, including replacement and/or major renovation. Existing nursing units and beds not affected by project work that have approved isolation procedures may be acceptable without changes or additions. Existing beds that are retained without change and psychiatric beds need not be counted in the ratios required below.

▼ At least one isolation room, designed to minimize infection hazards to or from the patient, shall be provided for each 30 acute-care beds or a fraction thereof (except as noted above). The number and type of isolation beds required may need to be increased where large numbers of patients likely to transmit diseases that are communicable via the airborne route (e.g., tuberculosis or multiple-resistant staph diseases) are treated. These may be located within individual nursing units and used for normal acute care when not required for isolation cases, or they may be grouped as a separate isolation unit. Each isolation room shall contain only one bed and shall comply with the acute-care patient room sec- ▲ tion of this document as well as the following:

7.2.C1. Room entry shall be through a work area that provides for facilities that are separate from patient areas for handwashing, gowning, and storage of clean and soiled materials. The work area entry may be a separate enclosed anteroom. The vestibule workspace open to the room may be used for other functions when not needed for isolation. However, where the program function requires strict isolation, at least one isolation room may need to be designed for entry only through an enclosed anteroom.

7.2.C2. Separate enclosed anteroom(s) for isolation rooms are not required as a minimum but, if used, viewing panel(s) shall be provided for observation of each patient by staff from the anteroom.

7.2.C3. One separate anteroom may serve several isolation rooms.

7.2.C4. Toilet, bathtub (or shower), and handwashing facilities are required for each isolation room. These shall be arranged to permit access from the bed area without the need to enter or pass through the work area of the vestibule or anteroom.

▼ **7.2.D. Protective Isolation Room(s)**

In facilities where procedures such as those for organ transplants, burn therapy, and immunosuppressive treatments are performed, special design provisions, including special ventilation, will be necessary to meet the needs of the functional program. (See Table 2 in Section 7.31 for specific ventilation requirements.)

7.2.E. Security Room(s)

The hospital shall provide one or more single bedrooms for patients needing close supervision for medical and/or psychiatric care. This may be part of the psychiatric unit described in Section 7.6. If the single bedroom(s) is part of the acute-care nursing unit, the provisions of Section 7.6.A shall apply, with the following exceptions: each room shall be for single occupancy; each shall be located to permit staff observation of the entrance, preferably adjacent to the nurse station; and each shall be designed to minimize the potential for escape, hiding, injury, or suicide. If vision panels are used for observation of patients, the arrangement shall insure patient privacy and prevent casual observation by visitors and other ▲ patients.

7.3 Critical Care Units

The critical care units require special space and equipment considerations for effective staff functions. In addition, space arrangement shall include provisions for immediate access of emergency equipment from other departments.

Not every hospital will provide all types of critical care. Some hospitals may have a small combined unit; others may have separate, sophisticated units for highly specialized treatments. Critical care units shall comply in size, number, and type with these standards and with the functional program. The following standards are intended for the more common types of critical care services and shall be appropriate to needs defined in functional programs. Where specialized services are required, additions and/or modifications shall be made as necessary for efficient, safe, and effective patient care.

7.3.A. Critical Care (General)

▼ The following shall apply to all types of critical care units unless otherwise noted. Each unit shall comply ▲ with the following provisions:

7.3.A1. The location shall offer convenient access from the emergency, respiratory therapy, laboratory, radiology, surgery, and other essential departments and services as defined by the functional program. It shall be located so that the medical emergency resuscitation teams may be able to respond promptly to emergency calls within minimum travel time.

▼ **7.3.A2.** The location shall be arranged to eliminate the need for through traffic. Transportation of patients to and from the critical care unit should ideally be separated from public corridors and visitor waiting areas. Where elevator transport is required for critically ill patients, the size of the cab and mechanisms and controls should be carefully planned to meet the specialized needs.

7.3.A3. In new construction, each patient space (whether separate rooms, cubicles, or multiple bed space) shall have a minimum of 150 square feet (13.94 square meters) of clear floor area with a minimum headwall width of 12 feet (3.66 meters) per bed, exclusive of anterooms, vestibules, toilet rooms, closets, lockers, wardrobes, and/or alcoves.

In renovation of existing intensive care units, separate rooms or cubicles for single patient use shall be at least 120 square feet (11.15 square meters) and multiple bed space shall contain at least 100 square feet (9.29 square meters) per bed.

A staff emergency assistance system shall be provided on the most accessible side of the bed. The system shall annunciate at the nurse station with backup from another staffed area from which assistance can be summoned.

Provision should be made for rapid and easily accessible information exchange and communication within the unit and the hospital.

The unit shall provide the ability to continuously monitor the physiological parameters appropriate for the types of patients the unit is expected to care for.

7.3.A4. When private rooms or cubicles are provided, view panels to the corridor shall be required and shall have drapes or curtains which may be closed. Where only one door is provided to a bed space, it shall be at least 4 feet (1.22 meters) wide and arranged to minimize interference with movement of beds and large equipment. Sliding doors shall not have floor tracks and shall have hardware that minimizes jamming possibilities. Where sliding doors are used for access to cubicles within a suite, a 3-foot-wide swinging door may also be provided for personnel communication.

7.3.A5. Each patient bed area should have space at each bedside for visitors, and provisions for visual privacy from casual observation by other patients and visitors. For both adult and pediatric units, there must be a minimum of 8 feet (2.44 meters) between beds.

7.3.A6. Each patient bed shall have visual access, other than skylights, to the outside environment with not less than one outside window in each patient bed area. In renovation projects, clerestory windows with windowsills above the heights of adjacent ceilings may be used, provided they afford patients a view of the exterior and are equipped with appropriate forms of glare and sun control. Distance from the patient bed to the outside window shall not exceed 50 feet (15.24 meters). When partitioned cubicles are used, patients' view to outside windows may be through no more than two separate clear vision panels.

7.3.A7. Nurse calling systems for two-way voice communication shall be provided in accordance with Section 7.32.G. The call system for the unit shall include provisions for an emergency code resuscitation alarm to summon assistance from outside the critical care unit.

7.3.A8. Handwashing fixtures shall be convenient to nurse stations and patient bed areas. There shall be at least one handwashing fixture for every three beds in open plan areas, and one in each patient room. The handwashing fixture should be located near the entrance to the patient cubicle or room, should be sized to minimize splashing water onto the floor, and should be equipped with elbow-, knee-, or foot-operated controls.

*__7.3.A9.__ Administrative center or nurse station. This area shall have space for counters and storage. It may be combined with or include centers for reception and communication.

Patients should be visually observed at all times. This can be achieved in a variety of ways.

If a central station is chosen, it will be geographically located to allow for complete visual control of all patient beds in the critical care unit. It will be designed to maximize efficiency in traffic patterns. There will be visual contact between the nurse and the patient at all times. Patients should be oriented so that they can see the nurse but cannot see the other patients. There should be an ability to communicate with the clerical staff without having to enter the central station.

If a central station is not chosen, the unit should be designed to provide visual contact between patient beds so that there can be constant visual contact between the nurse and patient.

7.3.A10. Each unit shall contain equipment for continuous monitoring, with visual displays for each patient at the bedside and at the nurse station. Monitors shall be located to permit easy viewing and access but not interfere with access to the patient.

7.3.A11. Emergency equipment storage. Space that is easily accessible to the staff shall be provided for emergency equipment such as a CPR cart.

7.3.A12. Medication station. Provision shall be made for 24-hour storage and distribution of emergency drugs and routine medications. This may be done from a medicine preparation room or unit, from a self-contained medicine dispensing unit, or by another system. If used, a medicine preparation room or unit shall be under visual control of nursing staff. It shall contain a work counter, cabinets for storage of supplies, sink with hot and cold water supply, refrigerator for pharmaceuticals, and doubled locked storage for controlled substances, and shall have a minimum area of 50 square feet (4.65 square meters). To minimize distraction of those preparing medications, the area should be enclosed. A glass wall or walls may be advisable to permit visualization of patients and unit activities. A self-contained medicine dispensing unit may be located at the nurses station, in the clean workroom, in an alcove, or in another area directly under visual control of nursing or pharmacy staff. Convenient access to handwashing facilities shall be provided. (Standard cup-sinks provided in many self-contained units are not adequate for handwashing.)

7.3.A13. The electrical, medical gas, heating, and air conditioning shall support the needs of the patients and critical care team members under normal and emergency situations. See Sections 7.31 and 7.32 for specific requirements.

7.3.A14. Isolation rooms with separate washing and gowning facilities will be provided within the critical care unit. Isolation rooms shall contain a minimum of 150 square feet (13.94 square meters) plus space for an anteroom. An anteroom shall be provided and shall consist of at least 20 square feet (1.86 square meters) to accommodate washing, gowning, and storage. If the functional program requires, both normal and protective isolation shall be provided. If a toilet is provided, it must be connected only to this room. If a toilet is not provided, a means must be provided within the room or anteroom for the disposal of the patient's body waste.

7.3.A15. The following additional service spaces shall be immediately available within each critical care suite. These may be shared by more than one critical care unit provided that direct access is available from each.

a. Securable closets or cabinet compartments for the personal effects of nursing personnel, located in or near the nurse station. At a minimum, these shall be large enough for purses and billfolds. Coats may be stored in closets or cabinets on each floor or in a central staff locker area.

b. Clean workroom or clean supply room. If the room is used for preparing patient care items, it shall contain a work counter, a handwashing fixture, and storage facilities for clean and sterile supplies. If the room is used only for storage and holding as part of a system for distribution of clean and sterile supply materials, the work counter and handwashing fixture may be omitted. Soiled and clean workrooms or holding rooms shall be separated and have no direct connection.

c. Clean linen storage. There shall be a designated area for clean linen storage. This may be within the clean workroom, a separate closet, or an approved distribution system on each floor. If a closed cart system is used, storage may be in an alcove. It must be out of the path of normal traffic and under staff control.

d. Soiled workroom or soiled holding room. This room shall be separate from the clean workroom and shall have separate access doors. The soiled workroom shall contain a clinical sink (or equivalent flushing-rim fixture). The room shall contain a lavatory (or handwashing fixture). The above fixtures shall both have a hot and cold mixing faucet. The room shall have a work counter and space for separate covered containers for soiled linen and waste. Rooms used only for temporary holding of soiled material may omit the clinical sink and work counter. If the flushing-rim clinical sink is eliminated, facilities for cleaning bedpans shall be provided elsewhere.

e. Nourishment station. There shall be a nourishment station with sink, work counter, refrigerator, storage cabinets, and equipment for hot and cold nourishments between scheduled meals. The nourishment station shall include space for trays and dishes used for nonscheduled meal service. Provisions and space shall be included for separate temporary storage of unused and soiled dietary trays not picked up at meal time. Handwashing facilities shall be in or immediately accessible from the nourishment station.

f. Ice machine. There shall be available equipment to provide ice for treatments and nourishment. Ice-making equipment may be in the clean work room or at the nourishment station. Ice intended for human consumption shall be from self-dispensing ice makers.

*g. Equipment storage room or alcove. Appropriate room(s) or alcove(s) shall be provided for storage of large items of equipment necessary for patient care and as required by the functional program. Its location shall not interfere with the flow of traffic.

h. An X-ray viewing facility shall be in the unit.

*i. Twenty-four hour laboratory, radiology, and pharmacy services shall be available. These services may be provided from the central departments or from satellite facilities as required by the functional program.

7.3.A16. The following shall be provided and may be located outside the unit if conveniently accessible.

a. A visitors' waiting room will be provided with convenient access to telephones and toilets. One waiting room may serve several critical care units.

b. Adequate office space immediately adjacent to the critical care unit will be available for critical care medical and nursing management/administrative personnel. The offices should be large enough to permit consulting with members of the critical care team and visitors. The offices will be linked with the unit by telephone or an intercommunications system.

c. Staff lounge(s) and toilet(s) located so that staff may be recalled quickly to the patient area in emergencies. The lounge shall have telephone or intercom and emergency code alarm connections to the critical care unit it serves. If not provided elsewhere, provision for the storage of coats, etc., shall be made in this area. Consideration should be given to providing adequate furnishings, equipment, and space for comfortable seating and the preparation and consumption of snacks and beverages. One lounge may serve adjacent critical care areas.

*d. See Appendix A. (Other critical care considerations.)

e. A special procedures room shall be provided if ▲ required by the functional program.

f. Sleeping and personal care accommodations for staff on 24-hour, on-call work schedules.

▼ g. Multipurpose room(s) for staff, patients, and patients' families for patient conferences, reports, education, training sessions, and consultation. These rooms must be accessible to each nursing unit.

h. A housekeeping room shall be provided within or immediately adjacent to the critical care unit. It shall not be shared with other nursing units or departments. It shall contain a service sink or floor receptor and provisions for storage of supplies and housekeeping equipment.

i. Storage space for stretchers and wheelchairs shall be provided in a strategic location, without ▲ restricting normal traffic.

7.3.B. Coronary Critical Care Unit

Coronary patients have special needs. They are often fully aware of their surroundings but still need immediate and critical emergency care. In addition to the standards set forth in Section 7.3.A, the following standards apply to the coronary critical care unit:

7.3.B1. Each coronary patient shall have a separate room for acoustical and visual privacy.

7.3.B2. Each coronary patient shall have access to a toilet in the room. (Portable commodes may be used in lieu of individual toilets, but provisions must be made for their storage, servicing, and odor control.)

▼ **7.3.B3.** Each unit shall contain equipment for continuous monitoring, with visual displays for each patient at the bedside and at the nurse station. Monitors shall be located to permit easy viewing and ▲ access but not interfere with access to the patient.

7.3.C. Combined Medical/Surgical and Cardiac Critical Care

If medical, surgical, and cardiac critical care services are combined in one critical care unit, at least 50 percent of the beds must be located in private rooms or cubicles. (*Note: Medical/surgical patients may utilize open areas or private rooms as needed and available but, insofar as possible, cardiac patients should not be accommodated in open ward areas.*) When 50 percent of the beds are in private enclosed spaces within a combined unit, the standards set forth in Section 7.3.B2 for additional separate enclosed rooms do not apply.

7.3.D. Pediatric Critical Care

Critically ill pediatric patients have unique physical and psychological needs. Not every hospital can or should attempt to have a separate pediatric critical care unit. Many hospitals will be able to safely transfer their patients to other facilities offering appropriate services. If a facility has a specific pediatric critical care unit, the functional program must include consideration for staffing, control, and the safe transportation of critically ill pediatric patients, along with life support and environmental systems, from other areas. The pediatric critical care unit may be an open-ward plan. The total room-to-bed ratio in open-ward plans shall provide for at least one isolation room for every six ward beds and protective isolation room(s) if required by the functional program.

In addition to the standards previously listed for critical care units, each pediatric critical care unit shall include:

7.3.D1. Space at each bedside for visiting parents.

7.3.D2. Sleeping space for parents who may be required to spend long hours with the patient. This space may be separate from the patient area, but must be in communication with the critical care unit staff.

7.3.D3. Consultation/demonstration room within, or convenient to, the pediatric critical care unit for private discussions.

7.3.D4. Provisions for formula storage. These may be outside the pediatric critical care unit but must be available for use at all times.

7.3.D5. Separate storage cabinets or closets for toys and games for use by the pediatric patients.

▼ **7.3.D6.** Additional storage for cots, bed linens, and other items needed to accommodate parents overnight.

7.3.D7. Space allowances for pediatric beds and cribs equal to those required for adult beds, because of the variations in sizes and the potential for change.

7.3.D8. Examination and treatment room(s). This room may be omitted if all rooms in the unit are single-bed patient rooms. Centrally located examination and treatment room(s) may serve more than one floor and/or nursing unit. Examination and treatment rooms shall have a minimum floor area of 120 square feet (11.15 square meters). The room shall contain a handwashing fixture; storage facilities; and a desk, counter, or shelf space for writing.

7.3.E. Newborn Intensive Care Units

Each Newborn Intensive Care Unit shall include or comply with the following:

7.3.E1. A scrub/gowning area shall be provided at the entrance of each nursery but separated from the work area. The scrub/gowning area shall contain a sink and separate storage facilities for clean and soiled gowns. All sinks throughout the nursing area(s) shall be hands-free operable. One scrub/gowning area may serve more than one room.

7.3.E2. At least one door to each room in the unit must be large enough to accommodate portable X-ray equipment. A door 44 inches (111.76 centimeters) wide should accommodate most X-ray equipment. Both width and height must be considered.

7.3.E3. There should be efficient and controlled access to the unit from the Labor and Delivery area, the Emergency Room or other referral entry points.

***7.3.E4.** (See Appendix A.)

7.3.E5. When viewing windows are provided, provision shall be made to control casual viewing of infants.

***7.3.E6.** (See Appendix A.)

***7.3.E7.** (See Appendix A.)

7.3.E8. In the interest of noise control, sound attenuation shall be a design factor.

***7.3.E9.** Provisions shall be made for indirect lighting and high-intensity lighting in all nurseries. The level of general lighting shall be adjustable to simulate day-night patterns and to satisfy diagnostic and procedural requirements.

7.3.E10. A central area shall serve as a control station, shall have space for counters and storage, and shall have convenient access to handwashing facilities. It may be combined with or include centers for reception and communication and patient monitoring. The station should permit visual observation of all traffic entering the unit.

7.3.E11. There shall be a minimum clear space of 3 feet (0.91 meter) on each of three sides of the patient bed for work space and parental access. This minimum clearance shall exclude space for headwalls, sinks, charting areas, and other fixed equipment in the patient care area, and shall not overlap with other patient care space or aisles. There shall be an aisle for circulation adjacent to each patient care space with a minimum width of 3 feet (0.91 meter).

7.3.E12. An infectious isolation room is required in at least one level of nursery care. The isolation nursery shall be an enclosed and separate room within the nursery unit with provision for observation of the infant from adjacent nurseries or control area. This nursery shall be served by an anteroom that contains sink and separate storage facilities for clean and soiled materials and gowns. See Table 5 in Section 7.31 for oxygen, suction, and medical air systems outlet requirements.

***7.3.E13.** (See Appendix A.)

7.3.E14. Blood gas lab facilities should be immediately accessible.

7.3.E15. Physician's sleeping facilities with access to a toilet and shower shall be provided. If not contained within the unit itself, the area shall have a telephone or intercom connection to the patient care area.

7.3.E16. Sleeping space may be needed for parents who may be required to spend long hours with the neonate. This space may be separate from the unit, but must be in communication with the Newborn Critical Care Unit staff.

7.3.E17. A respiratory therapy work area and storage room shall be provided.

7.3.E18. A consultation/demonstration/breast feeding or pump room shall be provided convenient to the unit. Provision shall be made, either within the room or conveniently located nearby, for sink, counter, refrigeration and freezing, storage for pump and attachments, and educational materials.

7.3.E19. Provide charting and dictation space for physicians.

7.3.E20. Medication station. Provision shall be made for 24-hour storage and distribution of emergency drugs and routine medications. This may be done from a medicine preparation room or unit, from a self-contained medicine dispensing unit, or by another system. If used, a medicine preparation room or unit shall be under visual control of nursing staff. It shall contain a work counter, sink, refrigerator, and double locked storage for controlled substances, and shall have a minimum area of 50 square feet (4.65 square meters). A self-contained medicine dispensing unit may be located at the nurse station, in the clean workroom, in an alcove, or in another area directly under visual control of nursing or pharmacy staff. Convenient access to handwashing facilities shall be provided. (Standard cup-sinks provided in many self-contained units are not adequate for handwashing.)

7.3.E21. Clean workroom or clean supply room. If the room is used for preparing patient care items, it shall contain a work counter, a handwashing sink, and storage facilities for clean and sterile supplies. If the room is used only for storage and holding as part of a system for distribution of clean and sterile supply materials, the work counter and handwashing facilities may be omitted.

7.3.E22. Soiled workroom or soiled holding room. The soiled workroom shall contain a clinical sink or equivalent flushing-rim fixture; a handwashing fixture; and space for waste receptacles and soiled linen receptacles. Rooms used only for temporary holding of soiled material may omit the handwashing fixture. However, if the flushing-rim sink is omitted, other provisions for disposal of liquid waste at each unit shall be added. Soiled and clean workrooms or holding rooms shall be separated and have no direct connection. The soiled workroom or soiled holding room shall be directly accessible to the unit and separate.

7.3.E23. Provide a lounge, locker room and staff toilet within or adjacent to the unit suite for staff use.

7.3.E24. Emergency equipment storage. Space shall be provided for emergency equipment that is under direct control of the nursing staff, such as a CPR cart. This space shall be located in an area appropriate to the functional program, but out of normal traffic.

7.3.E25. Housekeeping room. One housekeeping room shall be provided for the unit. It shall be directly accessible from the unit and be dedicated for the exclusive use of the neonatal critical care unit. It shall contain a service sink or floor receptor and provisions for storage of supplies and housekeeping equipment.

7.3.E26. Space should be provided for the following:

a. A visitors waiting room should be provided with convenient access to telephones and toilets.

b. Nurses/supervisors office or station.

c. Multipurpose room(s) for staff, patients and patients' families for patient conferences, reports, education, training sessions, and consultation. These rooms must be accessible to each nursing unit. They may be on other floors if convenient for regular use. One such room may serve several nursing units and/or departments.

*7.4 Newborn Nurseries

Hospitals having 25 or more postpartum beds shall have a separate nursery that provides continuing care for infants requiring close observation (for example, those with low birth weight). The minimum floor area per infant shall be 50 square feet (4.65 square meters), exclusive of auxiliary work areas, with provisions for at least 4 feet (1.22 meters) between and at all sides of ▲ bassinets.

Note: Normal newborn infants shall be housed in nurseries that comply with the standards below. Location shall be convenient to the postpartum nursing unit and obstetrical facilities. The nurseries shall be located and arranged to preclude the need for nonrelated pedestrian traffic. No nursery shall open directly into another nursery. See Section 7.5 for pediatric nurseries. See Section 7.3.E for critical care units for neonatal infants.

7.4.A. General
Each nursery shall contain:

7.4.A1. At least one lavatory, equipped with handwashing controls that can be operated without use of hands, for each eight infant stations.

7.4.A2. Nurse emergency calling system, for summoning assistance without leaving the patient area, shall be provided in accordance with Section 7.32.G.

7.4.A3. Glazed observation windows to permit the viewing of infants from public areas, workrooms, and adjacent nurseries.

7.4.A4. Convenient, accessible storage for linens and infant supplies at each nursery room.

