



**Rules of
Department of Health and
Senior Services**

**Division 30—Division of Regulation and Licensure
Chapter 22—Rehabilitation Hospitals**

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**Title 19—DEPARTMENT OF
HEALTH AND SENIOR SERVICES
Division 30—Division of Regulation and
Licensure**

Chapter 22—Rehabilitation Hospitals

**19 CSR 30-22.010 General Design and
Construction Standards for Rehabilitation
Hospitals**

PURPOSE: The Department of Health, Division of Health Resources has the authority to establish construction standards for rehabilitation hospitals. This rule provides standards for facilities to ensure functional, sanitary and fire-safe facilities.

PUBLISHERS NOTE: The publication of the full text of the material that the adopting agency has incorporated by reference in this rule would be unduly cumbersome or expensive. Therefore, the full text of that material will be made available to any interested person at both the Office of the Secretary of State and the office of the adopting agency, pursuant to section 536.031.4, RSMo. Such material will be provided at the cost established by state law.

(1) All new rehabilitation hospitals and additions to and remodeling of existing licensed rehabilitation hospitals shall be designed to provide all of the facilities required by these rules and fire safety standards, arranged to accommodate with maximum convenience all of the functions required by these rules and arranged to provide comfortable, attractive, sanitary, fire-safe, secure and durable facilities for the patients. Any additions or alterations to a rehabilitation hospital shall comply with these rules and shall provide all required facilities proportional to the number of beds. These rules are applicable to rehabilitation hospitals which began operation or one which began operation or one which began construction or renovation of a building for the purpose of operating a rehabilitation hospital on any date after November 21, 1969.

(A) General Construction—Related Authorities.

1. Construction of all rehabilitation hospitals and additions to or remodeling of rehabilitation hospitals shall comply with all local and state regulations and codes. Facilities and equipment shall comply with the American Standards Association Specification A 117.1-1961 (R-1971) entitled "American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped".

(B) Planning and Construction Procedure.

1. Plans and specifications shall be prepared for the construction of all rehabilitation hospitals and additions to and remodeling of rehabilitation hospitals. The plans and specifications shall be prepared by an architect or a professional engineer licensed to practice in Missouri.

2. Construction shall be undertaken only after the plans and specifications have received the written approval of the Department of Health and the construction shall be in conformance with the approved plans and specifications. The Department of Health shall be notified within five (5) days after construction begins. If construction of the project is not started within one (1) year after the date of approval of the plans and specifications, the plans and specifications shall be resubmitted to the Department of Health for its approval and shall be amended, if necessary, to comply with the then current rules before construction work commences.

A. Preliminary Plans and Sketches.

(I) When construction is contemplated, either for new buildings, additions to existing buildings or material alterations to existing buildings, the preliminary plans or sketches shall be submitted in duplicate to the Department of Health for review and approval before the preparation of working drawings is undertaken. The preliminary plans may be reviewed by the Department of Health in schematic form, but before they are declared acceptable for procedure with working drawings and specifications, they should also include the following information, stated briefly and not in detailed form required in working drawings and specifications: site plan showing scale, orientation, street names, topography, walks, drives, parking areas and utilities, including fire plug location; plans and elevations of the buildings at a scale of not less than one-eighth inch to one foot (1/8"-1'); rooms and corridors, designated by name and number; windows, note wired glass where it is required; doors, including door swings; identify fire doors by time rating and Underwriters' Laboratories label; plumbing fixtures; show fixtures in proper shape and scale for positive recognition; identify special types such as service sinks and clinic sinks; brief descriptive notes on type of supplies, vacuum breakers, and the like are advisable; plans of patient rooms shall indicate principle items of furniture accurately scaled; all other principle items of equipment such as boiler(s), chiller(s), cooling tower(s), electrical substation(s), tank(s), air handler(s), fan-coil unit(s), kitchen equipment, laundry equipment, cabinet(s), counter(s) and any other item(s) which take up space and affect the final layout; fire- and smoke-barrier partition

designations; floor lines, top ceiling line and grade lines, designated and preferably dimensioned and with basic elevations shown; ceiling height; only one (1) typical room of a group need be so shown; area of each room for which the rules establish a minimum area; only one (1) typical room of a group need be so noted; and brief noted descriptions of the general construction and finish, the structural system, the heating, ventilating and air-conditioning system, including the fuel supply, the plumbing system, including the water supply and sewage disposal and the electrical system.

(II) In the case of a project which is an addition to an existing building, it will be necessary to give the Department of Health sufficient information about the existing building on which to base a determination of acceptability of the plans for the addition. This information shall cover all items required to be provided in a rehabilitation hospital by the rules of the Department of Health and shall be submitted in such form as required by the Department of Health for the particular project.

B. Working Drawings and Specifications.

(I) Working drawings and specifications, complete in all respects, shall be submitted in duplicate covering all phases of the construction project including: site preparation; paving; general construction; mechanical work, including plumbing, heating, ventilating and air conditioning; electrical work; and all built-in equipment, including elevators, kitchen equipment, cabinet work, and the like; each sheet of the plans and each set of the specifications shall identify the project by name and location and shall bear the names and addresses of the architect or professional engineer and the owner; each sheet of the plans and each set of specifications shall bear the official seal and signature of the registered architect or registered professional engineer who prepared it; each sheet of the plans and each set of specifications shall bear the date of its completion or its latest revision; and the plans shall be on sheets of the same size, securely bound into complete sets, with the sheets in the proper order; and the specifications shall be securely bound into complete sets.

