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Colorado Department  
of Public Health  
and Environment

**DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT**

**Health Facilities and Emergency Medical Services Division**

**6 CCR 1011-1, Chapter III**

**STATE BOARD OF HEALTH  
GENERAL BUILDING AND FIRE SAFETY  
(Last Amended April 17, 1996, effective June 30, 1996)**

## CHAPTER III - GENERAL BUILDING AND FIRE SAFETY

1. CONSTRUCTION STANDARDS. All buildings housing health facilities licensed by the Colorado Department of Public Health And Environment shall conform to the standards listed herein.
2. SITE. All-weather roads and walks shall be provided within the lot lines to the main, service, and ambulance entrances.  
The site of any health facility should be reasonably accessible to the population served. Public transportation should be available, especially if an outpatient service is to be maintained.  
The site should not be near insect breeding areas, industrial developments, airports, railways, or highways producing noise, nuisance or air pollution, or other objectional facilities or businesses.
3. PARKING. Parking space shall be conveniently available for staff, visitors, and service vehicles.  
A ratio of two parking spaces per patient bed is recommended.
4. CODES AND REGULATIONS. The following codes and regulations (on file at the Colorado Department of Public Health and Environment, Health Facilities Division ) must be observed insofar as they are not in conflict with the other sections of these standards: 1) National Fire Protection Association. Building Exit Code 1963, excluding paragraphs 2350 to 2376. 2) International Conference of Building Officials, Uniform Building Code, Vol. 1, 1964. 3.) USPHS, Public Health Service Regulations, Part 53, Pertaining to the Construction and Modernization of Hospitals and Medical Facilities, "Sub-part N" (Appendix A), Dec. 29, 1964; 4) National Fire Protective Association:  
Bulletin No. 10 - Portable Extinguishers, 1962
  - 14 - Standpipe-Hose Systems, 1952
  - 30 - Flammable Liquids Code, 1963
  - 31 - Oil Burning Equipment, 1964
  - 37 - Combustion Engines, 1963
  - 55 - Gas Shut-off, 1924
  - 56 - Flammable Anesthetics, 1962
  - 565 - Nonflammable Medical Gases, 1962
  - 58 - L. P. Gas Storage, Use, 1963
  - 70 - National Electrical Code, 1962
  - 71 - Central Station Signal, 1962
  - 72 - Proprietary Signal System, 1962
  - 72C - Remote Station Systems, 1962
  - 76 - Hospital Electrical Service, 1962
  - 82 - Incinerators, 1960
  - 82A - Rubbish, 1948
  - 90A - Air Conditioning System, 1962
  - 96 - Ventilation Restaurant Cooking Equipment, 1964
  - 241 - Building Construction Operation, 1958
  - 255 - Flamespread Tests, 1961
5. Colorado Department of Health: Technical Plumbing Code, amended 1961, Restaurant Sanitation Code, amended 1959. 6) Colorado State Industrial Commission Boiler Code, amended 1961, 7) National Bureau of Standards: Handbook 73, Protection Against Radiations from Sealed Gamma Sources, 1960; Handbook 76, Medical X-ray Protection Up to Three Million Volts, 1961. 8) All other applicable local codes and regulations.
5. NEW CONSTRUCTION, ADDITIONS, CONVERSIONS.
  - 5.1 Buildings erected after the adoption date of these standards, and additions thereto, shall comply with all requirements for new buildings.