▼ **7.4.A5.** See Sections 7.31 and 7.32 for ventilation, medical gas, and electrical standards. Indirect lighting or other design to minimize the UV output of ▲ flourescent fixtures shall be used.

See mechanical and electrical sections for ventilation, oxygen, suction, air, and electrical standards.

▼ **7.4.A6.** A consultation/demonstration/breast feeding or pump room shall be provided convenient to the nursery. Provision shall be made, either within the room or conveniently located nearby, for sink, counter, refrigeration and freezing, storage for pump and attachments, and educational materials. The area provided for the unit for these purposes, when conveniently located, may be shared by the newborn nursery.

▲ Enough space for parent to stay 24 hours.

7.4.B. Full-Term Nursery
Each full-term nursery room shall contain no more than 16 infant stations. The minimum floor area shall be 24 square feet (2.23 square meters) for each infant station, exclusive of auxiliary work areas. When a rooming-in program is used, the total number of bassinets provided in these units may be appropriately reduced, but the full-term nursery may not be omitted in its entirety from any facility that includes delivery services. (When facilities use a rooming-in program in which all infants are returned to the nursery at night, a reduction in nursery size may not be practical.)

▼ **7.4.B1.** Baby Holding Nurseries

Hospitals may replace traditional nurseries with baby holding nurseries in postpartum and labor-delivery-recovery-postpartum (LDRP) units. The minimum floor area per bassinet, ventilation, electrical, and medical vacuum and gases shall be the same as that required for a full-term nursery. These holding nurseries should be next to the nurse station on these units. The holding nursery shall be sized to accommodate the percentage of newborns who do not remain with their mothers during the postpartum stay.

7.4.C. Charting Facilities
Provision shall be made for physician and nurse charting and dictation. This may be in a separate room or ▲ part of the workroom.

***7.4.D. Workroom(s)**
Each nursery room shall be served by a connecting workroom. The workroom shall contain scrubbing and gowning facilities at the entrance for staff and housekeeping personnel, work counter, refrigerator, storage for supplies, and handwashing fixture. One workroom may serve more than one nursery room provided that required services are convenient to each.

The workroom serving the full-term and continuing care nurseries may be omitted if equivalent work and storage areas and facilities, including those for scrubbing and gowning, are provided within that nursery. Space required for work areas located within the nursery is in addition to the area required for infant care.

Adequate provision shall be made for storage of emergency cart(s) and equipment out of traffic and for the sanitary storage and disposal of soiled waste.

7.4.E. Infant Examination and Treatment Areas
Such areas, when required by the functional program, shall contain a work counter, storage facilities, and a handwashing fixture.

7.4.F. Infant Formula Facilities

7.4.F1. Where infant formula is prepared on-site, direct access from the formula preparation room to any nursery room is prohibited. The room may be located near the nursery or at other appropriate locations in the hospital, but must include:

a. Cleanup facilities for washing and sterilizing supplies. This area shall include a handwashing fixture, facilities for bottle washing, a work counter, and sterilization equipment.

b. Separate room for preparing infant formula. This room shall contain warming facilities, refrigerator, work counter, formula sterilizer, storage facilities, and a handwashing fixture.

c. Refrigerated storage and warming facilities for infant formula accessible for use by nursery personnel at all times.

7.4.F2. If a commercial infant formula is used, the separate clean-up and preparation rooms may be omitted. The storage and handling may be done in the nursery workroom or in another appropriate room in the hospital that is conveniently accessible at all hours. The preparation area shall have a work counter, a sink equipped for handwashing, and storage facilities.

▼ **7.4.G. Housekeeping/Environmental Services Room**
A housekeeping/environmental services room shall be provided for the exclusive use of the nursery unit. It shall be directly accessible from the unit and shall contain a service sink or floor receptor and provide for stor-
▲ age of supplies and housekeeping equipment.

7.5 Pediatric and Adolescent Unit

Note: If practical, young children and adolescents shall be housed in a nursing unit separate from adults.

▼ The unit shall meet the following standards:

7.5.A. Patient Rooms
Each patient room shall meet the following standards:

7.5.A1. Maximum room capacity shall be four patients.

7.5.A2. The space requirements for pediatric patient beds are the same as for adult beds due to the size variation and the need to change from cribs to beds, and vice-versa. Additional provisions for hygiene, toilets, sleeping, and personal belongings shall be included where the program indicates that parents will be allowed to remain with young children. Existing crib areas with at least 60 square feet (5.57 square meters) of clear area for each crib and no more than six cribs or beds in a room may continue to be used if the use complies with the functional program. (See Sections 7.3.E for pediatric critical care units and 7.4 for newborn nurseries.)

7.5.A3. In new construction, patient rooms shall have a minimum of 100 square feet (9.29 square meters) of clear floor area per bed in multiple-bed rooms and 120 square feet (11.15 square meters) of clear floor area for single-bed rooms, exclusive of toilet rooms, closets, lockers, wardrobes, alcoves, or vestibules. The dimensions and arrangement of rooms should be such that there is a minimum of 3 feet (0.91 meter) between the sides and foot of the bed and any wall, other fixed obstruction, or another bed. In multiple-bed rooms, a clearance of 4 feet (1.22 meters) shall be available at the foot of each bed to permit the passage of equipment and beds. Minor encroachments, including columns and lavatories, that do not interfere with functions may be ignored when determining space requirements for patient rooms. Where renovation work is undertaken, patient rooms shall have a minimum of 80 square feet (7.43 square meters) of clear floor area per bed in multiple-bed areas and 100 square feet (9.29 square meters) of clear floor area in single-bed
▲ rooms.

7.5.B. Nursery
To minimize the possibility of cross-infection, each nursery room serving pediatric patients shall contain no more than eight bassinets; each bassinet shall have a minimum clear floor area of 40 square feet (3.72 square meters). Each room shall contain a lavatory equipped for handwashing operable without hands, a nurses

emergency calling system, and a glazed viewing window for observing infants from public areas and workrooms. (Limitation on number of patients in a nursery room does not apply to the pediatric critical care unit.)

7.5.C. Nursery Workrooms
Each nursery shall be served by a connecting workroom. It shall contain gowning facilities at the entrance for staff and housekeeping personnel; workspace with a work counter; storage facilities; and a handwashing fixture. One workroom may serve more than one nursery.

▼ **7.5.D. Nursery Visiting and Feeding**
Each pediatric nursery shall have an area for instruction and parent contact with the infant including breast and/or bottle feeding. This may be a section of the workroom with provisions for privacy and quiet.

7.5.E. Examination/Treatment Rooms
This room shall be provided for pediatric and adolescent patients and may be omitted if all rooms in the unit are single-bed patient rooms. A separate area for infant examination and treatment may be provided within the pediatric nursery workroom. Examination/treatment rooms shall have a minimum floor area of 120 square feet (11.15 square meters). The room shall contain a handwashing fixture; storage facilities; and a desk, ▲ counter, or shelf space for writing.

7.5.F. Service Areas
The service areas in the pediatric and adolescent nursing units shall conform to Section 7.2.B and shall also meet the following standards:

7.5.F1. Multipurpose or individual room(s) shall be provided for dining, education, and recreation. Insulation, isolation, and structural provisions shall minimize the transmission of impact noise through the floor, walls, or ceiling of these multipurpose room(s).

7.5.F2. Space for preparation and storage of infant formula shall be provided within the unit or other convenient location with 24-hour access. Provisions shall be made for continuation of special formula that may have been prescribed for the infant prior to admission or readmission.

7.5.F3. Patient toilet room(s), in addition to those serving bed areas, shall be conveniently located to multipurpose room(s) and to each central bathing facility.

7.5.F4. Storage closets or cabinets for toys and educational and recreational equipment shall be provided.

7.5.F5. Storage space shall be provided to permit exchange of cribs and adult beds. Provisions shall also be made for storage of equipment and supplies (including cots or recliners, extra linen, etc.) for parents who may remain with the patient overnight.

7.5.F6. At least one room for isolation shall be provided in each pediatric unit as described in Section 7.2.C.

7.5.F7. Separate clean and soiled workrooms or holding rooms shall be provided as described in Sections 7.2.B11 and 12.

7.6 Psychiatric Nursing Unit

When part of a general hospital, these units shall be designed for the care of inpatients. Nonambulatory inpatients may be treated in a medical unit until their medical condition allows for transfer to the psychiatric nursing unit. See Section 7.2.E for psychiatric care in a medical unit. Provisions shall be made in the design for adapting the area for various types of psychiatric therapies.

The environment of the unit should be characterized by a feeling of openness with emphasis on natural light and exterior views. Various functions should be accessible from common areas while not compromising desirable levels of patient privacy. Interior finishes, lighting, and furnishings should suggest a residential rather than an institutional setting. These should, however, conform with applicable fire safety codes. Security and safety devices should not be presented in a manner to attract or challenge tampering by patients.

Windows or vents in psychiatric units shall be arranged and located so that they can be opened from the inside to permit venting of combustion products and to permit any occupant direct access to fresh air in emergencies. The operation of operable windows shall be restricted to inhibit possible escape or suicide. Where windows or vents require the use of tools or keys for operation, the tools or keys shall be located on the same floor in a prominent location accessible to staff. Windows in existing buildings designed with approved, engineered smoke control systems may be of fixed construction. Where glass fragments pose a hazard to certain patients, safety glazing and/or other appropriate security features shall be used.

Details of such facilities should be as described in the approved functional program. Each nursing unit shall provide the following:

7.6.A. Patient Rooms
The standard noted in Section 7.2.A shall apply to patient rooms in psychiatric nursing units except as follows:

7.6.A1. A nurses call system is not required, but if it is included, provisions shall be made for easy removal, or for covering call button outlets.

7.6.A2. Bedpan-flushing devices may be omitted from patient room toilets in psychiatric nursing units.

7.6.A3. Handwashing facilities are not required in patient rooms.

7.6.A4. Visual privacy in multibed rooms (e.g., cubicle curtains) is not required.

7.6.B. Service Areas

The standards noted in Section 7.2.B shall apply to service areas for psychiatric nursing units with the following modifications:

▼ A secured storage area shall be provided for patients' belongings that are determined to be potentially harmful (e.g., razors, nail files, cigarette lighters); this area ▲ will be controlled by staff.

7.6.B1. Medication station shall include provisions for security against unauthorized access.

7.6.B2. Food service within the unit may be one, or a combination, of the following:

a. A nourishment station.

b. A kitchenette designed for patient use with staff control of heating and cooking devices.

c. A kitchen service within the unit including a handwashing fixture, storage space, refrigerator, and facilities for meal preparation.

7.6.B3. Storage space for stretchers and wheelchairs may be outside the psychiatric unit, provided that provisions are made for convenient access as needed for handicapped patients.

7.6.B4. In psychiatric nursing units, a bathtub or shower shall be provided for each six beds not otherwise served by bathing facilities within the patient rooms. Bathing facilities should be designed and located for patient convenience and privacy.

7.6.B5. A separate charting area shall be provided with provisions for acoustical privacy. A viewing window to permit observation of patient areas by the charting nurse or physician may be used if the arrangement is such that patient files cannot be read from outside the charting space.

7.6.B6. At least two separate social spaces, one appropriate for noisy activities and one for quiet activities, shall be provided. The combined area shall be at least 40 square feet (3.72 square meters) per patient with at least 120 square feet (11.15 square meters) for each of the two spaces. This space may be shared by dining activities.

7.6.B7. Space for group therapy shall be provided. This may be combined with the quiet space noted above when the unit accommodates not more than 12 patients, and when at least 225 square feet (20.90 square meters) of enclosed private space is available for group therapy activities.

7.6.B8. Patient laundry facilities with an automatic washer and dryer shall be provided.

The following elements shall also be provided, but may be either within the psychiatric unit or immediately accessible to it unless otherwise dictated by the program:

▼ **7.6.B9.** Room(s) for examination and treatment with a minimum area of 120 square feet (11.15 square meters). Examination and treatment room(s) for medical-surgical patients may be shared by the psychiatric unit patients. (These may be on a different ▲ floor if conveniently accessible.)

7.6.B10. Separate consultation room(s) with minimum floor space of 100 square feet (9.29 square meters) each, provided at a room-to-bed ratio of one consultation room for each 12 psychiatric beds. The room(s) shall be designed for acoustical and visual privacy and constructed to achieve a noise reduction of at least 45 decibels.

7.6.B11. Psychiatric units each containing 15 square feet (1.39 square meters) of separate space per patient for occupational therapy, with a minimum total area of at least 200 square feet (18.58 square meters), whichever is greater. Space shall include provision for handwashing, work counter(s), storage, and displays. Occupational therapy areas may serve more than one nursing unit. When psychiatric nursing unit(s) contain less than 12 beds, the occupational therapy functions may be performed within the noisy activities area, if at least an additional 10 square feet (0.93 square meter) per patient served is included.

7.6.B12. A conference and treatment planning room for use by the psychiatric unit.

7.6.C. Isolation Room(s)

The standards of Section 7.2.C for isolation rooms do not apply to a psychiatric nursing unit. Psychiatric beds are not to be included in the bed count ratio to establish the number of beds required for medical isolation.

7.6.D. Seclusion Treatment Room

▼ There shall be at least one seclusion room for up to 24 beds or a major fraction thereof. The seclusion treatment room is intended for short-term occupancy by a violent or suicidal patient. Within the psychiatric

nursing unit, this space provides for patients requiring security and protection. The room(s) shall be located for direct nursing staff supervision. Each room shall be for only one patient. It shall have an area of at least 60 square feet (5.57 square meters) and shall be constructed to prevent patient hiding, escape, injury, or suicide. Where restraint beds are required by the functional program, 80 square feet (7.43 square meters) shall be required. If a facility has more than one psychiatric nursing unit, the number of seclusion rooms shall be a function of the total number of psychiatric beds in the facility. Seclusion rooms may be grouped together. Special fixtures and hardware for electrical circuits shall be used. Minimum ceiling height shall be 9 feet (2.74 meters). Doors shall be 3 feet 8 inches (1.12 meters) wide, and shall permit staff observation of the patient while also maintaining provisions for patient privacy. Seclusion treatment rooms shall be accessed by an anteroom or vestibule which also provides direct access to a toilet room. The toilet room and anteroom
▲ shall be large enough to safely manage the patient.

Where the interior of the seclusion treatment room is padded with combustible materials, these materials shall be of a type acceptable to the local authority having jurisdiction. The room area, including floor, walls, ceilings, and all openings shall be protected with not less than one-hour-rated construction.

7.7 Surgical Suites

Note: The number of operating rooms and recovery beds and the sizes of the service areas shall be based on the expected surgical workload. The surgical suite shall be located and arranged to prevent nonrelated traffic through the suite. See Sections 7.28, 7.31, and 7.32 for details, ventilation, and electrical standards.

Additions to, and adaptations of, the following elements shall be made for the special-procedure operating rooms found in larger facilities.

The following shall be provided:

7.7.A. Surgery

▼ **7.7.A1.** General operating room(s). In new construction, each room shall have a minimum clear area of 400 square feet (37.16 square meters) exclusive of fixed or wall-mounted cabinets and built-in shelves, with a minimum of 20 feet (6.10 meters) clear dimension between fixed cabinets and built-in shelves; and a system for emergency communication with the surgical suite control station. X-ray film illuminators for handling at least four films simultaneously shall also be provided. In renovation projects, each room shall have a minimum clear area of 360 square feet (33.45 square meters), exclusive of fixed or wall-mounted cabinets and built-in shelves, with a minimum of 18 feet (5.49 meters) clear dimension between fixed cabinets and built-in shelves. (For renovation projects, see Section 7.7.A6.)

7.7.A2. Room(s) for cardiovascular, orthopedic, neurological, and other special procedures that require additional personnel and/or large equipment. When included, this room shall have, in addition to the above, a minimum clear area of 600 square feet (55.74 square meters), with a minimum of 20 feet (6.10 meters) clear dimension exclusive of fixed or wall-mounted cabinets and built-in shelves. When open-heart surgery is performed, an additional room in the restricted area of the surgical suite, preferably adjoining this operating room, shall be designated as a pump room where extra corporeal pump(s), supplies and accessories are stored and serviced. When complex orthopedic and neurosurgical surgery is performed, additional rooms shall be in the restricted area of the surgical suite, preferably adjoining the specialty operating rooms, which shall be designated as equipment storage rooms for the large equipment used to support these procedures. Appropriate plumbing and electrical connections shall be provided in the cardiovascular, orthopedic, neurosurgical, pump, and storage rooms. In renovation projects, orthopedic surgical rooms may have a minimum clear area of 360 square feet (33.5 square meters) and a minimum dimension of 18 feet (5 meters). Rooms for cardiovascular, neurological, and other special procedures may have a minimum clear area
▲ of 400 square feet (44.39 square meters).

7.7.A3. A room for orthopedic surgery. When included, this room shall, in addition to the above, have enclosed storage space for splints and traction equipment. Storage may be outside the operating room but must be conveniently located. If a sink is used for the disposal of plaster of paris, a plaster trap shall be provided.

▼ **7.7.A4.** Room(s) for surgical cystoscopic and other endo-urologic procedures. This room shall have a minimum clear area of 350 square feet (32.52 square meters) exclusive of fixed or wall-mounted cabinets and built-in shelves with a minimum of 15 feet (4.57 meters) clear dimension between fixed cabinets and built-in shelves. X-ray viewing capability to accommodate at least four films simultaneously will be provided. In renovation projects, rooms for surgical cystoscopy may have a minimum clear area of 250
▲ square feet (23.28 square meters).

7.7.A5. Endoscopy suite requirements. (See Section 9.9.)

7.7.A6. The functional program may require additional clear space, plumbing, and mechanical facilities to accommodate special functions in one or more of these rooms. When existing functioning operating rooms are modified, and it is impractical to increase the square foot area because of walls or structural members, the operating room may continue in use when requested by the hospital.

7.7.B. Post-Anesthetic Care Units (PACUs)

▼ Each PACU shall contain a medication station; handwashing facilities; nurse station with charting facilities; clinical sink; provisions for bedpan cleaning; and storage space for stretchers, supplies, and equipment. Additionally, the design shall provide a minimum of 80 square feet for each patient bed with a space for additional equipment described in the functional program, and for clearance of at least 4 feet (1.22 meters) between patient beds and between patient bedsides and adjacent walls. Provisions shall be made for the isolation of infectious patients. Provisions for patient privacy such as cubicle curtains shall be made. In new construction, at least one door to the recovery room shall access directly from the surgical suite without crossing public hospital corridors. Separate and additional recovery space may be necessary to accommodate surgical outpatients and pediatric patients. (See Sections 7.7.C14, 7.7.C17, and 9.5.)

A staff toilet shall be located within the working area to maintain staff availability to patients.

Handwashing sinks with foot or elbow controls should be available in sufficient number, at least one for every four beds uniformly distributed to provide equal access ▲ from each patient bed.

7.7.C. Service Areas

Services, except for the enclosed soiled workroom mentioned in item 7.7.C6 and the housekeeping room in item 7.7.C19, may be shared with the obstetrical facilities if the functional program reflects this concept. Service areas, when shared with delivery rooms, shall be designed to avoid the passing of patients or staff between the operating room and the delivery room areas. The following services shall be provided:

7.7.C1. A control station located to permit visual observation of all traffic into the suite.

7.7.C2. A supervisor's office or station.

▼ **7.7.C3.** A sterilizing facility(ies) with high-speed-sterilizer(s) or other sterilizing equipment for immediate or emergency use must be grouped to several operating rooms for convenient, efficient use. A work space and handwashing facility may be included. Other facilities for processing and sterilizing reusable instruments, etc., may be located in another hospital department such as central services.

7.7.C4. Medication station. Provision shall be made for storage and distribution of drugs and routine medications. This may be done from a medicine preparation room or unit, from a self-contained medicine dispensing unit, or by another system. If used, a medicine preparation room or unit shall be under visual control of nursing staff. It shall contain a work counter, sink, refrigerator, and double-locked storage for controlled substances and shall have a minimum area of 50 square feet (4.65 square meters). Convenient access to handwashing facilities shall be provided. (Standard cup-sinks provided in many self-contained units are not adequate for handwashing.)

7.7.C5. Scrub facilities. Two scrub positions shall be provided near the entrance to each operating room. Two scrub positions may serve two operating rooms if both are located adjacent to the entrance of each operating room. Scrub facilities should be arranged to minimize incidental splatter on nearby personnel, medical equipment, or supply carts. In new construction, view windows at scrub stations permitting observation of room interiors should be provided. The scrub sinks should be recessed into an alcove out of the main traffic areas.

7.7.C6. An enclosed soiled workroom (or soiled holding room that is part of a system for the collection and disposal of soiled material) for the exclusive use of the surgical suite shall be provided. It shall be located in the restricted area. The soiled workroom shall contain a flushing-rim clinical sink or equivalent flushing-rim fixture, a handwashing fixture, a work counter, and space for waste receptacles and soiled linen receptacles. Rooms used only for temporary holding of soiled material may omit the flushing-rim clinical sink and work counters. However, if the flushing-rim clinical sink is omitted, other provisions for disposal of liquid waste shall be provided. The room shall not have direct connection with operating rooms or other sterile activity rooms. Soiled and clean workrooms or ▲ holding rooms shall be separated.

7.7.C7. Clean workroom or clean supply room.

▼ a. A clean workroom is required when clean materials are assembled within the surgical suite prior to use or following the decontamination cycle. It shall contain a work counter, a handwashing fixture, storage facilities for clean supplies, and a space to package reusable items. The storage for sterile supplies must be separated from this space. If the room is used only for storage and holding as part of a system for distribution of clean and sterile supply materials, the work counter and handwashing fixture may be omitted. Soiled and clean workrooms or holding rooms shall be separated.

b. Storage space for sterile and clean supplies should be adequate for the functional plan. The space should be moisture and temperature controlled and free from cross traffic.

c. An operating room suite design with a sterile core must provide for no cross traffic of staff and supplies from the decontaminated/soiled areas to the sterile/clean areas. The use of facilities outside the operating room for soiled/decontaminated processing and clean assembly and sterile processing will be designed to move the flow of goods and personnel from dirty to clean/sterile without compromising universal precautions or
▲ aseptic techniques in both departments.

7.7.C8. Medical gas storage facilities. Flammable anesthetics, if used, shall be stored in a separate room in accordance with Section 7.29. Main storage of medical gases may be outside or inside the facility. Provision shall be made for additional separate storage of reserve gas cylinders necessary to complete at least one day's procedures.