(II) The plans and specifications are to include a survey and soil investigation of the proposed site. The following information shall be provided: items previously listed under subparagraph (1)(B)2.A. Preliminary Plans and Sketches; courses and distances of property lines; dimensions and locations of any buildings, structures, easements, rights-of-way or encroachments on the site; details



of party walls or walls and foundations adjacent to lot lines; the position of trees, dimensions, position and elevation of all cellars, evacuations, wells, backfilled areas and the elevation of any water; detailed information by the city engineer or other official report as to established curbs, building lines, streets, alleys and sidewalks; all utilities including size, characteristics and location of these services; piping, mains, sewers, poles, wires, hydrants and manholes upon, over or under this or the adjacent site; complete information as to the disposal of sanitary, storm water and subsoil drainage; official date upon which elevations are based and benchmark established on or adjacent to the site; contours on elevations at two foot (2') intervals over site and elevations at the bottom of excavation; contemplated date and description of proposed improvements to approaches or utilities adjacent to the site; thickness, consistency, character and estimated safe bearing value of various strata encountered; amount and elevation of groundwater encountered in each test pit; elevation of rock, if known and probability of encountering quicksand; average depth of frost effect below ground; high and low water levels of nearby bodies of water affecting groundwater level; whether the soil contains alkali in sufficient quantities to effect the concrete; elevation and location of mine shafts or excavations if the site is underlaid with mines or old workings; and whether the site is subject to mineral rights which have not been developed.

(C) Site.

1. The facility shall be located reasonably accessible to the center of population of the community served, close to where competent medical and professional consultation is readily available and where employees can be recruited and retained.

2. The site shall be away from nuisances detrimental to the proposed project's program.

3. Adequate vehicular and pedestrian access shall be provided within the lot lines to the main entrance, ambulance entrance, community activities and services including loading and unloading space for delivery trucks. Roads, walks, ramps and entrances, etc., are to comply with the "American Standards Associations Specification" A 117.1-1961 (R-1971), entitled "American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped."

4. Adequate off-street parking shall be provided.

(D) General Construction—Structural Requirements.

1. All new rehabilitation hospitals and additions to and remodeling of existing rehabilitation hospitals shall be of sufficient structural strength to resist all stresses imposed by dead loads, live loads and lateral or uplift forces, such as wind, without exceeding, in any of the structural materials, the allowable working stresses established for these materials by generally accepted good engineering practice.

2. Compliance with the *Basic Building Codes of the Building Officials Conference of America (BOCA Code)* insofar as it may apply, shall be deemed to be in compliance with this rule.

(E) General Design—Facilities.

1. Rehabilitation hospitals shall provide the following facilities:

A. Administrative area. Business office with information counter, telephone, switchboard and cashier's window; administrator's office; director of nurse's office; medical records room; medical library; lobby and waiting room; public telephone booth; public toilets and personnel toilets;

B. Evaluation and treatment facilities. Clinical laboratory; radiology and radiographic room adjoining dark room, toilet and office; pharmacy, drug room with minimum facilities for compounding; conference room; offices, examination rooms and work space for medical personnel; office and work space for provision of appropriate dental treatment; office and work space for physical therapy staff; rehabilitation gymnasium; hydrotherapy area; electro-diagnosis area; thermotherapy and massage area; storage for physical therapy supplies and equipment; office and work space for occupational therapy staff; occupational therapy area; storage space for occupational therapy supplies and equipment; facilities for teaching activities of daily living; artificial appliance facilities; space for fitting and adjustment service; office and work space for psychological testing, evaluation and counseling; office space for private interview and counseling; office and work space for counseling, evaluation, pre-vocational programs and placement; schoolroom for children if children are included in program; locker, toilet for outpatients; and clean and soiled linen facilities;

C. Nursing unit for adults. This unit shall be located convenient to the treatment area; each patient's rooms shall have a lavatory, mirror, convenience electrical outlet and wardrobe space; toilet room shall be accessible to each patient room; nursing unit shall not exceed fifty (50) beds; patients' room area shall be at least eighty (80) square feet per bed in multi-bed patients' rooms and one hundred (100) square feet per bed in private

patients' rooms and a continuous aisle not less than three feet (3') wide shall be available around the foot and along both sides of each bed; nurses' station with medicine preparation area; nurses' toilet; clean and soiled utility rooms; accessible examination and treatment room with lavatory; floor pantry with lavatory; recreation area of twenty (20) square feet per bed; a toilet room for each sex at a ratio of one (1) water closet to each five (5) beds and one (1) of the water closet enclosures in each centralized toilet room shall be at least five feet by six feet (5' x 6') to permit toilet training unless toilets in patient rooms are five feet by six feet (5' x 6'); bedpan cleaning facilities; separate bathroom with tub for each sex; one (1) shower to each eight (8) beds; stretcher and wheelchair parking space; clean linen storage; all rooms occupied by patients shall be outside rooms; each patient room shall have a minimum window area of not less than one-eighth (1/8) of the floor area; equipment and supply storage; janitor's closet; and one (1) telephone alcove per floor;

D. Nursing unit for children is the same as for adults except at least sixty (60) square feet per bed is to be provided in crib rooms; and