- 5.2 Each addition to a new or an existing building converted to health facility use, shall be such that the entire resulting building conforms to all requirements of these standards.
- 5.3 No building shall be converted to a health facility unless it complies with all requirements for new buildings and meets specified standards for patient services to be rendered.
6. OCCUPANCY. Occupancies not essential to the functions of a health facility are prohibited therein, with the exception of residence facilities for personnel required to live in the building.
7. LOCATION ON PROPERTY. Fire protection requirements for exterior walls and wall openings, based on the location on the property, shall be as specified in section 504 of the Uniform Building Code.
8. AREAS OF BUILDINGS. Floor areas of buildings for fire separation shall be specified in Sections 505 and 506 of the Uniform Building Code.
9. FOUNDATIONS. Foundations shall rest on natural solid ground and shall be carried to a depth of not less than one foot below the estimated frost line or shall rest on leveled rock or load-bearing piles, when solid ground is not encountered.\* Footings, piers, and foundation walls shall be adequately protected against deterioration from the action of ground water. Proper bearing values for the soil shall be established in accordance with recognized standards.
10. DESIGN.
- 10.1 General. The buildings and all parts thereof shall be of sufficient strength to support all dead, live, and lateral loads without exceeding the working stresses permitted for the materials of their construction in the applicable code.
- 10.2 Special. Special provision shall be made for machine or apparatus loads which would cause a greater stress than that produced by the specified minimum live load, with due consideration of vibration or impact resulting from operation of such equipment (e.g., some portable x-ray machines weigh as much as 1,000 pounds). Consideration shall be given to structural members and connections of structures which may be subject to hurricanes, tornadoes, and earthquakes. Suitable allowance shall be made for future partition changes.
- 10.3 Live Loads. The following unit live loads shall be taken as the minimum uniformly distributed live loads for the occupancies listed: 1) Patient bedrooms and all adjoining service rooms which comprise a typical patient care unit (except solaria and corridors) - 40 p.s.f.; 2) Solaria, corridors above the first floor, operating suites, examination and treatment rooms, laboratories, toilets, and locker rooms - 60 p.s.f.; 3) Corridors on first floor, waiting rooms and similar public areas, offices, conference room, library, kitchen and radiographic room - 80 p.s.f.; 4) Stairways, laundry, large rooms used for dining, recreation or assembly purposes, work shops - 100 p.s.f.; 5) Records, file room, storage, supply - 125 p.s.f.; 6) Mechanical equipment room (unless actual equipment loads are accurately determined) 150 p.s.f.; 7) Roofs (except use increased value where snow and ice may occur) - 20 p.s.f.; 8) Wind - as required by local conditions, but not less than 15 p.s.f.

\*Not required for existing facilities

11. FIRE RESISTIVE CONSTRUCTION.
- 11.1 Where one-hour fire resistive construction throughout is required by these standards, an approved automatic fire-extinguishing system may not be substituted.
- 11.2 One-story buildings shall be constructed of not less than one-hour fire resistive construction throughout, except that if used to house or treat mentally retarded or mentally ill patients, one-story buildings shall in addition be constructed of noncombustible materials.
- 11.3 Buildings more than one-story in height shall be constructed of noncombustible materials, using a structural framework of reinforced concrete or structural steel except that load-bearing masonry walls and piers may be used in buildings up to and including three stories. Basements shall be counted a story if the finished floor level directly above a basement or cellar is more than six feet above grade. Grade (ground level) is the average of the finished ground level at the center of all walls of a building. If walls are parallel to and within five (5) feet of a sidewalk, alley or other public way, the above ground levels shall be measured at the elevation of the sidewalk, alley or public way.
- 11.4 Interior non-load bearing partitions, other than those enclosing corridors and vertical shafts, may be of noncombustible construction without a fire-resistive rating.