▼ **7.7.C9.** The anesthesia workroom for cleaning, testing, and storing anesthesia equipment shall contain work counter(s) and sink(s) and racks for cylinders. Provisions shall be made for separate storage of
▲ clean and soiled items.

7.7.C10. Equipment storage room(s) for equipment and supplies used in surgical suite.

7.7.C11. Staff clothing change areas. Appropriate areas shall be provided for male and female personnel (orderlies, technicians, nurses, and doctors) working within the surgical suite. The areas shall contain lockers, showers, toilets, lavatories equipped for handwashing, and space for donning scrub suits and booties. These areas shall be arranged to encourage a one-way traffic pattern so that personnel entering from outside the surgical suite can change and move directly into the surgical suite.

7.7.C12. Staff lounge and toilet facilities. Separate or combined lounges for male and female staff shall be provided. Lounge(s) shall be designed to minimize the need to leave the suite and to provide convenient access to the recovery room.

7.7.C13. Dictation and report preparation area. This may be accessible from the lounge area.

7.7.C14. Outpatient recovery. If the functional program includes outpatient surgery, provisions shall be made for separating outpatients into two categories, (Phase I) patients receiving general anesthesia and (Phase II) patients not subjected to general anesthesia. This requirement should be satisfied by separate rooms. Phase II shall provide privacy for each patient. A patient toilet room directly accessible from outpatient recovery shall be provided. Smaller facilities with no more than two surgical procedure rooms may use the same space for (Phase II) recovery of patients not subjected to general anesthesia as that used for preoperative preparation.

7.7.C15. Outpatient surgery change areas. If the functional program defines outpatient surgery as part of the surgical suite, a separate area shall be provided where outpatients may change from street clothing into hospital gowns and be prepared for surgery. This would include a waiting room, locker(s), toilet(s), and clothing change or gowning area.

7.7.C16. Provisions shall be made for patient examination, interviews, preparation, testing, and obtaining vital signs of patients for outpatient surgery.

7.7.C17. Patient holding area. In facilities with two or more operating rooms, an area shall be provided to accommodate stretcher patients waiting for surgery. This holding area shall be under the visual control of the nursing staff.

7.7.C18. Storage areas for portable X-ray equipment, stretchers, fracture tables, warming devices, auxiliary lamps, etc. These areas shall be out of corridors and traffic.

▼ **7.7.C19.** Housekeeping facilities. Housekeeping facilities shall be provided for the exclusive use of the surgical suite. It shall be directly accessible from the suite and shall contain a service sink or floor receptor and provisions for storage of supplies and
▲ housekeeping equipment.

7.7.C20. Area for preparation and examination of frozen sections. This may be part of the general laboratory if immediate results are obtainable without unnecessary delay in the completion of surgery.

▼ **7.7.C21.** Ice machine. An ice machine shall be provided to provide ice for treatments and patient use. Ice intended for human consumption shall be from
▲ self-dispensing ice makers.

7.7.C22. Provisions for refrigerated blood bank storage.

▼ **7.7.C23.** Where applicable, appropriate provisions for refrigeration facilities for harvested organs.

7.7.C24. Provisions for pathological specimens storage prior to transfer to pathology section.

7.7.C25. See Section 9.5 of this document concerning the separate outpatient surgical unit.

7.7.C26. For general standards on detail and finishes, see Sections 7.28.A, 7.28.B, and Table 1.

7.7.C27. For elevators, see Section 7.30.A2-6.

7.7.C28. For mechanical considerations, see Section 7.31 and Tables 2 through 5.

7.7.C29. For electrical considerations, see Sections 7.32.A-I.

7.7.C30. For central services considerations, see
▲ Section 7.20.

7.8 Obstetrical Facilities

***7.8.A. (See Appendix A.)**

7.8.B. Obstetrical Suite

7.8.B1. General

▼ The obstetrical unit shall be located and designed to prohibit nonrelated traffic through the unit. When delivery and operating rooms are in the same suite, access and service arrangements shall be such that neither staff nor patients need to travel through one area to reach the other. Except as permitted otherwise herein, existing facilities being renovated shall, as far as practicable, provide all the required support
▲ services.

7.8.B2. Postpartum Unit

a. Postpartum bedroom

▼ (1) A postpartum bedroom shall have a minimum of 100 square feet (9.29 square meters) of clear floor area per bed in multibed rooms and 120 square feet (11.15 square meters) of clear floor area in single-bed rooms. These areas shall be exclusive of toilet rooms, closets, alcoves, or vestibules. Where renovation work is undertaken, existing postpartum patient rooms shall have a minimum of 50 square feet (7.43 square meters) of clear floor area per bed in multiple-bed rooms and 100 square feet (9.29 square meters) in single-bed rooms.

(2) In multibed rooms there shall be a minimum clear distance of 4 feet (1.22 meters) between the foot of the bed and the opposite wall, 3 feet (0.91-meter) between the side of the bed and the nearest wall, and 4 feet (1.22 meters) between beds.

(3) The maximum number of beds per room shall be two. Note: In new construction, the maximum room capacity shall be two patients. Where renovation work is undertaken and the present capacity is four patients, maximum room capacity may be four patients.

(4) Each patient bedroom shall have a window or windows that can be opened from the inside. When the windows require the use of tools or keys, they shall be kept on the unit and readily accessible to staff.

(5) Each patient room shall have a nurse calling system for two-way voice communication.

(6) Handwashing facilities shall be provided in each patient bedroom. In multibed rooms the handwashing sink shall be located outside of the patients' cubical curtains so that it is accessible to staff.

(7) Each patient shall have access to a toilet room or bathroom without entering a general corridor. One such room shall serve no more than two beds and no more than two patient rooms. The lavatory may be omitted from a toilet room if each patient room served by the toilet contains a lavatory for handwashing.

b. The following support services for this unit shall be provided.

(1) A nurse station.

(2) A nurse office.

(3) Charting facilities.

(4) Toilet room for staff.

(5) Staff lounge.

(6) Lockable closets or cabinets for personal articles of staff.

(7) Consultation/conference room(s).

(8) Patients' lounge. The patients' lounge may be omitted if all rooms are single-bed rooms.

(9) Clean workroom or clean supply room. A clean workroom is required if clean materials are assembled within the obstetrical suite prior to use. It shall contain a work counter, a handwashing fixture, and storage facilities for clean and sterile supplies. If the room is used only for storage and holding as part of a system for distribution of clean and sterile supply materials, the work counter and handwashing fixtures may be omitted. Soiled and clean workrooms or holding rooms shall be separated and have no direct connection.

(10) Soiled workroom or soiled holding room for the exclusive use of the obstetrical suite. This room shall be separate from the clean workroom and shall have separate access doors. The soiled workroom shall contain a clinical sink (or equivalent flushing-rim fixture) and a handwashing fixture. The above fixtures shall both have a hot

and cold mixing faucet. The room shall have a work counter and space for separate covered containers for soiled linen and waste. Rooms used only for temporary holding of soiled material may omit the clinical sink and work counter. If the flushing-rim clinical sink is omitted, facilities for cleaning bedpans shall be provided elsewhere.

(11) Medication station. Provision shall be made for storage and distribution of drugs and routine medications. This may be done from a medicine preparation room or unit, from a self-contained medicine dispensing unit, or by another system. If used, a medicine preparation room or unit shall be under visual control of nursing staff. It shall contain a work counter, sink, refrigerator, and double-locked storage for controlled substances and shall have a minimum area of 50 square feet (4.65 square meters). Convenient access to handwashing facilities shall be provided. (Standard cup-sinks provided in many self-contained units are not adequate for handwashing.)

(12) Clean linen storage may be part of a clean workroom or a separate closet. When a close cart system is used, the cart may be stored in a alcove out of the path of normal traffic.

(13) Nourishment station shall contain sink, work counter, ice dispenser, refrigerator, cabinets, and equipment for serving hot or cold food. Space shall be included for temporary holding of unused or soiled dietary trays.

(14) Equipment storage room.

(15) Storage space for stretchers and wheelchairs. Storage space for stretchers and wheelchairs shall be provided in a strategic location, out of corridors and away from normal traffic.

(16) When bathing facilities are not provided in patient rooms, there shall be at least one shower and/or bathtub for each 6 beds or fraction thereof.

(17) Housekeeping room. A housekeeping room shall be provided for the exclusive use of the obstetrical suite. It shall be directly accessible from the suite and shall contain a service sink or floor receptor and provisions for storage of supplies and housekeeping equipment.

(18) Examination/treatment room and/or multipurpose diagnostic testing room shall have a minimum clear floor area of 120 square feet (11.15 square meters). When utilized as a multi-patient diagnostic testing room, a minimum clear floor area of 80 square feet (7.43 square meters) per patient shall be provided. An adjoining toilet room shall be provided for patient use.

(19) Emergency equipment storage shall be located in close proximity to the nurse station.

c. Infectious isolation room(s)

(1) One isolation room shall be provided for each 30 beds or major faction thereof. Each isolation room shall contain a clear floor area of 120 square feet (11.15 square meters) and a single bed. A minimum of one isolation room shall be provided regardless of the size of the unit. There shall be an anteroom of a minimum of 20 square feet (1.86 square meters), with facilities for handwashing, gowning, and storage of clean and soiled materials. One anteroom may serve not more than two isolation rooms.

(2) Each isolation room shall have an adjoining bathroom (with tub or shower).

7.8.B3. Caesarean/Delivery Suite

a. Caesarean/delivery room(s) shall have a minimum clear floor area of 360 square feet (33.45 square meters) with a minimum dimension of 16 feet (4.88 meters) exclusive of built-in shelves or cabinets. There shall be a minimum of one such room in every obstetrical unit.

b. Delivery room(s) shall have a minimum clear area of 300 square feet (27.87 square meters) exclusive of fixed cabinets and built-in shelves. An emergency communication system shall be connected with the obstetrical suite control station.

c. Infant resuscitation shall be provided within the caesarean/delivery room(s) and delivery rooms with a minimum clear floor area of 40 square feet (3.72 square meters) in addition to the required area of each room or may be provided in a separate but immediately accessible room with a clear floor area of 150 square feet (13.94 square meters). Six single or three duplex electrical outlets shall be provided for the infant in addition to the facilities required for the mother.

d. Labor room(s) (LDR rooms may be substituted.) In renovation projects, existing labor rooms may have a minimum clear area of 100 square feet (9.3 square meters) per bed.

Where LDRs or LDRPs are not provided, a minimum of two labor beds shall be provided for each caesarean/delivery room. In facilities that have only one caesarean/delivery room, two labor rooms shall be provided. Each room shall be designed for either one or two beds with a minimum clear area of 120 square feet (11.15 square meters) per bed. Each labor room shall contain a

handwashing fixture and have access to a toilet room. One toilet room may serve two labor rooms. Labor rooms shall have controlled access with doors that are arranged for observation from a nursing station. At least one shower (which may be separate from the labor room if under staff control) for use of patients in labor shall be provided. Windows in labor rooms, if provided, shall be located, draped, or otherwise arranged, to preserve patient privacy from casual observation from outside the labor room.

e. Recovery room(s) (LDR rooms may be substituted.)

Each recovery room shall contain at least two beds and have a nurse station with charting facilities located to permit visual control of all beds. Each room shall include facilities for handwashing and dispensing medicine. A clinical sink with bedpan flushing device shall be available, as shall storage for supplies and equipment. There should be enough space for baby and crib and a chair for the support person. There should be the ability to maintain visual privacy of the new family.

f. Service Areas

(1) Individual rooms shall be provided as indicated in the following standards; otherwise, alcoves or other open spaces that do not interfere with traffic may be used. Services, except the soiled workroom and the housekeeping room, may be shared with the surgical facilities, if the functional program reflects this concept. Where shared, areas shall be arranged to avoid direct traffic between the delivery and operating rooms. The following services shall be provided:

(2) A control/nurse station located to restrict unauthorized traffic into the suite.

g. A supervisor's office or station.

h. A waiting room, with toilets, telephones, and drinking fountains conveniently located.

i. Sterilizing facilities with high-speed sterilizers convenient to all caesarean/delivery rooms. Sterilization facilities should be separate from the delivery area and adjacent to clean assembly. High-speed autoclaves should only be used in an emergency situation (i.e., a dropped instrument and no sterile replacement readily available). Sterilization facilities would not be necessary if the flow of materials were handled properly from a central service department based on the usage of the delivery room (DR).

j. A drug distribution station with handwashing facilities and provisions for controlled storage, preparation, and distribution of medication.

k. Scrub facilities for caesarean/delivery rooms. Two scrub positions shall be provided adjacent to entrance to each caesarean/delivery room. Scrub facilities should be arranged to minimize any splatter on nearby personnel or supply carts. In new construction, provide view windows at scrub stations to permit the observation of room interiors.

l. Soiled workroom or soiled holding room. This room shall be separate from the clean workroom and shall have separate access doors. The soiled workroom shall contain a clinical sink (or equivalent flushing-rim fixture). The room shall contain a handwashing fixture. The above fixtures shall both have a hot and cold mixing faucet. The room shall have a work counter and space for separate covered containers for soiled linen and waste. Rooms used only for temporary holding of soiled material may omit the clinical sink and work counter. If the flushing-rim clinical sink is eliminated, facilities for cleaning bedpans shall be provided elsewhere.

m. Fluid waste disposal: See l above.

▲ n. Clean workroom: See l above.

o. Anesthesia storage facilities. Storage space for service cylinders of medical gases shall be provided as needed. If flammable anesthetics are used, a separate room shall be provided for their storage in accordance with the details of Section 7.29.

▼ p. A clean sterile storage area readily available to the DR: size to be determined on level of usage, functions provided, and supplies from the hospital ▲ central distribution area.

q. An anesthesia workroom for cleaning, testing, and storing anesthesia equipment. It shall contain a work counter, sink, and provisions for separation of clean and soiled items.

r. Equipment storage room(s) for equipment and supplies used in the obstetrical suite.

▼ s. Staff clothing change areas. The clothing change area shall be designed to minimize physical contact between clean and contaminated personnel. The area shall contain lockers, showers, toilets, handwashing facilities, and space for donning and disposing scrub suits and booties.

t. Male and female support persons change area ▲ (designed as described above).

u. Lounge and toilet facilities for obstetrical staff convenient to delivery, labor, and recovery areas. In addition, on-call rooms for physician shall be provided.

v. Housekeeping room with a floor receptacle or service sink and storage space for housekeeping supplies and equipment.

w. An area for storing stretchers out of the path of normal traffic.

▼ **7.8.B4.** LDR and LDRP Facilities

When provided by the functional program, delivery procedures in accordance with birthing concepts may be performed in the LDR or LDRP rooms. LDR room(s) may be located in a separate LDR suite or as part of the Caesarean/Delivery suite. The postpartum unit may contain LDRP rooms. These rooms shall have a minimum of 250 square feet (23.23 square meters) of clear floor area with a minimum dimension of 13 feet (3.96 meters), exclusive of toilet room, closet, alcove, or vestibules. There should be enough space for crib and reclining chair for support person. An area within the room but distinct from the mother's area shall be provided for infant stabilization and resuscitation. See Table 5 in Section 7.31 for medical gas and electrical outlets. These outlets should be located in the room so that they are accessible to the mother's delivery area and infant resuscitation area. In renovation projects, existing LDR or LDRP rooms may have a minimum clear area of 200 square feet (18.58 square meters).

Each LDR or LDRP room shall be for single occupancy and have direct access to a private toilet with shower or tub. Each room shall be equipped with free-standing handwashing fixture (handwashing fixture with hands-free operation is acceptable for scrubbing). Examination lights may be portable, but must be immediately accessible.

a. Finishes shall be selected to facilitate cleaning and with resistance to strong detergents. Windows or doors within a normal sightline that would permit observation into the room shall be arranged or ▲ draped as necessary for patient privacy.

7.9 Emergency Service

(See Section 9.6 for the separate outpatient emergency unit.)

7.9.A. Definition

Levels of emergency care range from elementary initial emergency management to sophisticated definitive emergency care such as repair of heart wounds. For these standards, emergency services are described in these two broad categories: initial emergency management and definitive emergency management.

▼ **7.9.A1.** Initial emergency management is care provided to stabilize a victim's condition and to minimize potential for further injury during transport to an appropriate service. Patients may be brought to the "nearest hospital," which may or may not have all required services for definitive emergency management. It is important that the hospital, in those cases, be able to alleviate emergent illnesses and ▲ injuries and arrange for appropriate transfer.

*7.9.A2. Emergency care may range from the simple suturing of lacerations to full-scale medical procedures. Facilities that include personnel and equipment for definitive emergency care should provide for 24-hour service and complete emergency care leading to discharge to the patient's home or direct admission to the appropriate hospital.

7.9.B. General

The extent and type of emergency service to be provided will depend upon community needs and the availability of other services within the area. While initial emergency management must be available at every hospital, full-scale definitive emergency services may be impractical and/or an unnecessary duplication. All services need adequate equipment and 24-hour staffing to ensure no delay in essential treatment. The following standards are intended only as minimums. Additional facilities, as needed, shall be as required to satisfy the program.

Provisions for facilities to provide nonemergent treatment of outpatients are covered separately in Section 9.3.

7.9.C. Initial Emergency Management

At a minimum, each hospital shall have provisions for emergency treatment for staff, employees, and visitors, as well as for persons who may be unaware of or unable to immediately reach services in other facilities. This is not only for minor incidents that may require minimal care but also for persons with severe illness and injuries who must receive immediate emergency care and assistance prior to transport to other facilities.

Provisions for initial emergency management shall include:

7.9.C1. A marked entrance, at grade level, protected from the weather.

▼ **7.9.C2.** A treatment room with not less than 120 square feet (11.15 square meters) of clear area, exclusive of toilets, waiting area, and storage. Each treatment room shall contain an examination light, work counter, handwashing facilities, medical equipment, cabinets, medication storage, adequate electrical outlets above floor level, and counter space for writing. The treatment room may have additional space and provisions for several patients with cubicle

curtains for privacy. Multiple-bed treatment rooms shall provide a minimum of 80 square feet (7.43 ▲ square meters) per patient cubicle.

7.9.C3. Storage out of traffic and under staff control for general medical/surgical emergency supplies, medications, and equipment such as ventilator, defibrillator, splints, etc.

▼ **7.9.C4.** Provisions for reception, control, and public ▲ waiting, including a public toilet.

7.9.C5. A patient toilet room convenient to the treatment room(s).

▼ **7.9.C6.** Communication hookup to the Poison ▲ Control Center and regional EMS system.

7.9.D. Definitive Emergency Care

When 24-hour emergency service is to be provided, the type, size, and number of the services shall be as defined in the functional program. As a minimum, the following shall be provided:

7.9.D1. Grade-level entrance sheltered from the weather with direct access from heliport (if included) and from public roads for ambulance and vehicle traffic. Entrance and driveway shall be clearly marked. If a raised platform is used for ambulance discharge, provide a ramp for pedestrian and wheelchair access.

7.9.D2. Paved emergency access to permit discharge of patients from automobiles and ambulances, and temporary parking convenient to the entrance.

7.9.D3. Reception, triage (see Table 5 in Section 7.31), and control station shall be located to permit staff observation and control of access to treatment area, pedestrian and ambulance entrances, and public waiting area.

7.9.D4. Wheelchair and stretcher storage shall be provided for arriving patients. This shall be out of traffic with convenient access from emergency entrances.

7.9.D5. Public waiting area with toilet facilities, drinking fountains, and telephones shall be provided.

7.9.D6. Communication center shall be convenient to nursing station and have radio, telephone, and intercommunication systems. (See Section 7.29.F.)

▼ **7.9.D7.** Examination and treatment room(s). Examination rooms shall have a minimum floor area of 120 square feet (11.15 square meters). The room shall contain work counter(s); cabinets; handwashing facilities; supply storage facilities; examination lights; and a desk, counter, or shelf space for writing. When treatment cubicles are in open multibed areas, each cubicle shall have a minimum of 80 square feet (7.43 square meters) of clear floor space and shall be separated from adjoining cubicles by curtains. Handwashing facilities shall be provided for each four treatment cubicles or major fraction thereof in multiple-bed areas. For oxygen and vacuum, see Table 5 in Section 7.31. Treatment/examination rooms used for pelvic exams should allow for the foot of the examination table to face away from the door.

*7.9.D8. Trauma/cardiac rooms for emergency procedures, including emergency surgery, shall have at least 250 square feet (23.23 square meters) of clear floor space. Each room shall have cabinets and emergency supply shelves, X-ray film illuminators, examination lights, and counter space for writing. Additional space with cubicle curtains for privacy may be provided to accommodate more than one patient at a time in the trauma room. Provisions shall be made for monitoring the patient. There shall be storage provided for immediate access to attire used for universal precautions. Doorways leading from the ambulance entrance to the cardiac trauma room shall be a minimum of 5 feet (1.52 meters) wide to simultaneously accommodate stretchers, equipment, and personnel. In renovation projects, existing cardiac/trauma rooms may have a clear area of 240 square feet (21 square meters), and doorways leading from the ambulance entrance to the room may be 4 feet (1.22 meters) wide.

7.9.D9. Provisions for orthopedic and cast work. These may be in separate room(s) or in the trauma room. They shall include storage for splints and other orthopedic supplies, traction hooks, X-ray film illuminators, and examination lights. If a sink is used for the disposal of plaster of Paris, a plaster trap shall be provided. The clear floor space for this area shall be dependent on the functional program and the procedures and equipment accommodated here.

7.9.D10. Scrub stations located in or adjacent and ▲ convenient to each trauma and/or orthopedic room.

7.9.D11. Convenient access to radiology and laboratory services.

▼ **7.9.D12.** Poison Control Center and EMS Communications Center may be a part of the staff ▲ work and charting area.

7.9.D13. Provisions for disposal of solid and liquid waste. This may be a clinical sink with bedpan flushing device within the soiled workroom.

▼ **7.9.D14.** Emergency equipment storage. Sufficient space shall be provided for emergency equipment that is under direct control of the nursing staff, such as a CPR cart, pumps, ventilators, patient monitoring equipment, and portable X-ray unit. This space shall be located in an area appropriate to the functional program easily accessible to staff but out of normal traffic patterns.

7.9.D15. A toilet room for patients. Where there are more than eight treatment areas, a minimum of two ▲ toilet facilities will be required.

7.9.D16. Storage rooms for clean, soiled, or used supplies.