E. Service departments. Central sterilizing and supply room shall include receiving and clean-up room; clean workroom including sterilizing facilities and unsterile supply storage area; dietary facilities shall include food preparation area with handwashing facilities, food serving facilities for make-up of patient trays, commercial-type dishwashing equipment adequately isolated and ventilated, lavatory in dishwashing area, three (3) compartment sinks, refrigerated and freezer storage, day storage, food cart storage area, trash and waste disposal facilities, can-washing facilities, staff dining facilities, patient dining facilities at ratio of twenty (20) square feet per bed; janitor's closet with floor receptor or service sink and space for housekeeping supplies and equipment; lockers and toilet facilities; housekeeping supply storage facilities; unless commercial or other laundry facilities are available, each rehabilitation facility shall have a laundry of sufficient capacity to process full seven (7) days' laundry in a work week and contain a soiled sorting area, processing area, clean linen and sewing room separate from laundry; mechanical facilities, including boiler and pump room(s), mechanical room(s), engineers' space and maintenance shops, at least one (1) room; female staff and volunteers' locker room including lockers and toilet and shower room; female help locker room, including lockers and toilet and shower room; male



staff and volunteers' locker room including lockers and toilet and shower room; male help locker room, including toilet and shower room; and twenty (20) square feet of general storage space per bed and to be concentrated in one (1) area.

(I) When no laundry is provided in the hospital, a soiled linen room and clean linen and sewing room shall be provided.

(F) General Design—Details.

1. All new rehabilitation hospitals and additions to and remodeling of existing rehabilitation hospitals shall comply with the following general design details:

A. Required corridors and aisles shall be at least eight feet (8') wide and no less than ten feet (10') wide at elevators. No part of the area of any required corridor or aisle shall be counted as part of the required area of any space adjacent to the corridor or aisle. A continuous system of unobstructed corridors and aisles shall extend through the enclosed portion of each story of the building, connecting all rooms and spaces with each other and with all entrances, exitways and elevators with the following exceptions: work suites such as the administrative suite and the dietary area, which are occupied primarily by employed personnel, may have within them, corridors or aisles as are deemed advisable; but these are not subject to the regulations applicable to required corridors or aisles;

B. The width of stairways shall be not less than three feet eight inches (3' 8"). The width shall be measured between handrails where handrails project more than three and one-half inches (3 1/2");

C. Doors through which residents will pass, including exit doors, shall be at least forty-four inches (44") wide except doors to toilets and bathrooms, which shall be at least thirty-six inches (36") wide;

D. Exits shall swing outward. Doors to rooms shall generally swing into the rooms they serve. Doors to small toilet rooms may swing outward into the adjacent room and if they swing inward they shall be equipped for emergency access. No doors shall swing into required corridors or aisles except doors to janitors' closets, linen closets or doors to similar small spaces which are open only temporarily;

E. Ceilings in corridors, storage rooms, patients' toilet rooms and other minor rooms shall not be less than seven feet six inches (7' 6"). Ceilings in all other rooms shall not be less than eight feet (8');

F. Drinking fountains shall be located in or near the lobby and recreation area and in each nursing unit corridor. The fountain

shall be accessible to residents in wheelchairs;

G. Toilet room doors shall be equipped with privacy and release-type hardware;

H. The floors of toilets, baths, bedpan rooms, floor pantries, utility rooms and janitors' closets shall have smooth, waterproof surfaces which are wear-resistant. The floors of residents' rooms and corridors shall be easily cleanable. The floors of kitchens and food preparation areas shall be waterproof, greaseproof, smooth, slip-resistant and durable;

I. The walls of kitchens, utility rooms, baths, showers, dishwashing rooms, janitors' closets and spaces with sinks shall have waterproof painted, glazed or similar finishes to a point at least thirty inches (30") above the sink or countertop. The remaining wall surfaces of such rooms and rooms where food is stored shall have a smooth surface with painted or equally washable finish in light color. The base shall be waterproof and free from spaces which may harbor insects;

J. The ceilings of all kitchens, dishwashing and other rooms where food and drink are prepared shall have a smooth washable finish;

K. Wall and ceiling surfaces of all occupied rooms and of all exitways shall be of such material or so treated as not to have a flame-spread classification of more than fifty (50) according to the method for the "Fire Hazard Classification of Building Materials" of Underwriters' Laboratories, Inc. Floor finish shall have a flame-spread rating of not more than seventy-five (75). Carpeting, including the backing or underpad, shall have a flame-spread rating of not more than seventy-five (75);

L. Adequate space, consistent with the need, shall be provided for residents using crutches, walkers, wheelchairs, wheel stretchers, and the like. Accessibility to all required facilities, including toilets, lavatories, baths, showers, drinking fountains, telephones, furniture, and the like, shall be provided;

M. Showers shall be at least four feet (4') square. Curbs shall not exceed one inch (1") in height and shall have sloped edges;

N. Handrails or grab bars shall be placed in positions to be reached from any point within a toilet or bathroom area. Grab bars or handrails shall be provided adjacent to all bathtubs, within all showers and on both sides of all water closets.

O. Lavatories for patients' use shall be positioned to be accessible to wheelchair patients and shall not have cabinets under-

neath or any other unnecessary obstruction to the maneuverability of wheelchairs;

P. Mirror sizes and positions shall be such as to make the mirrors convenient both for residents in wheelchairs and those in a standing position;

Q. Bathtubs other than therapeutic tubs are not to be elevated;

R. Paper towel dispensers shall be provided at all lavatories used for handwashing; and

S. Telephone alcoves shall be a minimum of four (4) feet square. Telephone shall be located on a shelf convenient for residents in wheelchairs. Doors to telephone booths are not recommended.