- 11.5 All walls enclosing stairways, elevators, laundry and trash chutes, and other vertical shafts, in buildings of more than one-story, and all boiler rooms and rooms used for the storage of combustible materials shall be of two-hour fire resistive noncombustible construction.
- 12 EXITS.
- 12.1 All exit facilities shall be on accordance with the Building Exits Code. (Except paragraphs 2350 50 2376 inclusive, Existing Hospitals and Nursing Homes).
- 12.2 In new construction, only the following types of exits will be permitted: 1) Doors; 2) Stairs and smokeproof towers; 3) Ramps; 4) Horizontal exits. In existing buildings, fire escape stairs, Class A or B, in addition to the above types of exits, will be permitted.
- 12.3 At least two exits of the above type, remote from each other, shall be provided for each floor or fire section shall be of type 1 or 2 as listed above. In new buildings, stairs must be class A. See Building Exits Code, par. 3311). Class A stairways must be forty-four (44) inches wide. The width shall be measured between handrails when handrails project more than 3-1/2 inches.
- 12.4 Basements used only for service to the building, and every boiler room and every room containing and incinerator or L.P. gas or liquid fuel-fired equipment, shall have at least two means of egress, one of which may be a ladder.
- 12.5 Basement exits for patients shall discharge directly outdoors without the necessity for use of interior stairs connecting with the story above.
- 12.6 Elevators, if for patient use, must have a platform size of 5'4"x8'. Door openings must be 3' 10" wide.
- 12.7 Every patient room shall have a doorway opening directly to a patient corridor.
- 12.8 Corridors and passageways to be used as a means of exit, or part of a means of exit, shall be unobstructed and shall not lead through any room or space used for a purpose that may obstruct free passage.
- 12.9 Exits shall be so placed that the entrance door of every patient room, day rooms, dormitories, dining rooms and other areas shall be not more than one hundred (100) feet (along line of travel) from the nearest exit. In buildings completely protected by a standard automatic sprinkler system, the distance may be one hundred and fifty (150) feet.
- 12.10 Corridor widths.
- 12.10.1 Corridors located in areas housing bed patients, and providing egress therefrom, shall be eight(8) feet in clear width. This width may be narrowed to 7'6" by corridor railings or other projections. A greater width should be provided at elevator entrances.
- 12.10.2 Horizontal exits and smoke stop doors at least forty-four (44) inches in width are permitted in corridors.
- 12.10.3 New buildings shall be so designed that all patient beds can be rolled into exits.
- 12.10.4 In existing buildings, corridors in areas housing bedridden patients, and providing egress therefrom, shall be at least five (5) feet wide.
- 12.11 Dead Ends. Exits shall be so arranged that there are no pockets or dead ends exceeding thirty (30) feet in which occupants may be trapped.
- 12.12 No door shall swing into a corridor except closet doors.
- 12.13 Door widths shall be 3'8" clear widths (4'0" preferable) at all: 1) Bedrooms; 2) Treatment rooms; 3) Operating rooms; 4) X-ray therapy rooms; 5) Delivery rooms; 6) Solariums; 7) X-ray rooms; 8) Physical therapy rooms; 9) Labor rooms. In existing buildings exit doorways and doorways to the above areas shall be at least thirty-two (32) inches in clear width. Exit doors so located as not to be subject to use by patients may not be less than twenty-eight (28) inches wide.
- 12.14 Horizontal Exits. Horizontal exits shall be in accordance with Section 30 or the Building Exits Code and shall be at least forty-four (44) inches in clear width. Doors need not swing with exit travel. In existing buildings, wall of one-hour fire-resistive construction may be used in connection with horizontal exits.
13. PROTECTION

- 13.1 Each floor used for sleeping rooms for more than thirty (30) patients, unless provided with a horizontal exit, shall be divided into at least two fire sections by a smoke stop partition having at least a one-hour fire-resistance rating. (A one-half hour fire resistance rating is permitted for existing buildings.) Such a partition shall be continuous through any concealed space such as between the ceiling and the floor or roof above.
- 13.2 Openings in smoke stop partitions shall have three-quarter hour fire doors (metal, metal covered, or approved treated wood construction). Smoke stop doors shall be so installed that they may be left in open position but will close automatically in case of fire by arrangements which are in accordance with Section 3209 of the Building Exits Code or by heat sensitive releases, and may be released manually to self-closing action. Such doors need not swing with exit travel.
- 13.3 Any openings in smoke stop partitions or doors shall be protected by fixed wire glass panels, or by rated louvers.
- 13.4 In unsprinkled buildings, no more than one hundred and fifty (150) feet of corridor without horizontal exit or smoke stop doors shall be permitted.
- 13.5 Glass on corridors, except directly to the outside, must be one-fourth inch wire glass set in approved metal stops.
- 13.6 Doors opening on corridors must be wood solid core, or better.
- 13.7 Protection of Vertical Openings. All stairways, elevator shafts, chutes and other openings between different stories or floor levels shall be enclosed or protected to prevent the spread of fire or smoke (See Section 11.5).
- 13.8 Doors in stairway enclosures shall be one and one-half hour B label, fire rated doors, and shall be self-closing and shall be kept in closed position except as otherwise permitted by Section 3209 of the Building Exits Code.
- 13.9 No laundry, trash, or other chute, or incinerator flue shall open directly on any exit, or corridor to an exit. A separate room or closet separated from the exit or corridor by an approved self-closing fire door shall be used.\* Laundry chutes, where used, must be 2'0" minimum diameter.\*
- \*Not required in existing facilities.
- 13.10 All incinerator flues, rubbish chutes, and linen or laundry chutes shall be of standard type properly designed and maintained for fire safety according to N.F.P.A. Standard No. 82, Incinerators, 1960. (This standard applies to rubbish, linen and laundry chutes).
- 13.11 In new construction, all chutes other than incinerator chutes shall be provided with automatic sprinkler protection.
14. X-RAY PROTECTION.
- 14.1 X-ray rooms, surgeries, cystoscopic rooms and other areas containing x-ray producing equipment, other than mobile equipment, shall have ray protection as recommended by Handbooks No. 73 and 76 of the National Bureau of Standards.
- 14.2 All Radioisotopes. Rooms or areas where radioisotopes are used or stored, shall have the ray protection necessary to limit the radiation in occupied areas to those levels required by the Atomic Energy Commission. The methods for determining radiation barriers shall be those established in the applicable handbook of the National Bureau of Standards.
- 14.3 X-ray Equipment. X-ray equipment and installation shall comply with recommendations contained in the National Electrical Code and Handbooks, Nos. 73 and 76 of the National Bureau of Standards.
15. WINDOWS.
- 15.1 For patient rooms customarily used by patients or personnel shall have windows or be supplied by mechanical ventilation as required by Section 19.4, Chapter IV or these standards.
- 15.2 For patient room windows see Section 19.4, Chapter IV of these standards.
- 15.3 For purposes of evacuation, the window sills of one-story buildings constructed of other than noncombustible materials shall be not more than six feet above ground level.
16. INTERIOR FINISHES.