▼ *a. Soiled workroom or soiled holding room for the exclusive use of the emergency service. This room shall be separate from the clean workroom and shall have separate access doors. The soiled workroom shall contain a clinical sink (or equivalent flushing-rim fixture). The room shall contain a lavatory (or handwashing fixture). The above fixtures shall both have a hot and cold mixing faucet. The room shall have a work counter and space for separate covered containers for soiled linen and waste. Rooms used only for temporary holding of soiled material may omit the clinical sink and work counter. If the flushing-rim clinical sink is eliminated, facilities for cleaning bedpans shall be provided elsewhere.

b. Clean workroom or clean supply room. If the room is used for preparing patient care items, it shall contain a work counter, a handwashing sink, and storage facilities for clean and sterile supplies. If the room is used only for storage and holding as part of a system for distribution of clean and sterile supply materials, the work counter and handwashing facilities may be omitted. Soiled and clean workrooms or holding rooms shall be separated and have no direct connection.

7.9.D17. Administrative center or nurses station for staff work and charting. This area shall have space for counters, cabinets, and medication storage, and shall have convenient access to handwashing facilities. It may be combined with or include centers for reception and communication or poison control. Preferably, the nurses station should permit visual observation of all traffic into the unit.

7.9.D18. Securable closets or cabinet compartments for the personal effects of emergency service personnel, located in or near the nurse station. At a minimum, these shall be large enough for purses and billfolds. Coats may be stored in closets or cabinets in the unit ▲ or in a central staff locker area.

7.9.D19. Convenient and private access to staff toilets, lounge, and lockers.

▼ **7.9.D20.** Housekeeping room. A housekeeping room shall be provided for the exclusive use of the emergency service. It shall be directly accessible from the unit and shall contain a service sink or floor receptor and provisions for storage of supplies and housekeeping equipment.

***7.9.D21.** Security Station

The non-selective 24-hour accessibility of the emergency department dictates that a security system reflecting local community needs be provided.

7.9.D22. Infectious Isolation Room

At least one infectious isolation room should be provided, with 120 square feet (11.15 square meters) of clear floor space and enclosed storage cabinets.

***7.9.D23.** Bereavement Room. (See Appendix A.)

7.9.D24. Secured Holding Room

At least one holding/seclusion room shall be provided. This room shall allow for security, patient and ▲ staff safety, and soundproofing.

***7.9.E. Other Space Considerations.** (See Appendix A.)

7.9.F. Details and Finishes; Ventilation and Mechanical; Electrical Standards
See Section 7.28 for details and finishes, Section 7.31 for ventilation and mechanical, and Section 7.32 for electrical standards.

7.10 Imaging Suite

7.10.A. General

▼ **7.10.A1.** Equipment and space shall be as necessary to accommodate the functional program. The imaging department provides diagnostic procedures. It includes fluoroscopy, radiography, mammography, tomography, computerized tomography scanning, ultrasound, magnetic resonance, angiography and other similar techniques. Layouts should be developed in compliance with manufacturer's recommendations, because area requirements may vary from machine to machine. Since technology changes frequently and from manufacturer to manufacturer, rooms can be sized larger to allow upgrading of equipment over a period of time.

7.10.A2. Most imaging requires radiation protection. A certified physicist representing the owner or appropriate state agency shall specify the type, location, and amount of radiation protection to be installed in accordance with the final approved department layout and equipment selections. Where protected alcoves with view windows are required, a minimum of 1 foot 6 inches (0.45 meter) between the view window and the outside partition edge shall be provided. Radiation protection requirements shall be incorporated into the specifications and the building plans.

7.10.A3. Beds and stretchers shall have ready access to and from other departments of the institution. Particular attention should be paid to the management of outpatients for preparation and observation. The emergency, surgery, cystoscopy, and outpatient clinics should be accessible to the imaging suite. Imaging should be located on the ground floor, if practical, because of equipment ceiling height requirements, close proximity to electrical services, and expansion considerations.

7.10.A4. Flooring shall be adequate to meet load requirements for equipment, patients, and personnel. Provision for wiring raceways, ducts or conduits should be made in floors, walls, and ceilings. Ceiling heights may be higher than normal. Ceiling mounted equipment should have properly designed rigid support structures located above the finished ceiling. A lay-in type ceiling should be considered for ease of installation, service, and remodeling.

7.10.B. Angiography

7.10.B1. Space shall be provided as necessary to accommodate the functional program. The procedure room should be a minimum of 400 square feet (37.16 square meters).

7.10.B2. A control room shall be provided as necessary to meet the needs of the functional program. A view window shall be provided to permit full view of the patient.

7.10.B3. A viewing area shall be provided and should be a minimum of 10 feet (3.05 meters) in length.

7.10.B4. A scrub sink located outside the staff entry to the procedure room shall be provided for use by staff.

7.10.B5. A patient holding area should be provided to accommodate two stretchers with additional spaces for additional procedure rooms.

7.10.B6. Storage for portable equipment and catheters shall be provided.

7.10.B7. Provision shall be made within the facility for extended post-procedure observation of outpatients.

7.10.C. Computerized Tomography (CT) Scanning

7.10.C1. CT scan rooms shall be as required to accommodate the equipment.

7.10.C2. A control room shall be provided which is designed to accommodate the computer and other controls for the equipment. A view window shall be provided to permit full view of the patient. The angle between the control and equipment centroid shall permit the control operator to see the patient's head.

***7.10.C3.** (See Appendix A.)

7.10.C4. The control room shall be located to allow convenient film processing.

7.10.C5. A patient toilet shall be provided. It shall be convenient to the procedure room, and if directly accessible to the scan room, arranged so that a patient may leave the toilet without having to reenter the scan room.

7.10.D. Diagnostic X-ray

***7.10.D1.** Radiography rooms shall be of a size to accommodate the functional program.

***7.10.D2.** (See Appendix A.)

***7.10.D3.** (See Appendix A.)

7.10.D4. Each X-ray room shall include a shielded control alcove. This area shall be provided with a view window designed to provide full view of the examination table and the patient at all times, including full view of the patient when the table is in the tilt position or the chest X-ray is being utilized. For mammography machines with built-in shielding for the operator, the alcove may be omitted when approved by the certified physicist or state radiation protection agency.

7.10.E. Magnetic Resonance Imaging (MRI)

7.10.E1. Space shall be provided as necessary to accommodate the functional program. The MRI room may range from 325 square feet (30.19 square meters) to 620 square feet (57.6 square meters) depending on the vendor and magnet strength.

7.10.E2. A control room shall be provided with full view of the MRI and should be a minimum of 100 square feet (9.29 square meters), but may be larger depending on the vendor and magnet size.

7.10.E3. A computer room shall be provided and could range from 150 square feet (13.94 square meters) to 380 square feet (35.30 square meters) depending on the vendor and magnet strength. Self-contained air conditioning supplement is normally required.

*__7.10.E4.__ Cryogen storage may be required in areas where service to replenish supplies is not readily available.

7.10.E5. A darkroom may be required for loading cassettes and shall be located near the control room. This darkroom shall be outside the 10-gauss field.

7.10.E6. When spectroscopy is provided, caution should be exercised in locating it in relation to the magnetic fringe fields.

7.10.E7. Power conditioning and voltage regulation equipment as well as direct current (DC) may be required.

7.10.E8. Magnetic shielding may be required to restrict the magnetic field plot. Radio frequency shielding is required to attenuate stray radio frequencies.

7.10.E9. A patient hold area should be located near the MRI unit and should be large enough to accommodate stretchers.

7.10.E10. Venting of cryogen exhaust is required.

7.10.F. Ultrasound

7.10.F1. Space shall be provided as necessary to accommodate the functional program.

7.10.F2. A patient toilet, accessible from the procedure room and from the corridor, shall be provided.

7.10.G. Support Spaces

The following spaces are common to the imaging department and are minimum requirements unless stated otherwise:

7.10.G1. Patient Waiting Area.

The area shall be out of traffic, under staff control, and shall have seating capacity in accordance with the functional program. If the suite is routinely used for outpatients and inpatients at the same time, separate waiting areas shall be provided with screening for visual privacy between the waiting areas.

7.10.G2. Control Desk and Reception Area.

7.10.G3. Holding Area.

A convenient holding area under staff control shall be provided to accommodate inpatients on stretchers or beds.

7.10.G4. Patient Toilet Rooms.

Toilet rooms shall be provided convenient to the waiting rooms and shall be equipped with an emergency call system. Separate toilets shall be provided with direct access from each radiographic/fluoroscopic room so that a patient may leave the toilet without having to reenter the R&F room. Rooms used only occasionally for fluoroscopic procedures may utilize nearby patient toilets if they are located for immediate access.

7.10.G5. Patient Dressing Rooms.

Dressing rooms shall be provided convenient to the waiting areas and X-ray rooms. Each room shall include a seat or bench, mirror, and provisions for hanging patients' clothing and for securing valuables.

7.10.G6. Staff Facilities.

Toilets may be outside the suite but shall be convenient for staff use. In larger suites of three or more procedure rooms, toilets internal to the suite shall be provided. Staff lounge with lockers should be considered.

7.10.G7. Film Storage (Active).

▲ A room with cabinets or shelves for filing patient film for immediate retrieval shall be provided.

7.10.G8. Film Storage (Inactive).

A room or area for inactive film storage shall be provided. It may be outside the imaging suite, but must be under imaging's administrative control and properly secured to protect films against loss or damage.

7.10.G9. Storage for Unexposed Film.

Storage facilities for unexposed film shall include protection of film against exposure or damage and shall not be warmer than the air of adjacent occupied spaces.

7.10.G10. Offices for Radiologist(s) and Assistant(s).

Offices shall include provisions for viewing, individual consultation, and charting of film.

7.10.G11. Clerical Offices/Spaces.

Office space shall be provided as necessary for the functional program.

▼ **7.10.G12.** Consultation Area.

An appropriate area for individual consultation with referring clinicians shall be provided.

7.10.G13. Contrast Media Preparation.

This area shall be provided with sink, counter, and storage to allow for mixing of contrast media. One preparation room, if conveniently located, may serve any number of rooms. Where pre-prepared media is used, this area may be omitted, but storage shall be provided for the media.

7.10.G14. Film Processing Room.

A darkroom shall be provided for processing film unless the processing equipment normally used does not require a darkroom for loading and transfer. When daylight processing is used, the dark room may be minimal for emergency and special uses. Film processing shall be located convenient to the procedure rooms and to the quality control area.

7.10.G15. Quality Control Area.

An area or room shall be provided near the processor for viewing film immediately after it is processed. All view boxes shall be illuminated to provide light of the same color value and intensity for appropriate comparison of several adjacent films.

7.10.G16. Cleanup Facilities.

Provisions for cleanup shall be located within the suite for convenient access and use. It shall include service sink or floor receptacle as well as storage space for equipment and supplies. If automatic film processors are used, a receptacle of adequate size with hot and cold water for cleaning the processor racks shall be provided.

7.10.G17. Handwashing Facilities.

Handwashing facilities shall be provided within each procedure room unless the room is used only for routine screening such as chest X-rays where the patient is not physically handled by the staff. Handwashing facilities shall be provided convenient to the MRI
▲ room, but need not be within the room.

7.10.G18. Clean Storage.

Provisions shall be made for the storage of clean supplies and linens. If conveniently located, storage may be shared with another department.

▼ **7.10.G19.** Soiled Holding.

Provisions shall be made for soiled holding. Separate provisions for contaminated handling and holding shall be made. Handwashing facilities shall be provided.

7.10.G20. Provision shall be made for locked stor-
▲ age of medications and drugs.

7.10.G21. Details and Finishes; Mechanical; Electrical.

See Section 7.28 for details and finishes; 7.31 for mechanical; and 7.32 for electrical.

▼ ***7.10.H. Cardiac Catheterization Lab (Cardiology).**
▲ (See Appendix A.)

7.11 Nuclear Medicine

7.11.A.
Equipment and space shall be provided as necessary to accommodate the functional program. Nuclear medicine includes positron emission tomography, which is not common to most facilities. It requires specialized planning for equipment.

▼ **7.11.B.**
A certified physicist representing the owner or state agency shall specify the type, location, and amount of radiation protection to be installed in accordance with final approved department layout and equipment selection. These specifications shall be incorporated
▲ into the plans.

7.11.C.
Support services, such as radiology and pathology, should be accessible to nuclear medicine. The emergency room and outpatient clinics should be in proximity

▼ **7.11.D.**
Flooring should meet load requirements for equipment, patients, and personnel. Floors and walls should be constructed of materials that are easily decontaminated in case of radioactive spills. Walls should contain necessary support systems for either built-in or mobile oxygen and vacuum, and vents for radioactive gases. Provision for wiring raceways, ducts or conduits should be made in floors, walls, and ceilings. Ceilings may be higher than 8 feet (2.44 meters). Ceiling-mounted equipment should have properly designed rigid support structures located above the finished ceiling. A lay-in type ceiling should be considered for ease of service, installation, and remodeling.

7.11.E.
Space shall be provided as necessary to accommodate the functional program. Where the functional program calls for it, the nuclear medicine room shall accommodate the equipment, a stretcher, exercise equipment
▲ (treadmill and/or bicycle) and staff.

7.11.F.
If radiopharmaceutical preparation is performed on-site, an area adequate to house a radiopharmacy shall be provided with appropriate shielding. This area should include adequate space for storage of radionuclides, chemicals for preparation, dose calibrators, and record keeping. Floors and walls should be constructed of easily decontaminated materials. Vents and traps for radioactive gases should be provided if such are used. Hoods for pharmaceutical preparation shall meet applicable standards. If pre-prepared materials are used, storage and calculation area may be considerably smaller than that for on-site preparation. Space shall provide adequately for dose calibration, quality assurance, and record keeping. The area may still require shielding from other portions of the facilities.

▼ *7.11.G.
Positron Emission Tomography (PET) (See Appendix A.)

7.11.H.
The nuclear medicine area, when operated separately from the imaging department, shall include the following:

7.11.H1. Services such as radiology and pathology should be accessible. The emergency room and outpatient clinics should be in proximity.

7.11.H2. Space shall be adequate to permit entry of stretchers, beds, and able to accommodate imaging equipment, electronic consoles, and if present, com-
▲ puter terminals.

7.11.H3. A darkroom on-site shall be available for film processing. The darkroom should contain protective storage facilities for unexposed film that guard the film against exposure or damage. If necessary, special refrigeration and humidity controls, separate from the ambient controls of adjacent occupied areas, should be provided.

7.11.H4. When the functional program requires a centralized computer area, it should be a separate room with access terminals available within the imaging rooms.

7.11.H5. Provisions for cleanup shall be located within the suite for convenient access and use. It shall include service sink or floor receptacle as well as storage space for equipment and supplies.

7.11.H6. Film storage with cabinets or shelves for filing patient film for immediate retrieval shall be provided.

▼ **7.11.H7.** Inactive film storage under the departmental administrative control and properly secured to protect
▲ film against loss or damage shall be provided.

7.11.H8. A consultation area with view boxes illuminated to provide light of the same color value and intensity for appropriate comparison of several adjacent films shall be provided. Space should be provided for computer access and display terminals if such are included in the program.

7.11.H9. Offices for physicians and assistants shall be provided and equipped for individual consultation, viewing, and charting of film.

7.11.H10. Clerical offices and spaces shall be provided as necessary for the program to function.

▼ **7.11.H11.** Waiting areas shall be provided out of traffic, under staff control, and shall have seating capacity in accordance with the functional program. If the department is routinely used for outpatients and inpatients at the same time, separate waiting areas shall be provided with screening or visual privacy between the waiting areas.

7.11.H12. A dose administration area as specified by the functional program, shall be provided and located near the preparation area. Since as much as several hours may elapse for the dose to take effect, the area shall provide for visual privacy from other areas. Thought should be given to entertainment and reading materials.

7.11.H13. A holding area for patients on stretchers or beds shall be provided out of traffic and under control of staff and may be combined with the dose adminis-
▲ tration area with visual privacy between the areas.

7.11.H14. Patient dressing rooms shall be provided convenient to the waiting area and procedure rooms. Each dressing room shall include a seat or bench, a mirror, and provisions for hanging patients' clothing and for securing valuables.

▼ **7.11.H15.** Toilet rooms shall be provided convenient to waiting and procedure rooms.

7.11.H16. Staff toilet(s) shall be provided convenient to the nuclear medicine laboratory.

7.11.H17. Handwashing facilities shall be provided within each procedure room.

7.11.H18. Control desk and reception area shall be provided.

7.11.H19. Storage area for clean linen with a handwashing facility shall be provided.

7.11.H20. Provisions shall be made for holding soiled material. Separate provisions shall be made for holding contaminated material.

7.11.H21. See Section 7.28 for details and finishes; 7.31 for mechanical; and 7.32 for electrical.

7.11.I. Radiotherapy Suite

7.11.I1. Rooms and spaces shall be provided as necessary to accommodate the functional program.

Equipment manufacturers recommendations should be sought and followed, since space requirements may vary from one machine to another and one manufacturer to another. The radiotherapy suite may contain one or both electron beam therapy and radiation therapy. Although not recommended, a simulation room may be omitted in small linear accelerator facilities where other positioning geometry is provided.

7.11.I2. Cobalt, linear accelerators, and simulation rooms require radiation protection. A certified physicist representing the owner or appropriate state agency shall specify the type, location, and amount of protection to be installed in accordance with final approved department layout and equipment selection. The architect shall incorporate these specifications into the hospital building plans.

7.11.I3. Cobalt rooms and linear accelerators shall be sized in accordance with equipment requirements and shall accommodate a stretcher for litter-borne patients. Layouts shall provide for preventing the escape of radioactive particles. Openings into the room, including doors, ductwork, vents, and electrical raceways and conduits, shall be baffled to prevent direct exposure to other areas of the facility.

*7.11.I4. Simulator, accelerator, and cobalt rooms shall be sized to accommodate the equipment with patient access on a stretcher, medical staff access to the equipment and patient, and service access.

7.11.I5. Flooring shall be adequate to meet load requirements for equipment, patients, and personnel. Provision for wiring raceways, ducts, or conduit should be made in floors and ceilings. Ceiling mounted equipment should have properly designed rigid support structures located above the finished ceiling. The ceiling height is normally higher than 8 feet (2.44 meters). A lay-in type of ceiling should be considered for ease of installation, service, and remodeling.

7.11.J. General Support Areas

The following areas shall be provided unless they are accessible from other areas such as imaging or OPD:

7.11.J1. A stretcher hold area adjacent to the treatment rooms, screened for privacy, and combined with a seating area for outpatients. The size of these areas will be dependent on the program for outpatients and inpatients.

7.11.J2. Exam rooms for each treatment room as specified by the functional program, each exam room to be a minimum of 100 square feet (9 square meters). Each exam room shall be equipped with a handwashing facility.

7.11.J3. Darkroom convenient to the treatment room(s) and the quality control area. Where daylight processing is used, the darkroom may be minimal for emergency use. If automatic film processors are used, a receptacle of adequate size with hot and cold water for cleaning the processor racks shall be provided either in the darkroom or nearby.

7.11.J4. Patient gowning area with provision for safe storage of valuables and clothing. At least one space should be large enough for staff assisted dressing.

7.11.J5. Business office and/or reception/control area.

7.11.J6. Housekeeping room equipped with service sink or floor receptor and large enough for equipment or supplies storage.

7.11.J7. Film file area.

7.11.J8. Film storage area for unprocessed film.

7.11.K. Optional Support Areas

The following areas may be required by the functional program:

7.11.K1. Quality control area with view boxes illuminated to provide light of the same color value and intensity.

7.11.K2. Computer control area normally located just outside the entry to the treatment room(s).

7.11.K3. Dosimetry equipment area.

7.11.K4. Hypothermia room (may be combined with an exam room).

7.11.K5. Consultation room.

7.11.K6. Oncologist's office (may be combined with consultation room).

7.11.K7. Physicist's office (may be combined with treatment planning).

7.11.K8. Treatment planning and record room.

7.11.K9. Work station/nutrition station.

7.11.L. Additional Support Areas for Linear Accelerator:

7.11.L1. Mold room with exhaust hood and handwashing facility.

7.11.L2. Block room with storage. The block room may be combined with the mold room.

7.11.M. Additional Support Areas for Cobalt Room:

▲ **7.11.M1.** Hot lab.

7.12 Laboratory Suite

Laboratory facilities shall be provided for the performance of tests in hematology, clinical chemistry, urinalysis, microbiology, anatomic pathology, cytology, and blood banking to meet the workload described in the functional program. Certain procedures may be performed on-site or provided through a contractual arrangement with a laboratory service acceptable to the authority having local jurisdiction.

Provisions shall be made for the following procedures to be performed on-site: blood counts, urinalysis, blood glucose, electrolytes, blood urea and nitrogen (BUN), coagulation, and transfusions (type and cross-match capability). Provisions shall also be included for specimen collection and processing.

The following physical facilities shall be provided within the hospital:

7.12.A.
Laboratory work counter(s) with space for microscopes, appropriate chemical analyzer(s), incubator(s), centrifuge(s), etc. shall be provided. Work areas shall include sinks with water and access to vacuum, gases, and air, and electrical services as needed.

7.12.B.
Refrigerated blood storage facilities for transfusions shall be provided. Blood storage refrigerator shall be equipped with temperature-monitoring and alarm signals.

7.12.C.
Lavatory(ies) or counter sink(s) equipped for handwashing shall be provided. Counter sinks may also be used for disposal of nontoxic fluids.

7.12.D.
Storage facilities, including refrigeration, for reagents, standards, supplies, and stained specimen microscope slides, etc. shall be provided.

7.12.E.
Specimen (blood, urine, and feces) collection facility shall be provided. Blood collection area shall have work counter, space for patient seating, and handwashing facilities. Urine and feces collection room shall be equipped with water closet and lavatory. This facility may be located outside the laboratory suite.

7.12.F.
Chemical safety provisions including emergency shower, eyeflushing devices, and appropriate storage for flammable liquids, etc., shall be made.

7.12.G.
Facilities and equipment for terminal sterilization of contaminated specimens before transport (autoclave or electric oven) shall be provided. (Terminal sterilization is not required for specimens that are incinerated on-site.)

7.12.H.
If radioactive materials are employed, facilities shall be available for long-term storage and disposal of these materials. No special provisions will normally be required for body waste products from most patients receiving low level isotope diagnostic material. Requirements of authorities having jurisdiction should be verified.