(G) General Construction—Specifications and Details.

1. All rehabilitation hospitals and additions to and remodeling of existing rehabilitation hospitals shall be constructed to provide safe, comfortable, secure, fire-safe, sanitary and durable facilities for the patients. Existing buildings, if converted to use as rehabilitation hospitals, shall be considered to be new rehabilitation hospitals and shall comply with all of the requirements for new rehabilitation hospitals.

2. The requirements of the *Life Safety Code* by the National Fire Protection Association shall be complied with insofar as they may apply and to the extent they are not superseded by requirements specifically stated in these rules.

3. Specific requirements.

A. The following elements of the building shall be constructed to qualify for fire-resistance ratings not less than the following: one (1)-hour exterior walls of one (1)-story buildings thirty feet (30') or more from any other building(s) or from a lot line; two (2)-hour exterior walls of one (1)-story buildings less than thirty feet (30') from another building(s) or from a lot line; two (2)-hour exterior walls of multi-story buildings; two (2)-hour noncombustible fire walls; two (2)-hour columns, interior bearing walls and other structural elements supporting floor construction; one (1)-hour columns, interior bearing walls and other structural elements supporting roof construction only and in buildings not more than one (1) story in height, exclusive of the basement; one (1)-hour for other construction, including non-bearing partitions, curtain walls, and the like.

B. The height and area of each building, or fire section between fire walls, shall be within the limitations established by the *BOCA Code* for buildings of the same occupancy and the next less restrictive type of construction.



C. Doors between rooms and the required corridors shall not have louvers or transoms. Doors shall be one and three-fourths inches (1 3/4") solid core wood or metal doors with equivalent or greater fire resistance.

D. If linen and refuse chutes are used, they shall be designed as follows: service openings to chutes shall have approved class B, one and one-half (1 1/2)-hour fire doors; service openings to chutes shall be located in a room or closet of not less than one (1)-hour fire-resistive construction and the entrance door to the room or closet shall be a class C, three-fourths (3/4)-hour fire door; minimum diameter of gravity-type chutes shall be two feet and no inches (2' 0"); chutes shall terminate in or discharge directly into a refuse room or linen chute room separated from the incinerator or laundry, the rooms shall be of not less than two (2)-hour fire-resistive construction and the entrance door shall be class B, one and one-half (1 1/2)-hour fire door; chutes shall extend at least four feet (4') above the roof and shall be covered by a metal skylight glazed with thin plain glass.

E. Dumbwaiters, conveyors and material handling systems shall not open into any corridor or exitway but shall open into a room enclosed by not less than one (1)-hour fire-resistive construction. The entrance door to the room shall be a class C, three-fourths (3/4)-hour fire door.

F. Any penetrations of fire walls other than doors, such as openings for ducts, shall be protected by approved automatic protective assemblies with a fire-resistance rating at least as high as that of the wall.

G. Each floor of a rehabilitation hospital shall have at least two (2) exits remote from each other and so located that the distance of travel to the exit shall not be more than one hundred feet (100') from the door to any room nor one hundred fifty feet (150') from any point in a room. If the entire building is completely protected by a standard automatic sprinkler system, these distances may be increased by fifty feet (50').

H. Every exit shall be so arranged that no corridor has a pocket or dead end exceeding thirty feet (30') in which occupants might be trapped. Distance shall be measured from the door of the room to the exit.

I. Interior exitways shall be isolated from the rest of the building by floors, ceilings and walls with a two (2)-hour fire-resistance rating as determined by the Underwriters' Laboratories and shall have one and one-half (1 1/2)-hour B-label interior fire doors.

J. Horizontal exits are permissible where located in compliance with subparagraphs (1)(G)3.G. and H. of this rule. A hor-

izontal exit shall be through a fire wall to a fire-safe area on the same story of the building and shall be subject to all requirements of other exits except that the door may swing in either direction. The fire-safe area on either side of the fire wall shall be sufficiently large to provide a floor area of at least thirty (30) square feet per person for all persons who would normally occupy the space on both sides of the fire wall. The fire wall shall have a fire-resistance rating of not less than two (2) hours and shall extend from floor-to-floor or roof, from exterior wall to exterior wall, shall have no doors except the required exit and shall have no other penetrations except ducts with automatic fire dampers.

K. Each story of a facility or each portion of a story between fire walls, which is in excess of five thousand (5000) square feet in floor area, shall be subdivided by smoke-barrier partitions located to provide floor areas between them of not more than five thousand (5000) square feet, and located to provide a total floor area on either side of each such partition of at least thirty (30) square feet each for all patients on the entire floor. Smoke-barrier partitions shall be provided where necessary to separate elevator lobbies and required aisles from adjoining required corridors as directed.

L. Smoke-barrier partitions shall have a fire-resistance rating of not less than one (1) hour. They shall be continuous from exterior wall to exterior wall and from the floor to the floor or roof deck above and shall be penetrated only to the extent allowed by subparagraphs (1)(G)3.P. and Q. of this rule.

M. Doors in smoke-barrier partitions required by subparagraph (1)(G)3.K. of this rule shall be located only in main corridors or in rooms open to the public. They shall be one and three-fourths inches (1 3/4") thick solid core wood doors or one and three-fourths inches (1 3/4") thick metal doors with three-fourths (3/4)-hour fire-resistance rating and if glazed shall be glazed with wired glass.