- 16.1 Floors. The floors of the following areas shall have smooth, waterproof surfaces which are wear resistant: 1) Toilets; 2) Baths; 3) Bedpan rooms; 4) Floor pantries; 5) Utility rooms; 6) Treatment rooms; 7) Sterilizing rooms; 8) Janitor's closets; 9) Elevators; 10) Chute anterooms; 11) Central supply rooms; 12) Clean or soiled linen storage rooms; 13) Storage in patient areas; 14) Lobbies; 15) Waiting rooms; 16) Corridors; 17) Nurses' station; 18) Patient rooms; 19) Medicine preparation room; 20) X-ray suite; 21) Operating suite; 22) Delivery suite; 23) Emergency suite; 24) Nursery suite; 25) Dining rooms; 26) meeting rooms.
- 16.2 Carpeting may be used in administrative areas and other areas as approved by the state Health Department.
- 16.3 The floors of the following areas shall be waterproof, greaseproof, smooth and resistant to heavy wear: 1) Kitchens; 2) Butcher rooms; 3) Food preparation; 4) Formula rooms; 5) Dishwashing rooms.
- 16.4 Floors in anesthetizing areas and in rooms used for storage of flammable anesthetic agents in surgical areas shall be conductive as required by the N.F.P.A. no. 56, Code for Use of Flammable Anesthetics, 1962.
- 16.5 The walls of the following areas shall have a smooth or smooth textured surface with painted or equal washable finish. At the base they shall be waterproof and free from spaces which may harbor insects or dirt: 1) Patient rooms; 2) Corridors; 3) Nurses' station; 4) X-ray room; 5) Clean storage areas.
- 16.6 The walls of the following areas shall have waterproof painted, glazed or similar finishes. At the base they shall be free from spaces which may harbor insects or dirt: 1) Kitchens; 2) Pantries; 3) Utility rooms; 4) Toilets; 5) Baths; 6) Showers; 7) Dishwashing rooms; 8) Janitor's closets; 9) Sterilizing rooms; 10) Spaces with sinks; 11) Treatment rooms; 12) Delivery suite; 13) Operating suite; 14) Nursery suite; 15) Emergency suite; 16) Dark rooms; 17) Chute anterooms; 18) Central supply rooms; 19) Medicine preparation rooms; 20) Soiled linen holding rooms; 21) Laboratories; 22) Autopsy rooms.
- 16.7 Ceilings. The ceilings of the following areas shall be painted with waterproof paint. The first three shall have a surface that is unbroken except for lighting, ventilation, or other necessary services: 1) Operating rooms; 2) Delivery rooms; 3) Emergency rooms; 4) All rooms where food and drink is prepared; 5) Dishwash room; 6) Toilets; 7) Baths; 8) Showers; 9) Janitor closets; 10) Patient rooms; 11) Central anterooms; 12) Clinical examination and treatment rooms; 13) Nursery suite; 14) Medicine preparation area; 15) Darkrooms; 16) Radiological suite; 17) Chute anterooms; 18) Clean holding areas; 19) Soiled holding areas; 20) Laboratories; 21) Autopsy rooms; 22) Clean storage areas; 23) Surgical suite; 24) Delivery suite; 25) Emergency suite; 26) Laundry rooms.
- 16.8 The ceilings of the following areas shall be acoustically treated: 1) Corridors in patient areas; 2) Nurses stations; 3) Labor rooms; 4) Floor pantries.
17. FLAME SPREAD.
- 17.1 Interior finish of all exit ways, storage rooms and all areas of unusual fire hazard shall have a flame spread rating of less than 20.
- 17.2 Interior finish of patient rooms, patient day rooms and other areas occupied by patients shall have a flame spread rating of less than 75.
- 17.3 Interior finish of other areas shall have a flame spread rating of less than 75 except that ten percent of the aggregate wall and ceiling areas of any space may have a flame spread rating up to 200.
- 17.4 Interior finish materials shall be classified in accordance with their average flame spread rating on the basis of tests conducted in accordance with ASTM Standard No. E84.
18. CEILING HEIGHTS AND CEILING INSULATION.
- 18.1 Ceiling heights and ceiling insulation for all health facilities shall be as specified in the Public Health Service Regulations, Sub-part N. Par. 53.160 with the following exceptions:
- Ceiling heights specified above for boiler rooms, laundry rooms, and kitchens, are required only in new hospitals.
  - Boiler room ceilings must be at least 5 feet higher than the top of any boiler unit.
  - Kitchen ceiling heights may be no less than 9'0".
19. UTILITIES.