7.12.I.
Administrative areas including offices as well as space for clerical work, filing, and record maintenance shall be provided.

7.12.J.
Lounge, locker, and toilet facilities shall be conveniently located for male and female laboratory staff. These may be outside the laboratory area and shared with other departments.

The functional program shall describe the type and location of all special equipment that is to be wired, plumbed, or plugged in, and the utilities required to operate each.

Note: Refer to NFPA code requirements applicable to hospital laboratories, including standards clarifying that hospital units do not necessarily have the same fire safety requirements as commercial chemical laboratories.

7.13 Rehabilitation Therapy Department

7.13.A. General
Rehabilitation therapy is primarily for restoration of body functions and may contain one or several categories of services. If a formal rehabilitative therapy service is included in a project, the facilities and equipment shall be as necessary for the effective function of the program. Where two or more rehabilitative services are included, items may be shared, as appropriate.

7.13.B. Common Elements
Each rehabilitative therapy department shall include the following, which may be shared or provided as separate units for each service:

7.13.B1. Office and clerical space with provision for filing and retrieval of patient records.

7.13.B2. Reception and control station(s) with visual control of waiting and activities areas. (This may be combined with office and clerical space.)

7.13.B3. Patient waiting area(s) out of traffic with provision for wheelchairs.

7.13.B4. Patient toilets with handwashing facilities accessible to wheelchair patients.

7.13.B5. Space(s) for storing wheelchairs and stretchers out of traffic while patients are using the services. These spaces may be separate from the service area but must be conveniently located.

7.13.B6. A conveniently accessible housekeeping room and service sink for housekeeping use.

7.13.B7. Locking closets or cabinets within the vicinity of each work area for securing staff personal effects.

7.13.B8. Convenient access to toilets and lockers.

7.13.B9. Access to a demonstration/conference room.

7.13.C. Physical Therapy
If physical therapy is part of the service, the following, at least, shall be included:

▼ **7.13.C1.** Individual treatment area(s) with privacy screens or curtains. Each such space shall have not less than 60 square feet (5.57 square meters) of clear ▲ floor area.

7.13.C2. Handwashing facilities for staff either within or at each treatment space. (One handwashing facility may serve several treatment stations.)

7.13.C3. Exercise area and facilities.

7.13.C4. Clean linen and towel storage.

7.13.C5. Storage for equipment and supplies.

7.13.C6. Separate storage for soiled linen, towels, and supplies.

7.13.C7. Patient dressing areas, showers, and lockers. These shall be accessible and usable by the handicapped.

7.13.C8. Provisions shall be made for thermotherapy, diathermy, ultrasonics, and hydrotherapy when required by the functional program.

7.13.D. Occupational Therapy
If this service is provided, the following, at least, shall be included:

7.13.D1. Work areas and counters suitable for wheelchair access.

7.13.D2. Handwashing facilities.

7.13.D3. Storage for supplies and equipment.

7.13.E. Prosthetics and Orthotics
If this service is provided, the following, at least, shall be included:

7.13.E1. Workspace for technicians.

7.13.E2. Space for evaluating and fitting, with provision for privacy.

7.13.E3. Space for equipment, supplies, and storage.

7.13.F. Speech and Hearing
If this service is provided, the following, at least, shall be included:

7.13.F1. Space for evaluation and treatment.

7.13.F2. Space for equipment and storage.

7.14 Respiratory Therapy Service

The type and extent of respiratory therapy service in different institutions vary greatly. In some, therapy is delivered in large sophisticated units, centralized in a specific area; in others, basic services are provided only at patients' bedsides. If respiratory service is provided, the following elements shall be included as a minimum, in addition to those elements stipulated in Sections 7.13.B1, 7, 8, and 9:

7.14.A. Storage for Equipment and Supplies

▼ **7.14.B.** Space and Utilities for Cleaning and Sanitizing Equipment. Provide physical separation of the space for receiving and cleaning soiled materials from the space ▲ for storage of clean equipment and supplies.

7.14.C.
Respiratory services shall be conveniently accessible on a 24-hour basis to the critical care units.

7.14.D.
If respiratory services such as testing and demonstration for outpatients are part of the program, additional facilities and equipment shall be provided as necessary for the appropriate function of the service, including but not limited to:

7.14.D1. Patient waiting area with provision for wheelchairs.

7.14.D2. A reception and control station.

7.14.D3. Patient toilets and handwashing facilities.

7.14.D4. Room(s) for patient education and demonstration.

7.15 Morgue

These facilities shall be accessible through an exterior entrance and shall be located to avoid the need for transporting bodies through public areas.

7.15.A.
The following elements shall be provided when autopsies are performed in the hospital:

7.15.A1. Refrigerated facilities for body holding.

7.15.A2. An autopsy room containing the following:

a. A work counter with a sink equipped for handwashing.

b. A storage space for supplies, equipment, and specimens.

c. An autopsy table.

▶ d. A deep sink for washing of specimens.

7.15.A3. A housekeeping service sink or receptor for cleanup and housekeeping.

7.15.B.
If autopsies are performed outside the facility, a well-ventilated, temperature-controlled, body-holding room shall be provided.

7.16 Pharmacy

7.16.A. General
The size and type of services to be provided in the pharmacy will depend upon the type of drug distribution system used, number of patients to be served, and extent of shared or purchased services. This shall be described in the functional program. The pharmacy room or suite shall be located for convenient access, staff control, and security. Facilities and equipment shall be as necessary to accommodate the functions of the program. (Satellite facilities, if provided, shall include those items required by the program.) As a minimum, the following elements shall be included:

7.16.B. Dispensing

7.16.B1. A pickup and receiving area.

7.16.B2. An area for reviewing and recording.

▼ **7.16.B3.** An extemporaneous compounding area that includes a sink and sufficient counter space for drug preparation. Floor drainage may also be required, ▲ depending on the extent of compounding conducted.

7.16.B4. Work counters and space for automated and manual dispensing activities.

7.16.B5. An area for temporary storage, exchange, and restocking of carts.

7.16.B6. Security provisions for drugs and personnel in the dispensing counter area.

7.16.C. Manufacturing

7.16.C1. A bulk compounding area.

7.16.C2. Provisions for packaging and labeling.

7.16.C3. A quality-control area.

7.16.D. Storage (may be cabinets, shelves, and/or separate rooms or closets)

7.16.D1. Bulk storage.

7.16.D2. Active storage.

7.16.D3. Refrigerated storage.

7.16.D4. Volatile fluids and alcohol storage constructed according to applicable fire safety codes for the substances involved.

7.16.D5. Secure storage for narcotics and controlled drugs.

7.16.D6. Storage for general supplies and equipment not in use.

7.16.E. Administration

7.16.E1. Provision for cross-checking of medication and drug profiles of individual patients.

7.16.E2. Poison control, reaction data, and drug information centers.

7.16.E3. A separate room or area for office function including desk, filing, communication, and reference.

7.16.E4. Provisions for patient counseling and instruction (may be in a room separate from the pharmacy).

7.16.E5. A room for education and training (may be in a multipurpose room shared with other departments).

7.16.F. Other

7.16.F1. Handwashing facilities shall be provided within each separate room where open medication is handled.

7.16.F2. Provide for convenient access to toilet and locker.

7.16.F3. If unit dose procedure is used, provide additional space and equipment for supplies, packaging, labeling, and storage, as well as for the carts.

7.16.F4. If IV solutions are prepared in the pharmacy, provide a sterile work area with a laminar-flow workstation designed for product protection. The laminar-flow system shall include a nonhydroscopic filter rated at 99.97 percent (HEPA), as tested by DOP tests, and have a visible pressure gauge for detection of filter leaks or defects.

7.16.F5. Provide for consultation and patient education when the functional program requires dispensing of medication to outpatients.

7.17 Dietary Facilities

▼ **7.17.A. General**

Food service facilities and equipment shall conform with these standards and with the standards of the National Sanitation Foundation and other appropriate codes and shall provide food service for staff, visitors, inpatients, and outpatients as may be appropriate.

Consideration may also be required for meals to VIP suites, and for cafeterias for staff, ambulatory patients, and visitors as well as providing for nourishments and snacks between scheduled meal service.

Patient food preparation areas shall be located in an area adjacent to delivery, interior transportation, storage, etc.

Finishes in the dietary facility shall be selected to ensure cleanability and the maintenance of sanitary ▲ conditions.

7.17.B. Functional Elements

If on-site conventional food service preparation is used, the following in size and number appropriate for approved function shall be provided:

▼ **7.17.B1.** Receiving/control stations. Provide an area for the receiving and control of incoming dietary supplies. This area shall be separated from the general receiving area and shall contain the following: a control station and a breakout for loading, uncrating, and weighing supplies.

7.17.B2. Storage spaces. They shall be convenient to the receiving area and shall be located to exclude traffic through the food preparation area to reach them. Storage spaces for bulk, refrigerated, and frozen foods shall be provided. A minimum of four days' supplies shall be stocked. (In remote areas, this number may be increased to accommodate length of delivery in emergencies.)

Food storage components shall be grouped for convenient access from receiving and to the food preparation areas.

All food shall be stored clear of the floor. Lowest shelf shall be not less than 12 inches (30 centimeters) above the floor or shall be closed in and sealed tight for ease of cleaning.

7.17.B3. Cleaning supplies storage. Provide a separate storage room for the storage of non-food items such as cleaning supplies that might contaminate edibles.

7.17.B4. Additional storage rooms. They shall be provided as necessary for the storage of cooking wares, extra trays, flatware, plastic and paper products, and portable equipment.

7.17.B5. Food preparation work spaces. Provide work spaces for food preparation, cooking, and baking. These areas shall be as close as possible to the user (i.e., tray assembly and dining). Provide additional spaces for thawing and portioning.

7.17.B6. Assembly and distribution. Provide a patient tray assembly area and locate within close proximity to the food preparation and distribution areas.

7.17.B7. Food service carts. A cart distribution system shall be provided with spaces for storage, loading, distribution, receiving, and sanitizing of the food service carts. The cart traffic shall be designed to eliminate any danger of cross-circulation between outgoing food carts and incoming, soiled carts, and the cleaning and sanitizing process. Cart circulation shall not be through food processing areas.

7.17.B8. Dining area. Provide dining space(s) for ambulatory patients, staff, and visitors. These spaces shall be separate from the food preparation and distribution areas.

7.17.B9. Vending services. If vending devices are used for unscheduled meals, provide a separate room that can be accessed without having to enter the main dining area. The vending room shall contain coin-operated machines, bill changers, a handwashing fixture, and a sitting area. Facilities for the servicing and sanitizing of the machines shall be provided as part of the food service program of the facility.

7.17.B10. Area for receiving, scraping, and sorting soiled tableware shall be adjacent to ware washing and separate from food preparation areas.

7.17.B11. Ware washing facilities. They shall be designed to prevent contamination of clean wares with soiled wares through cross-traffic. The clean wares shall be transferred for storage or use in the dining area without having to pass through food preparation areas. The final rinse water shall be at least 180°F.

7.17.B12. Pot washing facilities including multi-compartmented sinks of adequate size for intended use shall be provided convenient to using service. Supplemental heat for hot water to clean pots and pans may be by booster heater or by steam jet.

Mobil carts or other provisions should be made for drying and storage of pots and pans.

7.17.B13. Waste storage room. A food waste storage room shall be conveniently located to the food preparation and ware washing areas but not within the food preparation area. It shall have direct access to the hospital's waste collection and disposal facilities.

7.17.B14. Handwashing. Fixtures that are operable without the use of hands shall be located conveniently accessible at locations throughout the unit.

7.17.B15. Office spaces. Offices for the use of the food service manager shall be provided. In smaller facilities, this space may be located in an area that is part of the food preparation area.

7.17.B16. Toilets and locker spaces. Spaces shall be provided for the exclusive use of the dietary staff. They shall not open directly into the food preparation areas, but must be in close proximity to them.

7.17.B17. Housekeeping rooms. They shall be provided for the exclusive use of the dietary department and shall contain the following: a floor sink and space for mops, pails, and supplies. Where hot water or steam is used for general cleaning, additional space within the room shall be provided for the storage of hoses and nozzles.

7.17.B18. Icemaking equipment. It shall be of type that is convenient for service and easily cleaned. It shall be provided for both drinks and food products (self-dispensing equipment), and for general use (storage-bin type equipment).

7.17.B19. Commissary or contract services from other areas. Items above may be reduced as appropriate. Provide for protection of food delivered to insure freshness, retention of hot and cold, and avoidance of contamination. If delivery is from outside sources, provide protection against weather. Provisions must be made for thorough cleaning and sanitizing of equipment to avoid mix of soiled and clean.

7.17.C. Equipment

Mechanical devices shall be heavy duty, suitable for use intended, and easily cleaned. Where equipment is movable provide heavy duty locking casters. If equipment is to have fixed utility connections, the equipment should not be equipped with casters. Walk-in coolers, refrigerators, and freezers shall be insulated at floor as well as at walls and top. Coolers and refrigerators shall be capable of maintaining a temperature down to freezing. Freezers shall be capable of maintaining a temperature of 20 degrees below 0 F. Coolers, refrigerators, and freezers shall be thermostatically controlled to maintain desired temperature settings in increments of 2 degrees or less. Interior temperatures shall be indicated digitally so as to be visible from the exterior. Controls shall include audible and visible high and low temperature alarm. Time of alarm shall be automatically recorded.

Walk-in units may be lockable from outside but must have release mechanism for exit from inside at all times. Interior shall be lighted. All shelving shall be corrosion resistant, easily cleaned, and constructed and anchored to support a loading of at least 100 pounds per linear foot.

All cooking equipment shall be equipped with automatic shut off devices to prevent excessive heat buildup.

Under-counter conduits, piping, and drains shall be arranged to not interfere with cleaning of floor below or of the equipment.

7.17.D. Plumbing

Provide condensate drains for chiller coils of type that may be cleaned as needed without disassembly. (Unless specifically required by local authorities, traps are not required for condensate drains.) Provide air gap where condensate drains empty into floor drains. Provide heater elements for condensate lines in freezer or other areas where freezing may be a problem.

Floor drains and/or floor sinks shall be of type that can be easily cleaned by removal of cover. Provide floor drains or floor sinks at all "wet" equipment (as ice machines) and as required for wet cleaning of floors. Provide removable stainless steel mesh in addition to grilled drain cover to prevent entry of large particles of waste which might cause stoppages. Location of floor drains and floor sinks shall be coordinated to avoid conditions where locations of equipment make removal of covers for cleaning difficult. No plumbing lines may be exposed overhead or on walls where possible accumulation of dust or soil may create a cleaning problem or where leaks would create a potential for food contamination.

All handwashing facilities shall be usable without need for hand contact.

Grease traps shall be of capacity required and shall be accessible from outside of the building without need to interrupt any services.

7.17.E. Hoods and Venting Equipment

Hoods and venting equipment shall meet the requirements of NFPA 96. ▲

7.18 Administration and Public Areas

The following shall be provided:

7.18.A. Entrance
This shall be at grade level, sheltered from inclement weather, and accessible to the handicapped.

7.18.B. Lobby
This shall include:

7.18.B1. A counter or desk for reception and information.

7.18.B2. Public waiting area(s).

7.18.B3. Public toilet facilities.

7.18.B4. Public telephones.

7.18.B5. Drinking fountain(s).

7.18.C. Interview Space(s)
These shall include provisions for private interviews relating to social service, credit, and admissions.

7.18.D. Admissions Area
For initial admission of inpatients, the area shall include:

7.18.D1. A separate waiting area for patients and accompanying persons.

7.18.D2. A work counter or desk for staff.

7.18.D3. A storage area for wheelchairs, out of the path of normal traffic.

7.18.E. General or Individual Office(s)
These shall be provided for business transactions, medical and financial records, and administrative and professional staff.

7.18.F. Multipurpose Room(s)
These shall be provided for conferences, meetings, and health education purposes, and include provisions for the use of visual aids. One multipurpose room may be shared by several services.

7.18.G. Storage for Office Equipment and Supplies

7.18.H. Quality Assurance and Utilization Review Area

7.19 Medical Records

Rooms, areas, or offices for the following personnel and/or functions shall be provided:

7.19.A. Medical Records Administrator/Technician

7.19.B. Review and Dictation

7.19.C. Sorting, Recording, or Microfilming Records

7.19.D. Record Storage

7.20 Central Services

The following shall be provided:

▼ **7.20.A. Separate Soiled and Clean Work Areas**

7.20.A1. Soiled Workroom

This room shall be physically separated from all other areas of the department. Workspace should be provided to handle the cleaning and initial sterilization/disinfection of all medical/surgical instruments and equipment. Work tables, sinks, flush type devices, and washer/sterilizer decontaminators. Pass-through doors and washer/sterilizer decontaminators should deliver into clean processing area/work-
▲ rooms.

*7.20.A2. Clean Assembly/Workroom

This workroom shall contain handwashing facilities, workspace, and equipment for terminal sterilizing of medical and surgical equipment and supplies. Clean and soiled work areas should be physically separated.

7.20.B. Storage Areas

7.20.B1. Clean/Sterile Medical/Surgical Supplies

▼ A room for breakdown should be provided for manufacturers' clean/sterile supplies (clean processing area should not be in this area but adjacent). Storage for packs etc., shall include provisions for ventilation, humidity, and temperature control.

7.20.C. Administrative/Changing Room
If required by the functional program, this room should be separate from all other areas and provide for staff to change from street clothes into work attire. Lockers, sink, and showers should be made available within the
▲ immediate vicinity of the department.

7.20.D. Storage Room for Patient Care and Distribution Carts
▼ This area should be adjacent, easily available to clean and sterile storage, and close to main distribution point
▲ to keep traffic to a minimum and ease of work flow.

7.21 General Stores

In addition to supply facilities in individual departments, a central storage area shall also be provided. General stores may be located in a separate building on-site with provisions for protection against inclement weather during transfer of supplies.

The following shall be provided:

7.21.A. Off-street Unloading Facilities

7.21.B. Receiving Area

7.21.C. General Storage Room(s)
General storage room(s) with a total area of not less than 20 square feet (1.86 square meters) per inpatient bed shall be provided. Storage may be in separate, concentrated areas within the institution or in one or more individual buildings on-site. A portion of this storage may be provided off-site.

7.21.D. Additional Storage Room(s)
Additional storage areas for outpatient facilities shall be provided in an amount not less than 5 percent of the total area of the outpatient facilities. This may be combined with and in addition to the general stores or be located in a central area within the outpatient department. A portion of this storage may be provided off-site.

7.22 Linen Services

7.22.A. General
Each facility shall have provisions for storing and processing of clean and soiled linen for appropriate patient care. Processing may be done within the facility, in a separate building on- or off-site, or in a commercial or shared laundry.

7.22.B.
Facilities and equipment shall be as required for cost effective operation as described in the functional program. At a minimum, the following elements shall be included:

7.22.B1. A separate room for receiving and holding soiled linen until ready for pickup or processing.

7.22.B2. A central, clean linen storage and issuing room(s), in addition to the linen storage required at individual patient units.

7.22.B3. Cart storage area(s) for separate parking of clean- and soiled-linen carts out of traffic.

▼ **7.22.B4.** A clean linen inspection and mending room or area. If not provided elsewhere, a clean linen inspection, delinting, folding, assembly and packaging area should be provided as part of the linen services. Mending should be provided for in the linen services department. A space for tables, shelving, ▲ and storage should be provided.

7.22.B5. Handwashing facilities in each area where unbagged, soiled linen is handled.

7.22.C.
If linen is processed outside the building, provisions shall also be made for:

7.22.C1. A service entrance, protected from inclement weather, for loading and unloading of linen.

7.22.C2. Control station for pickup and receiving.

7.22.D.
If linen is processed in a laundry facility which is part of the project (within or as a separate building), the following shall be provided in addition to that of Section 7.22.B:

7.22.D1. A receiving, holding, and sorting room for control and distribution of soiled linen. Discharge from soiled linen chutes may be received within this room or in a separate room.

7.22.D2. Laundry processing room with commercial type equipment which can process at least a seven day supply within the regular scheduled work week. This may require a capacity for processing a seven day supply in a 40-hour week.

7.22.D3. Storage for laundry supplies.

7.22.D4. Employee handwashing facilities in each room where clean or soiled linen is processed and handled.

7.22.D5. Arrangement of equipment that will permit an orderly work flow and minimize cross-traffic that might mix clean and soiled operations.

7.22.D6. Conveniently accessible staff lockers, showers, and lounge.

7.23 Facilities for Cleaning and Sanitizing Carts

Facilities shall be provided to clean and sanitize carts serving the central service department, dietary facilities, and linen services. These facilities may be centralized or departmentalized.

7.24 Employee Facilities

Lockers, lounges, toilets, etc. should be provided for employees and volunteers. These should be in addition to, and separate from, those required for medical staff and public.

7.25 Housekeeping Rooms

In addition to the housekeeping rooms required in certain departments, sufficient housekeeping rooms shall be provided throughout the facility as required to maintain a clean and sanitary environment. Each shall contain a floor receptor or service sink and storage space for housekeeping equipment and supplies. There shall not be less than one housekeeping room for each floor.

7.26 Engineering Service and Equipment Areas

The following shall be provided as essential for effective service and maintenance functions:

▼ **7.26.A.**
Room(s) or separate building(s) for boilers, mechanical, and electrical equipment, except:

7.26.A1. Roof-top air conditioning and ventilation equipment installed in weatherproof housings.

7.26.A2. Standby generators where the engine and appropriate accessories (i.e., batteries) are properly heated and enclosed in a weatherproof housing.

7.26.A3. Cooling towers and heat rejection equipment.

7.26.A4. Electrical transformers and switchgear where required to serve the facility and where installed in a weatherproof housing.

7.26.A5. Medical gas parks and equipment.

7.26.A6. Air cooled chillers where installed in a weatherproof housing.

7.26.A7. Trash compactors and incinerators. Site lighting, post indicator valves, and other equipment
▲ normally installed on the exterior of the building.

7.26.B.
Engineer's office with file space and provisions for protected storage of facility drawings, records, manuals, etc.

7.26.C.
General maintenance shop(s) for repair and maintenance.

7.26.D.
Storage room for building maintenance supplies. Storage for solvents and flammable liquids shall comply with applicable NFPA codes.

7.26.E.
Separate area or room specifically for storage, repair, and testing of electronic and other medical equipment. The amount of space and type of utilities will vary with the type of equipment involved and types of outside contracts used.