N. Any penetrations of smoke-barrier partitions other than doors, such as openings for ducts, shall be equipped with automatic fire dampers.

O. All doors to required exitways and to the outside at grade level and all vestibule doors shall swing outward in the direction of exit travel. They shall be self-closing and shall be normally closed.

P. All exit doors to required exitways shall be one and one-half (1 1/2)-hour B-label doors. All doors in horizontal exits shall be one and one-half (1 1/2)-hour B-label doors. All doors in smoke-barrier partitions, required corridor partitions and one (1)-hour

partitions around hazardous areas shall be one and three-fourths inches (1 3/4") solid core wood doors or metal doors with equivalent or greater fire resistance. Doors in two (2)-hour partitions at boiler rooms, furnace rooms, incinerator rooms and rooms for similar hazardous occupancy shall be one and one-half (1 1/2)-hour B-label doors.

Q. Doors in fire separations, horizontal exits and smoke-stop partitions may be held open only by electric hold-open devices. If these doors are in main corridors, they shall be a pair of doors not less than five feet four inches wide (5'4"). The doors shall close upon actuation of the fire alarm system and shall be capable of being opened and closed manually. In addition, these doors shall close by at least one (1) of the following methods: activation of the sprinkler system; and actuation of a smoke detector.

R. Any door to stairway enclosures or in walls surrounding hazardous areas shall not be equipped with hold-open devices.

S. The aggregate width of required exitways shall be such as to provide twenty-two inch (22") wide exit units at the rate of one (1) exit unit of stair width for each fifteen (15) persons served and one (1) exit unit of width for passageways within the exitways other than stairs for each thirty (30) persons served.

(H) Mechanical Requirements.

1. Prior to completion of the contract and final acceptance of the facility, the architect or engineer shall obtain from the contractor certification that all mechanical systems have been tested and performance of these systems conform to the requirements of the plans and specifications. Upon completion of the contract, the contractor shall furnish the owner with a complete set of specifications and as-built drawings and a bound volume containing operating instructions, manufacturers' catalog number(s) and description and parts list for each piece of equipment.

2. Incinerators, if provided, shall be gas-, electric- or oil-fired and shall be capable of, but need not be limited to, complete destruction of pathological wastes. Design and construction of incinerators and refuse chutes shall be in accordance with Part III of the *NFPA Standard No. 82*. Incinerators shall conform to current rules of the Air Conservation Commission.

3. Steam and hot water systems.

A. Boilers shall have the capacity, based upon the published *Steel Boiler Institute or Institute of Boiler and Radiator Manufacturers' Net Ratings*, to supply the normal requirements of all systems and equipment. The number and arrangement of boilers shall



be such that when one (1) boiler breaks down or when routine maintenance requires that one (1) boiler be temporarily taken out-of-service, the capacity of the remaining boiler(s) shall be no less than seventy percent (70%) of the total required capacity.

B. Boiler feed pumps, condensate return pumps, fuel oil pumps and circulating pumps shall be connected and installed to provide standby service when any pump breaks down.

C. Supply and return mains and risers of space heating and process steam systems shall be valved to isolate the various sections of each system. Each piece of equipment shall be valved at the supply and return end.

D. Boilers, smoke breeching, steam piping, high pressure steam return piping and hot water space heating supply and return piping shall be insulated with insulation having a flame spread rating of twenty-five (25) or less and a smoke-developed rating of fifty (50) or less.

4. Air-conditioning, heating and ventilating systems.

A. A minimum temperature of seventy-five degrees Fahrenheit (75°F) shall be provided for all occupied areas at winter design conditions.

B. All air-supply and air-exhaust systems shall be mechanically operated. All fans serving exhaust systems shall be located at or near the point of discharge from the building. The ventilation rates shown on Table I shall be considered as minimum acceptable rates and shall not be construed as precluding the use of higher ventilation rates if they are required to meet design conditions.

C. Outdoor ventilation air intakes, other than for individual room units, shall be located as far away as practicable but not less than twenty-five feet (25') from the exhaust from any ventilating system or combustion equipment. The bottom of outdoor intakes serving central air systems shall be located as high as possible but not less than eight feet (8') above the ground level or, if installed through the roof, three feet (3') above roof level.

D. The ventilation systems shall be designed and balanced to provide the general pressure relationship to adjacent areas shown in Table I.

E. Room supply air inlets, recirculation and exhaust air registers shall be located not less than three inches (3") above the floor. This does not apply to cabinet units.

F. Corridors shall not be used to supply air to or exhaust air from any room, except that exhaust air from corridors may be used to ventilate rooms such as bathrooms,

toilet rooms or janitors' closets which open directly on corridors.

G. Central systems designed for recirculation of air shall be equipped with a minimum of two (2) filter beds. Filter bed No. 1 shall be located upstream of the conditioning equipment and shall have a minimum efficiency of thirty percent (30%). Filter bed No. 2 shall be located downstream of the conditioning equipment and shall have a minimum efficiency of ninety percent (90%).

H. Central systems using one hundred percent (100%) outdoor air shall be provided with filters rated at eighty percent (80%) efficiency.

I. The stated filter efficiencies shall be warranted by the manufacturer and shall be based on the *National Bureau of Standards Dust Spot Test Method with Atmospheric Dust*.

J. Filter frames shall be durable and carefully dimensioned and shall provide an airtight fit with the enclosing ductwork. All joints between filter segments and the enclosing ductwork shall be gasketed or sealed to provide a positive seal against air leakage.