- 19.1 Requirements for the following categories shall be as specified in the Public Health Service Regulations, Subpart N, Par. 53.163 or elsewhere in these standards: 1) Heating; 2) Ventilation; 3) Plumbing; 4) Plumbing fixtures and fittings; 5) Water supply; 6) Drainage; 7) Gas piping and appliances; 8) Oxygen systems; 9) Sterilizers; 10) Electrical installations; 11) Elevators and Dumbwaiters; 12) Refrigerators; 13) Kitchen equipment; 14) Laundry.
- 19.2 Ventilation. Exhaust air shall be discharged from the building remote from fresh air intakes.
- 19.3 Water Supply. The water supply system shall be from a municipal water supply system or other system approved by the State Health Department as meeting the Standards for the Quality of Water Supplied to the Public, published by the Colorado Department of Health.
- 19.4 Chemical properties of the water should be such as to prevent caking of deposits in and corrosion of the plumbing system and undesirable depositing of salts from water evaporation.
- 19.5 Electrical Service. The provisions of N.F.P.A. standard No. 76, Essential Hospital Electrical Service, shall be complied with as follows:
- a. The Emergency Electrical System shall be Type I as defined in the Building exits Code No. 101, Sec. 52.
  - b. The Critical Electrical System I (Automatic Restoration) shall include the recommended areas and functions.
  - c. Critical Electrical System II (Delayed Automatic Restoration) shall include the recommended areas and functions and partial use of elevators and vertical conveyors.
20. FIRE PREVENTION AND DRILLS.  
There shall be a written program of Fire Prevention, Fire Exit Drill, and Evacuation for all Health Facilities. The program shall define policies, procedures, and the responsibilities and duties of personnel. All personnel shall be instructed and trained concerning their duties under the program. Fire Exit Drills shall be conducted at regular intervals.
21. SUBMISSION AND APPROVAL OF BUILDING PLANS AND SPECIFICATIONS.  
Plans and drawings for all buildings to be built, added to, or altered, to house facilities licensed by the Department of Public Health And Environment shall be submitted to the department for approval in the following sequence prior to the start of construction:
- 21.1 A written program describing the objectives of the sponsoring organization, and the type and size of service or services to be provided in the proposed facility.
  - 21.2 Preliminary drawings showing the proposed general location, boundaries, approaches to and physical features of the site, other buildings on the site, means or water supply, sewage disposal, and other utilities to the site. The preliminary drawings shall also show the proposed layout of each floor of the facility with each room labeled as to its use, and a general cross section of the structure indicating type of construction.
  - 21.3 Outline specifications indicating important electrical, mechanical, and other features not shown on drawings.
  - 21.4 Final working drawings and specifications. These must be approved before construction is begun, and should not be commenced before detail plans.

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