7.26.F.
Yard equipment and supply storage areas shall be located so that equipment may be moved directly to the exterior without interference with other work.

7.27 Waste Processing Services

7.27.A. Storage and Disposal
▼ Facilities shall be provided for sanitary storage and treatment or disposal of waste using techniques acceptable to the appropriate health and environmental authorities. The functional program shall stipulate the categories and volumes of waste for disposal and shall
▲ stipulate the methods for disposal of each.

7.27.B. Incinerator
An incinerator shall be provided for the complete destruction of pathological waste. The incinerator may be shared by two or more nearby institutions. It may be acceptable in some jurisdictions to omit the incinerator if arrangements can be made with a licensed local service to pick up and incinerate pathological wastes.

7.27.B1. Incinerators may also be used to dispose of other hospital waste where local regulations permit. All incinerators shall be designed and equipped for the actual quantity and type of waste to be destroyed and should meet all applicable air pollution regulations.

7.27.B2. Incinerators with fifty-pounds-per-hour or greater capacities shall be in a separate room or outdoors; those with lesser capacities may be located in a separate area within the facility boiler room. Rooms and areas containing incinerators shall have adequate space and facilities for incinerator charging and cleaning, as well as necessary clearances for work and maintenance. Provisions shall be made for operation, temporary storage, and disposal of materials so that odors and fumes do not drift back into occupied areas. Existing approved incinerator installations, which are not in separate rooms or outdoors, may remain unchanged provided they meet the above criteria.

7.27.B3. The design and construction of incinerators and trash chutes shall comply with NFPA 82.

▼ ***7.27.B4.** See Appendix A. (Heat recovery.)

***7.27.B5.** See Appendix A. (Environmental guide-
▲ lines.)

7.27.C. Nuclear Waste Disposal
See *Code of Federal Regulations*, title X, parts 20 and 35, concerning the handling and disposal of nuclear materials in health care facilities.

7.28 General Standards for Details and Finishes

If approved by the authorities having jurisdiction, retained portions of existing facilities that are not required to be totally modernized due to financial or other hardships may, as a minimum, comply with applicable requirements of the Existing Health Care Occupancies Section of NFPA 101. However, a plan of correction for these portions should also be developed and implemented.

Details and finishes in new construction projects, including additions and alterations, shall comply with the following (see Section 1.2 concerning existing facilities where total compliance is structurally impractical):

► **7.28.A. Details**

7.28.A1. Compartmentation, exits, fire alarms, automatic extinguishing systems, and other fire prevention and fire protection measures, including that within existing facilities, shall comply with NFPA 101, with the following stipulation. The Fire-Safety Evaluation System (FSES) of appendix C shall not be used as a substitute for the basic NFPA 101 design criteria for new construction or major renovation in existing facilities. (The FSES is intended as an evaluation tool for fire safety only.) See Section 1.5 for exceptions. *Note: For most projects it is essential that third-party reimbursement requirements also be followed. Verify where these may be in excess of standards in this document.*

▼ **7.28.A2.** Corridors in outpatient suites and in areas not commonly used for patient bed or stretcher transportation may be reduced in width to 5 feet (1.52 ▲ meters).

7.28.A3. Location of items such as drinking fountains, telephone booths, vending machines, and portable equipment shall not restrict corridor traffic or reduce the corridor width below the model standard.

7.28.A4. Rooms which contain bathtubs, sitz baths, showers, and/or water closets for inpatient use shall be equipped with doors and hardware permitting emergency access from the outside. When such rooms have only one opening or are small, the doors shall open outward or in a manner that will avoid pressing a patient who may have collapsed within the room. Similar considerations may be desirable for certain outpatient services.

7.28.A5. If required by the program, door hardware on patient toilet rooms in psychiatric nursing units may be designed to allow staff to control access.

▼ **7.28.A6.** The minimum door size for inpatient bedrooms in new work shall be 3 feet 8 inches (1.11 meters) wide and 7 feet (2.13 meters) high to provide clearance for movement of beds and other equipment. Existing doors of not less than 2 feet 10 inches (86.36 centimeters) wide may be considered for acceptance where function is not adversely affected and replacement is impractical. Doors to other rooms used for stretchers (including hospital wheeled-bed stretchers) and/or wheelchairs shall have a minimum width of 2 feet 10 inches (86.36 centimeters). Where used in these Guidelines, door width and height shall be the nominal dimension of the door leaf, ignoring projections of frame and stops. *Note: While these standards are intended for access by patients and patient equipment, size of* ▲ *office furniture, etc., shall also be considered.*

7.28.A7. All doors between corridors, rooms, or spaces subject to occupancy, except elevator doors, shall be of the swing type. Openings to showers, baths, patient toilets, ICU patient compartments with the break-away feature, and other such areas not leading to fire exits may be exempt from this standard.

7.28.A8. Doors, except those to spaces such as small closets not subject to occupancy, shall not swing into corridors in a manner that might obstruct traffic flow or reduce the required corridor width. (Large walk-in-type closets are considered inhabitable spaces.)

7.28.A9. Windows and outer doors that frequently may be left open shall be equipped with insect screens.

7.28.A10. Patient rooms or suites in new construction intended for 24-hour occupancy shall have windows or vents that can be opened from the inside to vent noxious fumes and smoke products and to bring in fresh air in emergencies. Operation of such windows shall be restricted to inhibit possible escape or suicide. Where the operation of windows or vents requires the use of tools or keys, these shall be on the same floor and easily accessible to staff. Windows in existing buildings designed with approved engineered smoke-control systems may be of fixed construction.

▼ **7.28.A11.** Glass doors, lights, sidelights, borrowed lights, and windows located within 12 inches (30.48 centimeters) of a door jamb (with a bottom-frame height of less than 60 inches or 1.52 meters above the finished floor) shall be constructed of safety glass, wired glass, or plastic, break-resistant material that creates no dangerous cutting edges when broken. Similar materials shall be used for wall openings in active areas such as recreation and exercise rooms, unless otherwise required for fire safety.

Safety glass-tempered or plastic glazing materials shall be used for shower doors and bath enclosures. Plastic and similar materials used for glazing shall comply with the flame-spread ratings of NFPA 101. Safety glass or plastic glazing materials, as noted above, shall also be used for interior windows and doors, including those in pediatric and psychiatric unit corridors. In renovation projects, only glazing within 18 inches (46 centimeters) of the floor must be changed to safety glass, wire glass, or plastic,
▲ break-resistant material.

Note: Provisions of this paragraph concern safety from hazards of breakage. NFPA 101 contains additional requirements for glazing in exit corridors, etc., especially in buildings without sprinkler systems.

7.28.A12. Linen and refuse chutes shall meet or exceed the following standards:

a. Service openings to chutes shall comply with NFPA 101.

b. The minimum cross-sectional dimension of gravity chutes shall be 2 feet (60.96 centimeters).

c. Chute discharge into collection rooms shall comply with NFPA 101.

d. Chutes shall meet the provisions as described in NFPA 82.

7.28.A13. Dumbwaiters, conveyors, and material-handling systems shall not open directly into a corridor or exit, but shall open into a room enclosed by construction with a fire resistance rating of not less than one hour and with class C, ¾-hour labeled fire doors. Service entrance doors to vertical shafts containing dumbwaiters, conveyors, and material handling systems shall be not less than class B, 1½-hour fire doors. Where horizontal conveyors and material-handling systems penetrate fire-rated walls or partitions, such openings must be provided with class B 1½-hour labeled fire doors for 2-hour walls and class C ¾-hour labeled fire doors for 1-hour walls or partitions.

7.28.A14. Thresholds and expansion joint covers shall be flush with the floor surface to facilitate the use of wheelchairs and carts. Expansion and seismic joints shall be constructed to restrict the passage of smoke.

7.28.A15. Grab bars shall be provided in all patient toilets, showers, bathtubs, and sitz baths at a wall clearance of 1½ inches (3.81 centimeters). Bars, including those which are part of such fixtures as soap dishes, shall be sufficiently anchored to sustain a concentrated load of 250 pounds (113.4 kilograms).

7.28.A16. Location and arrangement of fittings for handwashing facilities shall permit their proper use and operation. Particular care should be given to the clearances required for blade-type operating handles.

7.28.A17. Mirrors shall not be installed at handwashing fixtures in food preparation areas, nurseries, clean and sterile supply areas, scrub sinks, or other areas where asepsis control would be lessened by hair combing.

7.28.A18. Provisions for hand drying shall be included at all handwashing facilities except scrub sinks. These provisions shall be paper or cloth units enclosed to protect against dust or soil and to insure single-unit dispensing. Hot air dryers are permitted provided that installation precludes possible contamination by recirculation of air.

7.28.A19. Lavatories and handwashing facilities shall be securely anchored to withstand an applied vertical load of not less than 250 pounds (113.4 kilograms) on the fixture front.

7.28.A20. Radiation protection requirements for X-ray and gamma ray installations shall conform with NCRP Report Nos. 33 and 49 and all applicable local requirements. Provision shall be made for testing completed installations before use. All defects must be corrected before approval. Testing is to be coordinated with local authorities to prevent duplication.

7.28.A21. The minimum ceiling height shall be 7 feet 10 inches (2.39 meters), with the following exceptions:

a. Boiler rooms shall have ceiling clearances not less than 2 feet 6 inches (76.20 centimeters) above the main boiler header and connecting piping.

b. Ceilings in radiographic, operating and delivery rooms, and other rooms containing ceiling-mounted equipment or ceiling-mounted surgical light fixtures shall be of sufficient height to accommodate the equipment or fixtures and their normal movement.

▼ c. Ceilings in corridors, storage rooms, and toilet rooms shall be not less than 7 feet 8 inches (2.34 meters) in height. Ceiling heights in small, normally
▲ unoccupied spaces may be reduced.

d. Suspended tracks, rails, and pipes located in the traffic path for patients in beds and/or on stretchers, including those in inpatient service areas, shall be not less than 7 feet (2.13 meters) above the floor. Clearances in other areas may be 6 feet 8 inches (2.03 meters).

▼ e. Where existing structures make the above ceiling clearance impractical, clearances shall be as required to avoid injury to individuals up to ▲ 6 feet 4 inches (1.93 meters) tall.

f. Seclusion treatment rooms shall have a minimum ceiling height of 9 feet (2.74 meters).

7.28.A22. Recreation rooms, exercise rooms, equipment rooms, and similar spaces where impact noises may be generated shall not be located directly over patient bed areas or delivery and operating suites, unless special provisions are made to minimize such noise.

7.28.A23. Rooms containing heat-producing equipment, such as boiler or heater rooms or laundries, shall be insulated and ventilated to prevent the floor surface above and/or the adjacent walls of occupied areas from exceeding a temperature of 10°F (6°C) above ambient room temperature.

7.28.A24. The noise reduction criteria shown in Table 1 shall apply to partitions, floors, and ceiling construction in patient areas.

7.28.B. Finishes

▼ **7.28.B1.** Cubicle curtains and draperies shall be noncombustible or flame-retardant, and shall pass both the large and small scale tests of NFPA 701 and ▲ NFPA 13 when applicable.

7.28.B2. Materials and certain plastics known to produce noxious gases when burned shall not be used for mattresses, upholstery, and other items insofar as practical. (Typical "hard" floor coverings such as vinyl, vinyl composition, and rubber normally do not create a major fire or smoke problem.)

7.28.B3. Floors in areas and rooms in which flammable anesthetic agents are stored or administered shall comply with NFPA 99. Conductive flooring may be omitted in anesthetizing areas where a written resolution is signed by the hospital board stating that no flammable anesthetic agents will be used and appropriate notices are permanently and conspicuously affixed to the wall in each such area and room.

7.28.B4. Floor materials shall be easily cleanable and appropriately wear-resistant for the location. Floors in areas used for food preparation or food assembly shall be water-resistant. Floor surfaces, including tile joints, shall be resistant to food acids. In all areas subject to frequent wet-cleaning methods, floor materials shall not be physically affected by germicidal cleaning solutions. Floors subject to traffic while wet (such as shower and bath areas, kitchens, and similar work areas) shall have a nonslip surface.

Table 1

Sound Transmission Limitations in General Hospitals

	Airborne sound transmission class (STC)[a]	
	Partitions	Floors
New construction		
Patient room to patient room	45	40
Public space to patient room[b]	55	40
Service areas to patient room[c]	65	45
Patient room access corridor[d]	45	45
Existing construction		
Patient room to patient room	35	40
Public space to patient room[b]	40	40
Service areas to patient room[c]	45	45

a Sound transmission class (STC) shall be determined by tests in accordance with methods set forth in ASTM E90 and ASTM E413. *Where partitions do not extend to the structure above, sound transmission through ceilings and composite STC performance must be considered.*

b Public space includes corridors (except patient room access corridors), lobbies, dining rooms, recreation rooms, treatment rooms, and similar space.

c Service areas include kitchens, elevators, elevator machine rooms, laundries, garages, maintenance rooms, boiler and mechanical equipment rooms, and similar spaces of high noise. Mechanical equipment located on the same floor or above patient rooms, offices, nurses stations, and similar occupied space shall be effectively isolated from the floor.

d Patient room access corridors contain composite walls with doors/windows and have direct access to patient rooms.

▼ **7.28.B5.** In new construction or major renovation work, the floors and wall bases of operating and delivery rooms used for caesarean sections shall be monolithic and joint free. The floors and wall bases of kitchens, soiled workrooms, and other areas subject to frequent wet cleaning shall also be homogeneous, but may have tightly sealed joints. ▲

7.28.B6. Wall finishes shall be washable. In the vicinity of plumbing fixtures, wall finishes shall be smooth and water-resistant.

▼ In dietary and food preparation areas, wall construction, finish, and trim, including the joints between the walls and the floors, shall be free of insect- and rodent-harboring spaces.

In operating rooms, delivery rooms for caesarean sections, isolation rooms, and sterile processing rooms, wall finishes shall be free of fissures, open joints, or crevices that may retain or permit passage ▲ of dirt particles.

7.28.B7. Floors and walls penetrated by pipes, ducts, and conduits shall be tightly sealed to minimize entry of rodents and insects. Joints of structural elements shall be similarly sealed.

▼ **7.28.B8.** Ceilings, including exposed structure in areas normally occupied by patients or staff in food-preparation and food-storage areas, shall be cleanable with routine housekeeping equipment. Acoustic and lay-in ceiling, where used, shall not interfere with infection control.

In dietary areas and in other areas where dust fallout may present a problem, provide suspended ceilings.

In operating rooms, delivery rooms for caesarean sections, isolation rooms, and sterile processing rooms, provide ceilings that contain a minimum number of fissures, open joints, or crevices and minimize retention or passage of dirt particles.

In psychiatric patient rooms, toilets, and seclusion rooms, ceiling construction shall be monolithic to inhibit possible escape or suicide. Ceiling-mounted air and lighting devices shall be security type. Ceiling-mounted fire prevention sprinkler heads ▲ shall be of the concealed type.

7.28.B9. Rooms used for protective isolation shall not have carpeted floors and shall have monolithic ceilings.

7.29 Design and Construction, Including Fire-Resistive Standards

7.29.A. Design

Every building and portion thereof shall be designed and constructed to sustain all live and dead loads, including seismic and other environmental forces, in accordance with accepted engineering practices and standards as prescribed by local jurisdiction or by one of the model building codes. (See Section 1.1.A.)

7.29.B. Construction

Construction shall comply with the applicable requirements of NFPA 101, the standards contained herein, and the requirements of authorities having jurisdiction. If there are no applicable local codes, one of the recognized model building codes shall be used (see Section 1.5).

Note: NFPA 101 generally covers fire/safety requirements only, whereas most model codes also apply to structural elements. The fire/safety items of NFPA 101 would take precedence over other codes in case of conflict. Appropriate application of each would minimize problems. For example, some model codes require closers on all patient doors. NFPA 101 recognizes the potential fire/safety problems of this requirement and stipulates that if closers are used for patient room doors, smoke detectors should also be provided within each affected patient room.

7.29.C. Freestanding Buildings

Separate freestanding buildings for the boiler plant, laundry, shops, general storage or other nonpatient contact areas shall be built in accordance with applicable building codes for such occupancy.

7.29.D. Interior Finishes

Interior finishing materials shall comply with the flame-spread limitations and the smoke-production limitations indicated in NFPA 101. This does not apply to minor quantities of wood or other trim (see NFPA 101) or to wall covering less than four mil thick applied over a noncombustible base.

7.29.E. Insulation Materials

Building insulation materials, unless sealed on all sides and edges with noncombustible material, shall have a flame-spread rating of 25 or less and a smoke-developed rating of 150 or less when tested in accordance with NFPA 258.

7.29.F. Provisions for Disasters (See also Section 1.4.)

▼ **7.29.F1.** An emergency-radio communication system shall be provided in each facility. This system shall operate independently of the building's service and emergency power systems during emergencies. The system shall have frequency capabilities to communicate with state emergency communication networks. Additional communication capabilities will be required of facilities containing a formal community emergency-trauma service or other specialty services (such as regional pediatric critical care ▲ units) that utilize staffed patient transport units.

7.29.F2. Unless specifically approved, hospitals shall not be built in areas subject to damage or inaccessibility due to natural floods. Where facilities may be subject to wind or water hazards, provision shall be made to ensure continuous operation.

7.30 Elevators

7.30.A. General

▼ All hospitals having patient facilities (such as bedrooms, dining rooms, or recreation areas) or critical services (such as operating, delivery, diagnostic, or therapy) located on other than the grade-level entrance floor shall have electric or hydraulic elevators. Installation and testing of elevators shall comply with ANSI A17.1. (See ASCE 7-88 (revised 1991) for seismic design and ▲ control systems requirements for elevators.)

7.30.A1. In the absence of an engineered traffic study the following guidelines for number of elevators shall apply:

a. At least one hospital-type elevator shall be installed when 1 to 59 patient beds are located on any floor other than the main entrance floor.

b. At least two hospital-type elevators shall be installed when 60 to 200 patient beds are located on floors other than the main entrance floor, or where the major inpatient services are located on a floor other than those containing patient beds. (Elevator service may be reduced for those floors providing only partial inpatient services.)

c. At least three hospital-type elevators shall be installed where 201 to 350 patient beds are located on floors other than the main entrance floor, or where the major inpatient services are located on a floor other than those containing patient beds. (Elevator service may be reduced for those floors which provide only partial inpatient services.)

d. For hospitals with more than 350 beds, the number of elevators shall be determined from a study of the hospital plan and the expected vertical transportation requirements.

7.30.A2. Hospital-type elevator cars shall have inside dimensions that accommodate a patient bed with attendants. Cars shall be at least 5 feet (1.52 meters) wide by 7 feet 6 inches (2.29 meters) deep. Car doors shall have a clear opening of not less than 4 feet (1.22 meters) wide and 7 feet (2.13 meters) high.

Note: Additional elevators installed for visitors and material handling may be smaller than noted above, within restrictions set by standards for handicapped access.

7.30.A3. Elevators shall be equipped with a two-way automatic level-maintaining device with an accuracy of + ¼ inch (+ 0.64 centimeters).

▼ **7.30.A4.** Each elevator, except those for material handling, shall be equipped with a two-way special service switch for staff use for bypassing all landing button calls and traveling directly to any floor.

7.30.A5. Elevator call buttons and controls shall not ▲ be activated by heat or smoke. Light beams, if used for operating door reopening devices without touch, shall be used in combination with door-edge safety devices and shall be interconnected with a system of smoke detectors. This is so that the light control feature will be overridden or disengaged should it encounter smoke at any landing.

▼ **7.30.A6.** See ASCE 7-88 (revised 1991) for seismic ▲ design and control systems requirements for elevators.

7.30.B. Field Inspection and Tests

Inspections and tests shall be made and the owner shall be furnished with written certification stating that the installation meets the requirements set forth in this section as well as all applicable safety regulations and codes.

7.31 Mechanical Standards

7.31.A. General

7.31.A1. The mechanical system should be designed for overall efficiency and life cycle costing. Details for cost-effective implementation of design features are interrelated and too numerous (as well as too basic) to list individually. Recognized engineering procedures shall be followed for the most economical and effective results. A well-designed system can generally achieve energy efficiency at minimal additional cost and simultaneously provide improved patient comfort. Different geographic areas may have climatic and use conditions that favor one system over another in terms of overall cost and efficiency. In no case shall patient care or safety be sacrificed for conservation (see Appendix B).

▼ Mechanical, electrical, and HVAC equipment may be located either internally, externally, or in separate ▲ buildings.

7.31.A2. Remodeling and work in existing facilities may present special problems. As practicality and funding permit, existing insulation, weather stripping, etc., should be brought up to standard for maximum economy and efficiency. Consideration shall be given to additional work that may be needed to achieve this.

7.31.A3. Facility design consideration shall include site, building mass, orientation, configuration, fenestration, and other features relative to passive and active energy systems.

7.31.A4. Insofar as practical, the facility should include provisions for recovery of waste cooling and heating energy (ventilation, exhaust, water and steam discharge, cooling towers, incinerators, etc.).

7.31.A5. Facility design consideration shall include recognized energy-saving mechanisms such as variable-air-volume systems, load shedding, programmed controls for unoccupied periods (nights and weekends, etc.) and use of natural ventilation, site and climatic conditions permitting. Systems with excessive installation and/or maintenance costs that negate long-range energy savings should be avoided (see Appendix B).

7.31.A6. Air-handling systems shall be designed with an economizer cycle where appropriate to use outside air. (Use of mechanically circulated outside air does not reduce need for filtration.)

It may be practical in many areas to reduce or shut down mechanical ventilation during appropriate climatic and patient-care conditions and to use open windows for ventilation.

7.31.A7. Major changes have been made to previous ventilation standards to permit maximum use of simplified systems, such as the variable-air-volume (VAV) supply. However, care must be taken in design to avoid possibility of large temperature differentials, high velocity supply, excessive noise, air stagnation, etc. Air supply and exhaust in rooms for which no minimum total air change rate is noted may vary down to zero in response to room load. For rooms listed in Table 2, where VAV systems are permitted, minimum total air change shall be within limits noted. Temperature control shall also comply with these standards. To maintain asepsis control, airflow supply and exhaust should generally be controlled to ensure movement of air from "clean" to "less clean" areas, especially in critical areas.

▼ **7.31.A8.** Prior to acceptance of the facility, all mechanical systems shall be tested, balanced, and operated to demonstrate to the owner or his designated representative that the installation and performance of these systems conform to design intent. Test results ▲ shall be documented for maintenance files.