K. A manometer shall be installed across each filter bed serving central air systems.

L. Ducts shall be constructed of iron, steel, aluminum or other approved materials such as clay, fiberglass or asbestos cement.

M. Duct interiors or linings shall meet the Erosion Test Method described in *UL Pub. No. 181*. Duct linings, coverings, vapor barriers and the adhesives used for applying them shall have a flame-spread classification of not more than twenty-five (25) and a smoke-developed rating of not more than fifty (50).

N. Ducts which pass through fire walls shall be provided with approved automatic fire dampers on both sides of the wall except that three-eighths inch (3/8") steel plates may be used in lieu of fire dampers for openings not exceeding eighteen inches (18") in diameter. An approved fire damper shall be provided on each opening through each fire partition and on each opening through the walls of a vertical shaft. Ducts which pass through a required smoke barrier shall be provided with dampers which are actuated by products of combustion other than heat. Access for maintenance shall be provided at all dampers.

O. Cold air ducts shall be insulated wherever necessary to maintain the efficiency of the system or to minimize condensation problems.

P. The air from dining areas may be used to ventilate the food preparation areas

only after it has passed through a filter with eighty percent (80%) efficiency.

Q. Exhaust hoods in food preparation centers shall have a minimum exhaust rate of one hundred (100) cubic feet per minute per square foot of hood face area. All hoods over cooking ranges shall be equipped with automatic fire extinguishing systems and heat-actuated fan controls. Extinguishing systems shall be provided with steam, dry powder or carbon dioxide. Cleanout openings shall be provided every twenty feet (20') in horizontal exhaust duct systems serving hoods.

R. Boiler rooms shall be provided with sufficient outdoor air to maintain combustion rates of equipment and reasonable temperatures in the rooms and in adjoining areas.

5. Plumbing and other piping systems.

A. The requirements of the current edition of the *National Plumbing Code* shall be complied with insofar as they may apply and to the extent they are not superseded by requirements specifically stated in these rules.

B. The material used for plumbing fixtures shall be of nonabsorptive material.

C. Lavatories and sinks required in patient-care areas shall have the water supply spout mounted so that its discharge point is a minimum distance of five inches (5") above the rim of the fixture. All lavatories used by medical and nursing staff and food handlers shall be trimmed with valves which can be operated without the use of hands. Where blade handles are used for this purpose, they shall not exceed four and one-half inches (4 1/2") in length, except the handles on clinical sinks shall not be less than six inches (6") long.

D. Clinical sinks shall have an integral trap in which the upper portion of a visible trap seal provides a water surface.

E. Water supply systems shall be designed to supply water to the fixtures and equipment on the upper floors at a minimum pressure of fifteen (15) pounds per square inch during maximum demand periods.

F. Each water service main, branch main, riser and branch to a group of fixtures should be valved.



TABLE I
PRESSURE RELATIONSHIPS AND VENTILATION OF CERTAIN HOSPITAL AREAS

Area Designation	Relationship to Adjacent Areas	Pressure Air From Outdoors	All Supply Changes of Outdoor Air Per Hour	Minimum Air Changes Per Hour	Minimum Total Exhausted Directly to Outdoors	All Air Recirculated Within Room
Intensive care	+	—	2	6	—	No
Patient room	0	—	2	2	—	—
Patient area corridor	0	—	2	4	—	—
Isolation room	0	—	2	6	Yes	No
Isolation anteroom	0	—	2	6	Yes	No
Treatment room	0	—	2	6	—	No
X-ray, fluoroscopy room	-	—	2	6	Yes	No
Physical therapy & hydrotherapy	-	—	2	6	—	—
Soiled workroom	-	—	2	4	—	No
Clean workroom	+	—	2	4	—	—
Autopsy and darkroom	-	—	2	12	Yes	No
Toilet room	-	—	—	10	Yes	No
Bedpan room	-	—	—	10	Yes	No
Bathroom	-	—	—	10	Yes	No
Janitor's closet	-	—	—	10	Yes	No
Sterilizer equipment room	-	—	—	10	Yes	No
Linen and trash chute rooms	-	—	—	10	Yes	No
Laboratory, general	-	—	2	6	—	—
Food preparation centers	0	—	2	10	Yes	No
Dishwashing room	-	—	—	10	Yes	No
Dietary day storage	0	—	—	2	—	No
Laundry, general	0	—	2	10	Yes	No
Soiled linen sorting and storage	-	—	—	10	Yes	No
Clean linen storage	+	—	2	2	—	—
Central medical and surgical supply						
Soiled or decontamination room	-	—	2	4	—	No
Clean workroom	+	—	2	4	—	—
Unsterile supply storage	0	—	2	2	—	—

+ =Positive - =Negative 0 =Equal — =Optional

Stop valves shall be provided at each fixture.



G. Hot, cold and chilled water piping and waste piping on which condensation may occur shall be insulated. Insulation of cold and chilled water lines shall include an exterior vapor barrier.

H. Backflow preventers (vacuum breakers) shall be installed on hose bibbs and on all fixtures to which hoses or tubing can be attached such as janitors' sinks and bedpan flushing attachments.

I. Flush valves installed on plumbing fixtures shall be of a quiet operating type, equipped with silencers.

J. Hot water distribution systems shall be arranged to provide hot water and at each fixture at all times.

K. Plumbing fixtures which require hot water and which are intended for patient use shall be supplied with water which is controlled to provide a maximum water temperature of one hundred ten degrees Fahrenheit (110°F) at the fixture.

L. The hot water heating equipment shall have sufficient capacity to supply the water at the temperatures and amounts indicated in the following:

	Use		
	Clinical	Dietary	Laundry
gal/hr/bed	6 1/2	4	4 1/2
Temp °F	110°	180°	180°

M. Storage tank(s) shall be provided and shall be fabricated of corrosion-resistant metal.

N. Piping over food preparation centers, food serving facilities, food storage areas and other critical areas shall be kept to a minimum and shall not be exposed. Special precautions shall be taken to protect these areas from possible leakage of or condensation from necessary overhead piping systems.

O. Building sewers shall discharge into a community sewage system. Where such a system is not available, the facility shall provide a private sewage disposal system approved by the Department of Health, the Water Pollution Board, or both.

P. Automatic fire-extinguishing systems shall be installed in areas such as central soiled linen holding rooms, maintenance shops, trash rooms, bulk storage rooms and adjacent corridors, attics accessible for storage, range hoods and laundry and trash chutes. Storage rooms of less than a one hundred (100) square foot area and spaces used for storage of nonhazardous materials are excluded from this requirement. Sprinkler heads shall be installed at the top and at alternate floor levels of trash and laundry chutes.

Q. Nonflammable medical gas system installations shall be in accordance with the requirements of *NFPA Standard No. 565*.

(H) Electrical Requirements.

1. All material including equipment, conductors, controls and signaling devices shall be installed to provide a complete electrical system with the necessary characteristics and capacity to supply the electrical facilities shown in the specifications or indicated on the plans. All materials shall be listed as complying with applicable standards of Underwriters' Laboratories, Inc. or other similarly established standards.

2. The installing contractor shall be responsible for testing all electrical installations and systems and shall show that the equipment is correctly installed and operated as planned or specified.

3. Circuit breakers or fuses that provide disconnecting means and overcurrent protection for conductors connected to switchboards and distribution panelboards shall be enclosed or guarded to provide a dead-front type of assembly. The main power distribution panel shall be located so as to be accessible only to authorized persons. It shall be readily accessible for maintenance, clear of traffic lanes and in a dry ventilated space devoid of corrosive fumes or gases. Overload protective devices shall be suitable for operating properly in the ambient temperature conditions.

4. Lighting and appliance panelboards shall be provided for the circuits on each floor. This requirement does not apply to emergency-system circuits.

5. All spaces occupied by people, machinery and equipment within buildings and the approaches thereto and parking lots shall have electric lighting. Patients' bedrooms shall have general lighting and night lighting. A reading light shall be provided for each patient. At least one (1) luminaire for night lighting shall be switched at the entrance to each patient room. Patients' reading lights and other fixed lights not switched at the door shall have switch controls convenient for use at the luminaire. All switches for control of lighting in patient areas shall be of the quiet operating type.

6. Each patient bedroom shall have duplex receptacles as follows: one (1) on each side of the head of each bed (for parallel adjacent beds); receptacles for luminaires, television and motorized beds, if used; and one (1) receptacle on another wall.

7. Single receptacles for equipment such as floor cleaning machines shall be installed approximately fifty feet (50') apart in all corridors. Duplex receptacles for general use shall be installed approximately fifty feet

(50') apart in all corridors and within twenty-five feet (25') of ends of corridors.

8. A nurses' calling station shall be installed at each patient bed and in each patient toilet, bath and shower room. The nurses' call-in toilet, bath or shower rooms shall be an emergency call. All calls shall register at the nurses' station and shall actuate a visible signal in the corridor at the patient's door, in the clean workroom, soiled workroom and nourishment station of the nursing unit. In multi-corridor nursing units, additional visible signals shall be installed at corridor intersections. In rooms containing two (2) or more calling stations, indicating lights shall be provided at each calling station. Nurses' call systems which provide two (2)-way voice communication shall be equipped with an indicating light at each calling station which lights and remains lighted as long as the voice circuit is operative.

9. A manually-operated, electrically-powered fire alarm system which will serve to alert all areas of the hospital when activated shall be installed in each facility. In multi-story buildings or in multi-building facilities, the signal shall be coded or otherwise arranged to indicate the location of the station operated. Pre-signal systems will not be permitted, except when telephone switchboard is attended at all times.

10. To provide electricity during an interruption of the normal electric supply that could affect the nursing care, treatment or safety of the occupants, an emergency source of electricity shall be provided and connected to certain circuits for lighting and power.

11. The source of this emergency electric service shall be an emergency generating set when the normal service is supplied by one (1) or more central station transmission line(s) or an emergency generating set or a central station transmission line, when the normal electric supply is generated on the premises.

12. The required emergency generating set shall be located on the premises and shall be reserved exclusively for supplying the emergency electrical system. The emergency generator set shall be of sufficient kilowatt capacity to supply all lighting and power load demands of the emergency system. The power factor rating of the generator shall be not less than eighty percent (80%).