7.31.A9. Upon completion of the equipment-installation contract, the owner shall be furnished with a complete set of manufacturers' operating, maintenance, and preventive maintenance instructions, a parts lists, and complete procurement information including equipment numbers and descriptions. Operating staff persons shall also be provided with instructions for properly operating systems and equipment. Required information shall include energy ratings as needed for future conservation calculations.

7.31.B. Thermal and Acoustical Insulation

▼ **7.31.B1.** Insulation within the building shall be provided to conserve energy, protect personnel, prevent vapor condensation, and reduce noise and vibration.

7.31.B2. Insulation on cold surfaces shall include an exterior vapor barrier. (Material that will not absorb or transmit moisture will not require a separate vapor ▲ barrier.)

7.31.B3. Insulation, including finishes and adhesives on the exterior surfaces of ducts and equipment, shall have a flame-spread rating of 25 or less and a smoke-developed rating of 50 or less as determined by an independent testing laboratory in accordance with NFPA 255. The smoke-development rating for pipe insulation shall not exceed 150. This includes mechanical refrigeration and distribution equipment and hot water distribution equipment such as valves, pumps, chillers, etc.

▼ **7.31.B4.** Remodeling of lined duct systems destroys the integrity of the liner sealant. However, if linings are used in nonsensitive hospital areas, they shall meet ASTM C1071. These linings (including coatings, adhesives, and exterior surface insulation on pipes and ducts in spaces used as air supply plenums) shall have a flame-spread rating of 25 or less and a smoke-developed rating of 50 or less, as determined by an independent testing laboratory in ▲ accordance with NFPA 255.

7.31.B5. Duct linings exposed to air movement should not be used in ducts serving operating rooms, delivery rooms, LDR rooms, nurseries, and critical care units. Where its use cannot be avoided, terminal filters of at least 90 percent efficiency shall be installed downstream of all lining material. This requirement shall not apply to mixing boxes and acoustical traps that have special coverings over such lining.

7.31.B6. Existing accessible insulation within areas of facilities to be modernized shall be inspected, repaired, and/or replaced, as appropriate.

▼ **7.31.B7.** No lined duct work will be installed down- ▲ stream of humidification.

7.31.C. Steam and Hot Water Systems

7.31.C1. Boilers shall have the capacity, based upon the net ratings published by the Hydronics Institute or another acceptable national standard, to supply the normal heating, hot water, and steam requirements of all systems and equipment. Their number

and arrangement shall accommodate facility needs despite the breakdown or routine maintenance of any one boiler. The capacity of the remaining boiler(s) shall be sufficient to provide hot water service for clinical, dietary, and patient use; steam for sterilization and dietary purposes; and heating for operating, delivery, birthing, labor, recovery, intensive care, nursery, and general patient rooms. However, reserve capacity for facility space heating is not required in geographic areas where a design dry-bulb temperature of 25°F (-4°C) or more represents not less than 99 percent of the total hours in any one heating month as noted in ASHRAE's *Handbook of Fundamentals*, under the "Table for Climatic Conditions for the United States."

7.31.C2. Boiler accessories including feed pumps, heat-circulating pumps, condensate return pumps, fuel oil pumps, and waste heat boilers shall be connected and installed to provide both normal and standby service.

7.31.C3. Supply and return mains and risers for cooling, heating, and steam systems shall be equipped with valves to isolate the various sections of each system. Each piece of equipment shall have valves at the supply and return ends.

7.31.D. Air Conditioning, Heating, and Ventilation Systems

7.31.D1. The ventilation rates shown in Table 2 shall be used only as model standards; they do not preclude the use of higher, more appropriate rates. All rooms and areas in the facility used for patient care shall have provisions for ventilation. Though natural window ventilation for nonsensitive areas and patient rooms may be employed, weather permitting, availability of mechanical ventilation should be considered for use in interior areas and during periods of temperature extremes. Fans serving exhaust systems shall be located at the discharge end and shall be readily serviceable. Exhaust systems may be combined to enhance the efficiency of recovery devices required for energy conservation.

a. Facility design should utilize energy-conserving mechanisms, including recovery devices, variable air volume, load shedding, and systems to shut down or reduce ventilation of unoccupied areas, insofar as patient care is not compromised. When appropriate, mechanical ventilation should employ an economizer cycle that uses outside air to reduce heating- and cooling-system loads. Filtering requirements shall be met if outside air is used as part of the mechanical ventilation system. Innovative design that provides for additional energy conservation while meeting standards for acceptable patient care should be considered (see Appendix B).

b. Fresh air intakes shall be located at least 25 feet (7.62 meters) from exhaust outlets of ventilating systems, combustion equipment stacks, medical-surgical vacuum systems, plumbing vents, or areas that may collect vehicular exhaust or other noxious fumes. (Prevailing winds and/or proximity to other structures may require greater clearances.) Plumbing and vacuum vents that terminate at a level above the top of the air intake may be located as close as 10 feet (3.05 meters). The bottom of outdoor air intakes serving central systems shall be as high as practical, but at least 6 feet (1.83 meters) above ground level, or, if installed above the roof, 3 feet (91 centimeters) above roof level. Exhaust outlets from areas that may be contaminated shall be above roof level and arranged to minimize recirculation of exhaust air into the building.

c. The ventilation systems shall be designed and balanced according to the requirements shown in Table 2 and in the applicable notes. (Also see note 8 of Table 2 for reductions and shutdown of ventilation systems during room vacancy.)

d. In new construction and major renovation work, air supply for operating and delivery rooms shall be from ceiling outlets near the center of the work area. This will most effectively control air movement. Return air shall be from the floor level. Each operating and delivery room shall have at least two return-air inlets located as remotely from each other as practical. (Design should consider turbulence and other factors of air movement to minimize fall of particulates onto sterile surfaces.) Where extraordinary procedures, such as organ transplants, justify special designs, installation shall properly meet performance needs as determined by applicable standards. These special designs should be reviewed on a case-by-case basis.

▼ e. Air supply for nurseries, LDRP rooms, and rooms used for invasive procedures shall be at or near the ceiling. Return or exhaust air inlets shall be near the floor level. Exhaust grills for anesthesia evacuation and other special applications shall ▲ be permitted to be installed in the ceiling.

f. Each space routinely used for administering inhalation anesthesia shall be equipped with a

continued on page 54

Table 2

Ventilation Requirements for Areas Affecting Patient Care in Hospitals and Outpatient Facilities[1]

Area designation	Air movement relationship to adjacent area[2]	Minimum air changes of outdoor air per hour[3]	Minimum total air changes per hour[4]	All air exhausted directly to outdoors[5]	Recirculated by means of room units[6]	Relative humidity[7] (%)	Design temperature[8] (degrees F)
SURGERY AND CRITICAL CARE							
Operating/surgical cystoscopic rooms[9]	Out	3	15	—	No	50-60	70-75
Delivery room[7]	Out	3	15	—	No	45-60	70-75
Recovery room[8]	—	2	6	—	No	30-60	70
Critical and intensive care	—	2	6	—	No	30-60	70-75
Treatment room[10]	—	—	6	—	—	—	75
Trauma room[10]	Out	3	15	—	No	45-60	70-75
Anesthesia gas storage	—	—	8	Yes	—	—	—
NURSING							
Patient room	—	1	2	—	—	—	70-75
Toilet room	In	—	10	Yes	—	—	—
Newborn nursery suite	—	2	6	—	No	30-60	75
Protective isolation[11]	Out	1	6	—	No	—	70-75
Infectious isolation[12]	In	1	6	Yes	No	—	70-75
Isolation alcove or anteroom[11,12]	In/Out	—	10	Yes	No	—	—
Labor/delivery/recovery	—	—	2	—	—	—	70-75
Labor/delivery/recovery/postpartum	—	—	2	—	—	—	70-75
Patient corridor	—	—	2	—	—	—	—
ANCILLARY							
Radiology[13]							
X-ray (surgical/critical care and catheterization)	Out	3	15	—	No	45-60	70-75
X-ray (diagnostic & treat.)	—	—	6	—	—	—	75
Darkroom	In	—	10	Yes	No	—	—
Laboratory							
General[14]	—	—	6	—	—	—	—
Biochemistry[4]	Out	—	6	—	No	—	—
Cytology	In	—	6	Yes	No	—	—
Glass washing	In	—	10	Yes	—	—	—
Histology	In	—	6	Yes	No	—	—
Microbiology[14]	In	—	6	Yes	No	—	—
Nuclear medicine[13]	In	—	6	Yes	No	—	—

Table 2 Notes

1 The ventilation rates in this table cover ventilation for comfort, as well as for asepsis and odor control in areas of acute care hospitals that directly affect patient care and are determined based on health care facilities being predominantly "no smoking" facilities. Where smoking may be allowed, ventilation rates will need adjustments. Refer to ASHRAE Standard 62-1989, *Ventilation for Acceptable Indoor Air Quality*, and *ASHRAE Handbook of Fundamentals*, latest edition. Areas where specific ventilation rates are not given in the table shall be ventilated in accordance with these ASHRAE publications. Specialized patient care areas, including organ transplant units, burn units, specialty procedure rooms, etc., shall have additional ventilation provisions for air quality control as may be appropriate. OSHA standards and/or NIOSH criteria require special ventilation requirements for employee health and safety within health care facilities.

2 Design of the ventilation system shall, insofar as possible, provide that air movement is from "clean to less clean" areas. However, continuous compliance may be impractical with full utilization of some forms of variable air volume and load shedding systems that may be used for energy conservation. Areas that do require positive and continuous control are noted with "out" or "in" to indicate the required direction of air movement in relation to the space named. Rate of air movement may, of course, be varied as needed within the limits required for positive control. Where indication of air movement direction is enclosed in parentheses, continuous directional control is required only when the specialized equipment or device is in use or where room use may otherwise compromise the intent of movement from clean to less clean. Air movement for rooms indicated in the table with dashes and nonpatient areas may vary as necessary to satisfy the requirements of those spaces. Additional adjustments may be needed when space is unused or unoccupied and air systems are deenergized or reduced.

3 To satisfy exhaust needs, replacement air from outside is necessary. Table 2 does not attempt to describe specific amounts of outside air to be supplied to individual spaces except for certain areas such as those listed. Distribution of the outside air, added to the system to balance required exhaust, shall be as required by good engineering practice.

4 Number of air changes may be reduced when the room is unoccupied if provisions are made to ensure that the number of air changes indicated is reestablished any time the space is being utilized. Adjustments shall include provisions so that the

Table 2 *(continued)*

Ventilation Requirements for Areas Affecting Patient Care in Hospitals and Outpatient Facilities[1]

Area designation	Air movement relationship to adjacent area[2]	Minimum air changes of outdoor air per hour[3]	Minimum total air changes per hour[4]	All air exhausted directly to outdoors[5]	Recirculated by means of room units[6]	Relative humidity[7] (%)	Design temperature[8] (degrees F)
Laboratory *(continued)*							
Pathology	In	—	6	Yes	No	—	—
Serology	Out	—	6	—	No	—	—
Sterilizing	In	—	10	Yes	—	—	—
Autopsy room	In	—	12	Yes	No	—	—
Nonrefrigerated body-holding room[15]	In	—	10	Yes	Yes	—	70
Pharmacy	—	—	4	—	—	—	—
DIAGNOSTIC AND TREATMENT							
Examination room	—	—	6	—	—	—	75
Medication room	—	—	4	—	—	—	—
Treatment room	—	—	6	—	—	—	75
Physical therapy and hydrotherapy	In	—	6	—	—	—	75
Soiled workroom or soiled holding	In	—	10	Yes	No	—	—
Clean workroom or clean holding	—	—	4	—	—	—	—
STERILIZING AND SUPPLY							
ETO-sterilizer room[16]	In	—	10	Yes	No	—	75
Sterilizer equipment room[16]	In	—	10	Yes	—	—	—
Central medical and surgical supply							
Soiled or decontamination room	In	—	6	Yes	No	—	—
Clean workroom and sterile storage	Out	—	4	—	No	(Max) 70	75
SERVICE							
Food preparation center[17]	—	—	10	—	No	—	—
Warewashing	In	—	10	Yes	No	—	—
Dietary day storage	In	—	2	—	—	—	—
Laundry, general	—	—	10	Yes	—	—	—
Soiled linen (sorting and storage)	In	—	10	Yes	No	—	—
Clean linen storage	—	—	2	—	—	—	—
Soiled linen and trash chute room	In	—	10	Yes	No	—	—
Bedpan room	In	—	10	Yes	Yes	—	—
Bathroom	—	—	10	—	—	—	75
Janitor's closet	In	—	10	Yes	No	—	—

direction of air movement shall remain the same when the number of air changes is reduced. Areas not indicated as having continuous directional control may have ventilation systems shut down when space is unoccupied and ventilation is not otherwise needed.

5 Air from areas with contamination and/or odor problems shall be exhausted to the outside and not recirculated to other areas. Note that individual circumstances may require special consideration for air exhaust to outside, e.g., an intensive care unit in which patients with pulmonary infection are treated, and rooms for burn patients.

6 Because of cleaning difficulty and potential for buildup of contamination, recirculating room units shall not be used in areas marked "No." Isolation and intensive care unit rooms may be ventilated by reheat induction units in which only the primary air supplied from a central system passes through the reheat unit. Gravity-type heating or cooling units such as radiators or convectors shall not be used in operating rooms and other special care areas.

7 The ranges listed are the minimum and maximum limits where control is specifically needed.

8 Dual temperature indications (such as 70-75) are for an upper and lower variable range at which the room temperature must be controlled. A single figure indicates a heating or cooling capacity of at least the indicated temperature. This is usually applicable when patients may be undressed and require a warmer environment. Nothing in these guidelines shall be construed as precluding the use of temperatures lower than those noted when the patients' comfort and medical conditions make lower temperatures desirable. Unoccupied areas such as storage rooms shall have temperatures appropriate for the function intended.

9 National Institute of Occupational Safety and Health (NIOSH) Criteria Documents regarding Occupational Exposure to Waste Anesthetic Gases and Vapors, and Control of Occupational Exposure to Nitrous Oxide indicate a need for both local exhaust (scavenging) systems and general ventilation of the areas in which the respective gases are utilized.

10 The term *trauma room* as used here is the operating room space in the emergency department or other trauma reception area that is used for emergency surgery. The first aid room and/or "emergency room" used for initial treatment of accident victims may be ventilated as noted for the "treatment room."

continued on next page

11 The protective isolation rooms described in these guidelines are those that might be utilized for patients with a high susceptibility to infection from leukemia, burns, bone marrow transplant, or acquired immunodeficiency syndrome and that require special consideration for which air movement relationship to adjacent areas would be positive rather than negative. For protective isolation the patient room shall be positive to both anteroom and toilet. Anteroom shall be negative to corridor. HEPA filters should be used on air supply. Where requirements for both infectious and protective isolation are reflected in the anticipated patient load, ventilation shall be modified as necessary. Variable supply air and exhaust systems that allow maximum isolation room space flexibility with reversible air movement direction would be acceptable only if appropriate adjustments can be ensured for different types of isolation occupancies. Control of the adjustments shall be under the supervision of the medical staff.

12 The infectious isolation rooms described in these guidelines are those that might be utilized in the average community hospital. The assumption is made that most isolation procedures will be for infectious patients and that the room should also be suitable for normal private patient use when not needed for isolation. This compromise obviously does not provide for ideal isolation. The design should consider types and numbers of patients who might need this separation within the facility. When need is indicated by the program, it may be desirable to provide more complete control with a separate anteroom as an air lock to minimize potential for airborne particulates from the patients' area reaching adjacent areas. Isolation room shall be negative to anteroom and positive to toilet. Anteroom shall be negative to corridor.

13 Large hospitals may have separate departments for diagnostic and therapeutic radiology and nuclear medicine. For specific information on radiation precautions and handling of nuclear materials, refer to appropriate publications of the National Radiation Safety Council and Nuclear Regulatory Commission. Special requirements are imposed by the U.S. Nuclear Regulatory Commission (Regulatory Guide 10.8-1980) regarding use of Xenon-133 gas.

14 When required, appropriate hoods and exhaust devices for the removal of noxious gases shall be provided (see Section 7.31.D1o and NFPA 99).

15 A nonrefrigerated body-holding room would be applicable only for health care facilities in which autopsies are not performed on-site, or the space is used only for holding bodies for short periods prior to transferring.

16 Specific OSHA regulations regarding ethylene oxide (ETO) use have been promulgated. 29 CRF Part 1910.1047 includes specific ventilation requirements including local exhaust of the ETO sterilizer area. Also see Section 7.31.D1r.

17 Food preparation centers shall have ventilation systems that have an excess air supply for "out" air movements when hoods are not in operation. The number of air changes may be reduced or varied to any extent required for odor control when the space is not in use. See Section 7.31.D1 for designation of hoods.

continued from page 51

scavenging system to vent waste gases. If a vacuum system is used, the gas-collecting system shall be arranged so that it does not disturb patients' respiratory systems. Gases from the scavenging system shall be exhausted directly to the outside. The anesthesia evacuation system may be combined with the room exhaust system, provided that the part used for anesthesia gas scavenging exhausts directly to the outside and is not part of the recirculation system. Separate scavenging systems are not required for areas where gases are used only occasionally, such as the emergency room, offices for routine dental work, etc. Acceptable concentrations of anesthetizing agents are unknown at this time. The absence of specific data makes it difficult to set specific standards. However, any scavenging system should be designed to remove as much of the gas as possible from the room environment. It is assumed that anesthetizing equipment will be selected and maintained to minimize leakage and contamination of room air.

g. The bottoms of ventilation (supply/return) openings shall be at least 3 inches (7.62 centimeters) above the floor.

h. All central ventilation or air conditioning systems shall be equipped with filters with efficiencies equal to, or greater than, those specified in Table 3. Where two filter beds are required, filter bed no. 1 shall be located upstream of the air conditioning equipment and filter bed no. 2 shall be downstream of any fan or blowers. Filter efficiencies, tested in accordance with ASHRAE 52-76, shall be average. Filter frames shall be durable and proportioned to provide an airtight fit with the enclosing ductwork. All joints between filter segments and enclosing ductwork shall have gaskets or seals to provide a positive seal against air leakage. A manometer shall be installed across each filter bed having a required efficiency of 75 percent or more, including hoods requiring HEPA filters.

▼*i. Duct humidifiers shall be located at least 15 feet (1.39 meters) in front of the final filters or be fitted with water removal devices that do not allow any water droplets to reach the filter. Humidifiers shall be connected to airflow proving switches that prevent humidification unless the required volume of airflow is present or high limit humidistats are provided. All duct takeoffs should be sufficiently downstream of the humidifier to ensure complete moisture dissemination. Reservoir-type water spray humidifiers shall not be used. ▲

j. Air-handling duct systems shall meet the requirements of NFPA 90A and those contained herein.

k. Ducts that penetrate construction intended for X-ray or other ray protection shall not impair the effectiveness of the protection.

l. Fire and smoke dampers shall be constructed, located, and installed in accordance with the requirements of NFPA 101 and 90A. Fans, dampers, and detectors shall be interconnected so that damper activation will not damage ducts. Maintenance access shall be provided at all dampers. All damper locations should be shown on drawings. Dampers should be activated by fire or smoke sensors, not by fan cutoff alone. Switching systems for restarting fans may be installed for fire department use in venting smoke after a fire has been controlled. However, provisions should be made to avoid possible damage to the system due to closed dampers. When smoke partitions are required, heating, ventilation, and air conditioning zones shall be coordinated with compartmentation insofar as practical to minimize need to penetrate fire and smoke partitions.

m. Hoods and safety cabinets should not be used for normal exhaust of a space. If air change standards in Table 2 do not provide sufficient air for proper operation of exhaust hoods and safety cabinets (when in use), supplementary makeup air (filtered and preheated) should be provided around these units to maintain the required airflow direction and exhaust velocity. Supplementary makeup air will avoid dependence upon infiltration from outdoor and/or from contaminated areas. Makeup systems for hoods shall be arranged to minimize "short circuit" of air movement and to avoid reduction in air velocity at the point of contaminant capture.

n. Laboratory hoods shall meet the following general standards:

i. Have an average face-velocity of at least 75 feet per minute (0.38 meters per second).

ii. Be connected to an exhaust system to the outside which is separate from the building exhaust system.

iii. Have an exhaust fan located at the discharge end of the system.

iv. Have an exhaust duct system of noncombustible corrosion-resistant material as needed to meet the planned usage of the hood.