13. Emergency electric service shall be provided to at least the following circuits:

A. Lighting. Exitways and all necessary ways of approach including exit signs and exit direction signs, exterior of exits, exit doorways, stairways and corridors; dining and recreation rooms (if located other than on grade level); nursing station and medication



preparation area; generator set location, switch gear location and boiler room; elevator (if required for emergency); telephone switchboard; and kitchen, X ray and laboratory;

B. Equipment. Nurses' calling system; alarm system including fire alarm actuated at manual stations; water flow alarm devices of sprinkler systems if electrically operated; fire detecting and smoke detecting systems; paging or speaker systems if intended for issuing instructions during emergency conditions; and alarms required for non-flammable medical gas systems, if installed; fire pump, if installed; sewerage or sump lift pump, if installed; all required duplex receptacles in patient corridors; one (1) elevator, where elevators are used for vertical transportation of patients; equipment such as burners and pumps necessary for operations of one (1) or more boilers and their necessary auxiliaries and controls, required for heating and sterilization; and equipment necessary for maintaining telephone service;

C. Where electricity is the only source of power normally used for space heating, the emergency service shall provide for heating of patient rooms. Emergency heating of patient rooms will not be required in areas where the design temperature is higher than plus twenty degrees Fahrenheit (+20°F) based on the Median of Extremes as shown in the current edition of the *ASHRAE Handbook of Fundamentals* or when the hospital is supplied by at least two (2) utility service feeders, each supplied by separate generating sources, or a network distribution system fed by two (2) or more generators, with the hospital feeders so routed, connected and protected that a fault any place between the generators and the hospital will not likely cause an interruption of more than one (1) of the hospital service feeders; and

D. The emergency electrical system shall be so controlled that after interruption of the normal electric power supply, the generator is brought to full voltage and frequency and connected within ten (10) seconds through one (1) or more primary automatic transfer switches to all emergency lighting, all alarms, nurses' call, equipment necessary for maintaining telephone service and receptacles in patient corridors. All other lighting and equipment required to be connected to the emergency system shall either be connected through the previously described primary automatic transfer switching or shall be subsequently connected through other automatic or manual transfer switching. Receptacles connected to the emergency system shall be distinctively marked for identification. Storage-battery-powered lights, provided to

augment the emergency lighting or for continuity of lighting during the interim of transfer switching immediately following an interruption of the normal service supply, shall not be used as a substitute for the requirement of a generator. Where fuel is normally stored on the site, the storage capacity shall be sufficient for twenty-four (24)-hour operation of required emergency electric services. Where fuel is normally piped underground to the site from a utility distribution system, storage facilities on the site will not be required.

(1) Elevators.

1. All rehabilitation hospitals where either patients' beds or facilities such as diagnostic, recreation, patient dining or therapy rooms are located on other than the first floor, shall have electric or electrohydraulic elevators as follows:

A. At least one (1) hospital-type elevator shall be installed where one to fifty-nine (1-59) patient beds are located on any floor other than the first (for purposes of these requirements, the first floor is that floor first reached from the main front entrance);

B. At least two (2) hospital-type elevators shall be installed where sixty to two hundred (60-200) patient beds are located on floors other than the first or where inpatient facilities are located on a floor other than that containing the patient beds;

C. At least three (3) hospital-type elevators shall be installed where two hundred one to three hundred fifty (201-350) patient beds are located on floors other than the first or where inpatient facilities are located on a floor other than that containing the patient beds;

D. For hospitals with more than three hundred fifty (350) beds, the number of elevators shall be determined from a study of the hospital plan and the estimated vertical transportation requirements;

E. Elevator cars and platforms shall be constructed of noncombustible material except that fire-retardant-treated material may be used if all exterior surfaces of the car are covered with metal. Cars of hospital-type elevators shall have inside dimensions that will accommodate a patient's bed and attendants and shall be at least five feet wide by seven feet six inches (5' × 7' 6") deep, with a capacity of four thousand (4000) pounds. The car door shall have a clear opening of not less than three feet ten inches (3' 10");

F. Elevators shall have automatic leveling of the two (2)-way automatic maintaining type with accuracy within plus or minus one-half inch ($\pm 1/2"$); and

G. Elevators (except freight elevators) shall be equipped with a two (2)-way special service switch to permit cars to bypass all

landing button calls and be dispatched directly to any floor.

2. The contractor shall be required to cause inspections and tests to be made and shall deliver to the owner written certification that the installation meets the requirements set forth in this section and all pertinent safety requirements.

AUTHORITY: section 197.080, RSMo Supp. 1993. This rule previously filed as 13 CSR 50-22.010 and 19 CSR 10-22.010. Original rule filed Nov. 21, 1969, effective Jan. 21, 1970.*

**Original authority 1953, amended 1993.*

19 CSR 30-22.020 Administration Standards for Rehabilitation Hospitals
(Rescinded August 30, 2014)

AUTHORITY: section 197.080, RSMo 1986. This rule previously filed as 13 CSR 50-22.020 and also 19 CSR 10-22.020. Original rule filed Nov. 21, 1969, effective Jan. 21, 1970. Amended: Filed June 14, 1988, effective Oct. 13, 1988. Rescinded: Filed Dec. 31, 2013, effective Aug. 30, 2014.

Op. Atty. Gen. No. 40, Graham (4-23-75). The State Board of Health is authorized by law to adopt and enforce regulations requiring hospitals licensed by the state to submit reports containing certain data relating to hospital discharges.

19 CSR 30-22.030 Standards for Registration as a Hospital Infectious Waste Generator
(Rescinded August 30, 2014)

AUTHORITY: sections 197.080 and 260.203, RSMo Supp. 1993. Original rule filed Aug. 15, 1988, effective Dec. 29, 1988. Rescinded: Filed Dec. 31, 2013, effective Aug. 30, 2014.