Table 3

Filter Efficiencies for Central Ventilation and Air Conditioning Systems in General Hospitals and Psychiatric Facilities

Area designation	No. filter beds	Filter bed no. 1	Filter bed no. 2
All areas for inpatient care, treatment, and diagnosis, and those areas providing direct service or clean supplies such as sterile and clean processing, etc.	2	25	90
Protective isolation room	2	25	90
Laboratories	1	80	—
Administrative, bulk storage, soiled holding areas, food preparation areas, and laundries	1	25	—

Note: Additional roughing or prefilters should be considered to reduce maintenance required for main filters. Ratings shall be based on ASHRAE 52-76.

o. Laboratory hoods shall meet the following special standards:

i. Fume hoods, and their associated equipment in the air stream, intended for use with perchloric acid and other strong oxidants, shall be constructed of stainless steel or other material consistent with special exposures, and be provided with a water wash and drain system to permit periodic flushing of duct and hood. Electrical equipment intended for installation within such ducts shall be designed and constructed to resist penetration by water. Lubricants and seals shall not contain organic materials. When perchloric acid or other strong oxidants are only transferred from one container to another, standard laboratory fume hoods and the associated equipment may be used in lieu of stainless steel construction. Fume hoods intended for use with radioactive isotopes shall be constructed of stainless steel or other material suitable for the particular exposure and shall comply with NFPA 801, *Facilities for Handling Radioactive Materials.*

Note: Radioactive isotopes used for injections, etc., without probability of airborne particulates or gases may be processed in a clean-workbench-type hood where acceptable to the Nuclear Regulatory Commission.

ii. In new construction and major renovation work, each hood used to process infectious or radioactive materials shall have a minimum face velocity of 150 feet per minute (0.76 meters per second) with suitable static-pressure-operated dampers and alarms to alert staff of fan shutdown. Each shall also have filters with a 99.97 percent efficiency (based on the DOP, dioctyl-phthalate test method) in the exhaust stream, and be designed and equipped to permit the safe removal, disposal, and replacement of contaminated filters. Filters shall be as close to the hood as practical to minimize duct contamination. Hoods that process radioactive materials shall meet the requirements of the Nuclear Regulatory Commission.

p. Exhaust hoods in food preparation centers shall comply with NFPA 96. All hoods over cooking ranges shall be equipped with grease filters, fire extinguishing systems, and heat-actuated fan controls. Cleanout openings shall be provided every 20 feet (6.10 meters) in the horizontal exhaust duct systems serving these hoods. (Horizontal runs of ducts serving range hoods should be kept to a minimum.)

q. The ventilation system for anesthesia storage rooms shall conform to the requirements of NFPA 99, including the gravity option. Mechanically operated air systems are optional in this room.

r. The space that houses ethylene oxide (ETO) sterilizers should be designed to:

i. Provide a dedicated local exhaust system with adequate capture velocity (i.e., with a minimum capture of 200 feet per minute [1.02 meters per second]) to allow for the most effective installation of an air handling system, i.e., exhaust over sterilizer door, atmospheric exhaust vent for safety valve, exhaust at sterilizer, drain and exhaust for the aerator, and multiple load station.

ii. Provide exhaust in ETO source areas such as service/aeration areas.

iii. Ensure that general airflow is away from sterilizer operator(s).

iv. Provide a dedicated exhaust duct system for ETO. The exhaust outlet to the atmosphere should be at least 25 feet (7.62 meters) away from any air intake.

v. Meet OSHA requirements.

s. Boiler rooms shall be provided with sufficient outdoor air to maintain equipment combustion rates and to limit workstation temperatures.

t. Gravity exhaust may be used, where conditions permit, for nonpatient areas such as boiler rooms, central storage, etc.

u. The energy-saving potential of variable air volume systems is recognized and these standards herein are intended to maximize appropriate use of that system. Any system utilized for occupied areas shall include provisions to avoid air stagnation in interior spaces where thermostat demands are met by temperatures of surrounding areas (see Appendix B).

v. Special consideration shall be given to the type of heating and cooling units, ventilation outlets, and appurtenances installed in patient-occupied areas of psychiatric units. The following shall apply:

i. All air grilles and diffusers shall be of a type that prohibits the insertion of foreign objects.

ii. All convector or HVAC enclosures exposed in the room shall be constructed with rounded corners and shall have enclosures fastened with tamper-proof screws.

iii. HVAC equipment shall be of a type that minimizes the need for maintenance within the room.

7.31.E. Plumbing and Other Piping Systems. Unless otherwise specified herein, all plumbing systems shall be designed and installed in accordance with *National Standard Plumbing Code*, chapter 14, Medical Care Facility Plumbing Equipment.

7.31.E1. The following standards shall apply to plumbing fixtures:

a. The material used for plumbing fixtures shall be nonabsorptive and acid-resistant.

b. Water spouts used in lavatories and sinks shall have clearances adequate to avoid contaminating utensils and the contents of carafes, etc.

c. All fixtures used by medical and nursing staff and all lavatories used by patients and food handlers shall be trimmed with valves that can be

operated without hands (single-lever devices may be used). Blade handles used for this purpose shall not exceed 4-1/2 inches (11.43 centimeters) in length. Handles on scrub sinks and clinical sinks shall be at least 6 inches (15.24 centimeters) long.

d. Clinical sinks shall have an integral trap wherein the upper portion of the water trap provides a visible seal.

▼ e. Showers and tubs shall have nonslip walking ▲ surfaces.

7.31.E2. The following standards shall apply to potable water supply systems:

a. Systems shall be designed to supply water at sufficient pressure to operate all fixtures and equipment during maximum demand. Supply capacity for hot- and cold-water piping shall be determined on the basis of fixture units, using recognized engineering standards. When the ratio of plumbing fixtures to occupants is proportionally more than required by the building occupancy and is in excess of 1,000 plumbing fixture units, a diversity factor is permitted.

b. Each water service main, branch main, riser, and branch to a group of fixtures shall have valves. Stop valves shall be provided for each fixture. Appropriate panels for access shall be provided at all valves where required.

c. Vacuum breakers shall be installed on hose bibbs and supply nozzles used for connection of hoses or tubing in laboratories, housekeeping sinks, bedpan-flushing attachments, and autopsy tables, etc.

d. Bedpan-flushing devices (may be cold water) shall be provided in each inpatient toilet room; however, installation is optional in psychiatric and alcohol-abuse units where patients are ambulatory.

e. Potable water storage vessels (hot and cold) not intended for constant use shall not be installed.

7.31.E3. The following standards shall apply to hot water systems:

a. The water-heating system shall have sufficient supply capacity at the temperatures and amounts indicated in Table 4. Water temperature is measured at the point of use or inlet to the equipment.

▼ b. Hot-water distribution systems serving patient care areas shall be under constant recirculation to provide continuous hot water at each hot water outlet. The temperature of hot water for showers and bathing shall be appropriate for comfortable use but ▲ shall not exceed 110°F (43°C) (see Table 4).

7.31.E4. The following standards shall apply to drainage systems:

a. Drain lines from sinks used for acid waste disposal shall be made of acid-resistant material.

b. Drain lines serving some types of automatic blood-cell counters must be of carefully selected material that will eliminate potential for undesirable chemical reactions (and/or explosions) between sodium azide wastes and copper, lead, brass, and solder, etc.

Table 4

Hot Water Use

	Clinical	Dietary[1]	Laundry
Liters per second per bed*	.0033	.0020	.0021
Gallons per hour per bed*	3	2	2
Temperature (°C)**	43	49	71**
Temperature (°F)**	110	120	160**

1 Provisions shall be made to provide 180°F (82°C) rinse water at warewasher. (May be by separate booster.)

* Quantities indicated for design demand of hot water are for general reference minimums and shall not substitute for accepted engineering design procedures using actual number and types of fixtures to be installed. Design will also be affected by temperatures of cold water used for mixing, length of run and insulation relative to heat loss, etc. As an example, total quantity of hot water needed will be less when temperature available at the outlet is very nearly that of the source tank and the cold water used for tempering is relatively warm.

** Provisions shall be made to provide 160°F (71°C) hot water at the laundry equipment when needed. (This may be by steam jet or separate booster heater.) However, it is emphasized that this does not imply that all water used would be at this temperature. Water temperatures required for acceptable laundry results will vary according to type of cycle, time of operation, and formula of soap and bleach as well as type and degree of soil. Lower temperatures may be adequate for most procedures in many facilities but the higher 160°F (71°C) should be available when needed for special conditions.

Table 5

Station Outlets for Oxygen, Vacuum (Suction), and Medical Air Systems

Section	Location	Oxygen	Vacuum	Med. Air
7.2.A	Patient Rooms (Medical and Surgical)	1 (one outlet accessible to each bed)	1 (one outlet) accessible to each bed)	—
7.2.B10	Examination/Treatment (Medical, Surgical, and Postpartum Care)	1	1	—
7.2.C/7.2.D	Isolation (Infectious and Protective) (Medical and Surgical)	1	1	—
7.2.E	Security Room (Medical, Surgical, and Postpartum)	1	1	—
7.3.A	Critical Care (General)	2	2	1
7.3.A14	Isolation (Critical)	2	2	1
7.3.B	Coronary Critical Care	2	2	1
7.3.C	Cardiac Critical Care	2	2	1
7.3.D	Pediatric Critical Care	2	2	1
7.3.E	Newborn Intensive Care	3	4	3
7.4.B	Newborn Nursery (Full-Term)	1	1	1
7.5.A	Pediatric and Adolescent	1	1	1
7.5.B	Pediatric Nursery	1	1	1
7.6.A	Psychiatric Patient Rooms	—	—	—
7.6.C	Psychiatric Isolation	—	—	—
7.6.D	Seclusion Treatment Room	—	—	—
7.7.A1	General Operating Room	2	4	2
7.7.A2	Cardio, Ortho, Neurological	2	4	2
7.7.A.3	Orthopedic Surgery	2	4	2
7.7.A4	Surgical Cysto and Endo	1	3	2
7.7.B	Post-Anesthetic Care Unit	1	1	1
7.7.C9	Anesthesia Workroom	1 per workstation	—	1 per workstation
7.7.C14	Outpatient Recovery	1	1	1
7.8.B2	Postpartum Bedroom	1	1	—
7.8.B2(c)	Postpartum Isolation Room	1	1	—
7.8.B3	Caesarean/Delivery Room	2	4	2
7.8.B3(d)	Labor Room	1	1	1
7.8.B3(e)	Recovery Room	1	1	1
7.8.B4	Labor/Delivery/Recovery (LDR)	2	3	2
7.8.B4	Labor/Delivery/Recovery/Postpartum (LDRP)	2	3	2
7.9.C2	Initial Emergency Management per bed	1	1	1
7.9.D3	Triage Area (Definitive Emergency Care)	1	1	—
7.9.D7	Definitive Emergency Care Exam/Treatment Rooms	1	1	1
7.9.D7	Definitive Emergency Care Holding Area	1	1	—
7.9.D8	Trauma/Cardiac Room(s)	2	2	1
7.9.D9	Orthopedic and Cast Room	1	1	1
7.9.D22	Isolation Room (Emergency Service)	1	1	1
7.10.H	Cardiac Catheterization Lab	1	3	2
7.15.A2	Autopsy Room	—	1 per workstation	1 per workstation

c. Insofar as possible, drainage piping shall not be installed within the ceiling or exposed in operating and delivery rooms, nurseries, food preparation centers, food serving facilities, food storage areas, central services, electronic data processing areas, electric closets, and other sensitive areas. Where exposed, overhead drain piping in these areas is unavoidable, special provisions shall be made to protect the space below from leakage, condensation, or dust particles.

d. Floor drains shall not be installed in operating, delivery, and cystoscopic rooms.

e. Drain systems for autopsy tables shall be designed to positively avoid splatter or overflow onto floors or back siphonage and for easy cleaning and trap flushing.

f. Building sewers shall discharge into community sewerage. Where such a system is not available, the facility shall treat its sewage in accordance with local and state regulations.

g. Kitchen grease traps shall be located and arranged to permit easy access without the need to enter food preparation or storage areas.

h. Where plaster traps are used, provisions shall be made for appropriate access and cleaning.

7.31.E5. The installation of nonflammable medical gas and air systems shall comply with the requirements of NFPA 99. (See Table 5 for rooms requiring station outlets.) When any piping or supply of medical gases is installed, altered, or augmented, the altered zone shall be tested and certified as required by NFPA 99.

7.31.E6. Clinical vacuum system installations shall be in accordance with NFPA 99. (See Table 5 for rooms which require station outlets.)

Note: Cautionary comments of NFPA 99 may be especially applicable when a vacuum system is being considered for scavenging of anesthetizing gases.

7.31.E7. All piping, except control-line tubing, shall be identified. All valves shall be tagged, and a valve schedule shall be provided to the facility owner for permanent record and reference.

▼ **7.31.E8.** Where the functional program includes hemodialysis, continuously circulated filtered cold ▲ water shall be provided.

7.32 Electrical Standards

7.32.A. General

7.32.A1. All material and equipment, including conductors, controls, and signaling devices, shall be installed in compliance with applicable sections of NFPA 70 and NFPA 99. All materials shall be listed as complying with approved established standards.

7.32.A2. The electrical installations, including alarm, nurses call and communication systems, shall be tested to demonstrate that equipment installation and operation is appropriate and functional. A written record of performance tests on special electrical systems and equipment shall show compliance with applicable codes and standards. Grounding continuity shall be tested as described in NFPA 99.

▼ **7.32.A3.** Shielded isolation transformers, voltage regulators, filters, surge suppressors, or other safeguards shall be provided as required where power line disturbances are likely to affect data processing and/ ▲ or automated laboratories or diagnostic equipment.

7.32.A4. Design of the electrical systems shall include provisions for avoiding power-factor deviations below established norms.

7.32.B. Switchboards and Power Panels

Switchboards and power panels shall comply with NFPA 70. The main switchboard shall be located in an area separate from plumbing and mechanical equipment and shall be accessible to authorized persons only. The switchboards shall be convenient for use, readily accessible for maintenance, away from traffic lanes, and located in a dry, ventilated space free of corrosive or explosive fumes, gases, or any flammable material. Overload protection devices shall operate properly at ambient room temperatures.

7.32.C. Panelboards

Panelboards serving normal lighting and appliance circuits shall be located on the same floor as the circuits they serve. Panelboards serving critical branch emergency circuits shall be located on each floor that has major users (operating rooms, delivery suite, intensive care, etc.). Panelboards serving life safety emergency circuits may also serve floors above and/or below for secondary users (general patient areas, administration, laboratory, X-ray, etc.).

7.32.D. Lighting

▼ **7.32.D1.** The Illuminating Engineering Society of North America (IES) has developed recommended lighting levels for health care facilities. The reader should refer to the *IES Lighting Handbook* (1987, volume 2, Applications) and *Lighting for Health Care Facilities* (1985) and to Appendix B (Energy Conservation Considerations) for additional information. ▲

Three types of interior lighting systems are available and should be maximized when designing lighting. They are direct, indirect, and task lighting. Site lighting, a specialty, requires design skill to create an efficient system. In general, the use of light colors and reflective surfaces can affect lighting efficiency.

a. Direct lighting has been the standard design for years and will remain so for some time. Its performance has been dramatically increased in recent years through the improvement of luminaries and the use of more efficient light sources.

b. Indirect lighting utilizes the reflectance characteristics of the ceiling and walls to disperse the light, resulting in less glare and higher visual comfort. Calculations are best accomplished by computers. The most popular sources for indirect lighting are metal halide and high-pressure sodium.

c. Task lighting reduces general area lighting needs by applying light to a specific task. This system of lighting results in the greatest energy savings by focusing light only in required spaces. Emphasis should be given to task lighting design that is independently controlled for use on an as-needed basis.

d. Site lighting should be high- and/or low-pressure sodium or metal halides. Calculations of footcandles and layouts are best accomplished by computer for maximization of light efficiency.

7.32.D2. Approaches to buildings and parking lots, and all occupied spaces within buildings shall have fixtures for lighting.

7.32.D3. Patient rooms shall have general lighting and night lighting. A reading light shall be provided for each patient. Flexible light arms, if used, shall be mechanically controlled to prevent the bulb from contacting the bed linen. At least one night light fixture in each patient room shall be controlled at the room entrance. All light controls in patient areas shall be quiet-operating. Lighting for intensive care bed areas shall permit staff observation of the patient but minimize glare.

▼ **7.32.D4.** Operating and delivery rooms shall have general lighting in addition to special lighting units provided at surgical and obstetrical tables. General lighting and special lighting shall be on separate circuits. ▲

7.32.D5. Nursing unit corridors shall have general illumination with provisions for reducing light levels at night.

▼ **7.32.D6.** Light intensity for staff and patient needs should generally comply with health care guidelines set forth in the IES publications. Consideration should be given to controlling intensity to prevent harm to the patients' eyes (i.e., retina damage in premature infants and cataracts due to ultraviolet light).

Many procedures are available to satisfy requirements, but the design should consider light quality as well as quantity for effectiveness and efficiency. While light levels in the IES publication are referenced herein, those publications include other useful guidance and recommendations which the designer is encouraged to follow.

7.32.D7. Light intensity of required emergency lighting shall generally comply with standards in the IES publication, *Lighting for Health Care Facilities*. ▲

7.32.E. Receptacles (Convenience Outlets)

▼ **7.32.E1.** Receptacles for pediatric and psychiatric units shall be in accordance with NFPA 70.

7.32.E2. Each operating room and delivery room shall have at least six receptacles at anesthetizing locations. Where mobile X-ray equipment requiring special electrical considerations is used, additional receptacles distinctively marked for X-ray use shall be provided. (See NFPA 70, article 517 for receptacle requirements when capacitive discharge or battery-operated, mobile X-ray units are used.) Each OR should have at least 16 simplex or 8 duplex receptacles at the height of 36 inches (0.91 meter). In addition, special receptacles for X-ray, laser or other equipment requiring special plugs or voltage shall be provided in accordance with the functional plan.

7.32.E3. Each patient room shall have duplex-grounded receptacles. There shall be one at each side of the head of each bed; one for television, if used; and one on every other wall. Receptacles may be omitted from exterior walls where construction makes installation impractical. Nurseries shall have at least two duplex-grounded receptacles for each

bassinet. Critical care areas as defined in NFPA 70, article 517, including pediatric and newborn intensive care, shall have at least seven duplex outlets at the head of each bed, crib, or bassinet. Trauma and resuscitation rooms shall have eight duplex outlets located convenient to head of each bed. Emergency department examination and treatment rooms shall have a minimum of six duplex outlets located convenient to the head of each bed. Approximately 50 percent of critical and emergency care outlets shall be connected to emergency system power and be so labeled.

7.32.E4. Duplex-grounded receptacles for general use shall be installed approximately 50 feet (15.24 meters) apart in all corridors and within 25 feet (7.62 meters) of corridor ends. Receptacles in pediatric unit corridors shall be of the tamper-resistant type or protected by 5 milliampere ground-fault circuit interrupters (GFCI). Single-polarized receptacles marked for use of X-ray only shall be installed in corridors of patient areas so that mobile equipment may be used anywhere within a patient room using a cord length of 50 feet (15.24 meters) or less. If the same mobile X-ray unit is used in operating rooms and in nursing areas, receptacles for X-ray use shall permit the use of one plug in all locations. *Where capacitive discharge or battery-powered X-ray units are used, separate polarized receptacles are not required.* ▲

7.32.E5. Electrical receptacle coverplates or electrical receptacles supplied from the emergency system shall be distinctively colored or marked for identification. If color is used for identification purposes, the same color should be used throughout the facility.

7.32.F. Equipment Installation in Special Areas

7.32.F1. At inhalation anesthetizing locations, all electrical equipment and devices, receptacles, and wiring shall comply with applicable sections of NFPA 99 and NFPA 70.

7.32.F2. Fixed and mobile X-ray equipment installations shall conform to articles 517 and 660 of NFPA 70.

7.32.F3. The X-ray film illuminator unit or units for displaying at least two films simultaneously shall be installed in each operating room, specified emergency treatment rooms, and X-ray viewing room of the radiology department. All illuminator units within one space or room shall have lighting of uniform intensity and color value.

▼ **7.32.F4.** Ground-fault circuit interrupters shall comply with NFPA 70. *When ground-fault circuit interrupters (GFCI) are used in critical areas, provisions shall be made to insure that other essential equipment is not affected by activation of one interrupter.* ▲

7.32.F5. In areas such as critical care units and special nurseries where a patient may be treated with an internal probe or catheter connected to the heart, the ground system shall comply with applicable sections of NFPA 99 and NFPA 70.

7.32.G. Nurses Calling System.

7.32.G1. In patient areas, each patient room shall be served by at least one calling station for two-way voice communication. Each bed shall be provided with a call device. Two call devices serving adjacent beds may be served by one calling station. Calls shall activate a visible signal in the corridor at the patient's door, in the clean workroom, in the soiled workroom, and at the nursing station of the nursing unit. In multicorridor nursing units, additional visible signals shall be installed at corridor intersections. In rooms containing two or more calling stations, indicating lights shall be provided at each station. Nurses calling systems at each calling station shall be equipped with an indicating light which remains lighted as long as the voice circuit is operating.

7.32.G2. A nurses emergency call system shall be provided at each inpatient toilet, bath, sitz bath, and shower room. This system shall be accessible to a collapsed patient lying on the floor. Inclusion of a pull cord will satisfy this standard.

The emergency call system shall be designed so that a signal activated at a patient's calling station will initiate a visible and audible signal distinct from the regular nurse calling system that can be turned off only at the patient calling station. The signal shall activate an enumerator panel at the nurse station, a visible signal in the corridor at the patient's door, and at other areas defined by the functional program. Provisions for emergency calls will also be needed in outpatient and treatment areas where patients may be subject to incapacitation.

7.32.G3. In areas such as critical care where patients are under constant visual surveillance, the nurses call system may be limited to a bedside button or station that activates a signal readily seen at the control station.

▼ **7.32.G4.** A staff emergency assistance system for staff to summon additional assistance shall be provided in each operating, delivery, recovery, emergency examination and/or treatment area, and in critical care units, nurseries, special procedure rooms, stress-test areas, triage, out-patient surgery, admission and discharge areas, and areas for mental patients including seclusion and security rooms, anterooms and toilet rooms serving them, communal toilet and bathing facility rooms, dining, activity, therapy, exam, and treatment rooms. This system shall annunciate at the nurse station with back-up to another staffed area from which assistance can be summoned. ▲

7.32.H. Emergency Electric Service

7.32.H1. An emergency electrical source shall be provided and connected to certain circuits to provide lighting and power during an interruption of the normal electric supply. Where stored fuel is required, storage capacity shall permit continuous operation for at least 24 hours. Fuel storage for electricity generation shall be separate from heating fuels. If the use of heating fuel for diesel engines is considered after the required 24-hour supply has been exhausted, positive valving and filtration shall be provided to avoid entry of water and/or contaminants. In areas where the electrical service is found to be unreliable, consideration should be given to the use of dual-fuel generator units.

7.32.H2. The source(s) of this emergency electric service shall be:

a. An emergency generating set for facilities whose normal service is supplied by one or more central station transmission lines.

b. An emergency generating set or a central station transmission line for facilities whose normal electrical supply is generated on the premises.

7.32.H3. The required emergency generating set, including the prime mover and generator, shall be located on the premises and shall conform to NFPA 99 and NFPA 110.

7.32.H4. As required in NFPA 99 and NFPA 70, emergency electricity shall be provided to all services that must continue to function during any failure of the normal power source including the fire pump, if installed. As a minimum, each patient bed and treatment space shall have access to a receptacle on the critical branch of the emergency power system. Where access is by extension cords, length required shall not exceed 50 feet (15.24 meters). See NFPA 99 for special care areas.

7.32.H5. Local codes and regulations may have additional requirements.

7.32.H6. Exhaust systems (including locations, mufflers, and vibration isolators) for internal combustion engines shall be designed and installed to minimize objectionable noise. Where a generator is routinely used to reduce peak loads, protection of patient areas from excessive noise may become a critical issue.

7.32.H7. Emergency generator sets shall have adequate clearances for access and maintenance and shall be provided with appropriate ventilation for cooling and elimination of fumes. Mechanisms for intake air shall be arranged to resist entry of rain and/or snow.

▼ 7.32.I. Fire Alarm System

The fire alarm and detector system shall be in compliance with NFPA 101 and NFPA 72. ▲