

KFI
4581
.A453
1971

MAR 8 1983

STATE OF IOWA

1971

**Fire Safety Regulations
For
Schools & Colleges**

ROBERT D. RAY

GOVERNOR

DIVISION OF FIRE PROTECTION

Department of public safety

ROBERT D. RAY
GOVERNOR

MICHAEL M. SELLERS
COMMISSIONER

STATE OF IOWA

1971

FIRE SAFETY REGULATIONS FOR SCHOOLS & COLLEGES

WILBUR R. JOHNSON
State Fire Marshal

Department of Public Safety

LUCAS STATE OFFICE BUILDING

DES MOINES, IOWA 50319

CP-A49264 12/71

STATE LIBRARY OF IOWA



3 1723 02028 3214

TABLE OF CONTENTS

Page

CHAPTER 29--GENERAL REQUIREMENTS AND DEFINITIONS

Definitions..... 2
General Requirements..... 1

SCHOOL BUILDINGS

Automatic Sprinklers..... 14
Basements..... 12
Construction..... 9
Corridors..... 5
Decorative Material..... 13
Doors..... 6
Electrical Wiring..... 10
Exits..... 4
Fire Alarm Systems..... 10
Fire Extinguishers..... 11
Fire Hazard Safeguards in New and Existing Buildings..... 13
Gas Piping..... 11
Heating Equipment..... 11
Interior Finishes..... 8
Open Plan Buildings..... 15
Stairway Enclosures and Floor Cutoffs..... 7
Windows..... 7

CHAPTER 30--NEW COLLEGE BUILDINGS

Automatic Sprinklers..... 25
Basements..... 23
Construction..... 20
Corridors..... 18
Decorative Material..... 24
Doors..... 18
Electrical Wiring..... 22
Exits..... 17
Fire Alarm Systems..... 21
Fire Extinguishers..... 23
Fire Hazard Safeguards in New Buildings..... 24
Gas Piping..... 22
Heating Equipment..... 22
Interior Finishes..... 19
Open Plan Buildings..... 25
Stairway Enclosures and Floor Cutoffs..... 19

TABLE OF CONTENTS--CONTINUED

Page

CHAPTER 31--EXISTING COLLEGE BUILDINGS

Automatic Sprinklers.....	34
Basements.....	32
Construction.....	31
Corridors.....	28
Decorative Material.....	33
Doors.....	29
Electrical Wiring.....	31
Exits.....	26
Fire Alarm Systems.....	31
Fire Extinguishers.....	32
Fire Hazard Safeguards in Existing Buildings.....	33
Gas Piping.....	32
Heating Equipment.....	31
Interior Finishes.....	30
Open Plan Buildings.....	35
Stairway Enclosures and Floor Cutoffs.....	30
Windows.....	30

CHAPTER 29

FIRE SAFETY RULES FOR SCHOOL AND COLLEGE BUILDINGS

29.1(100)T.III General requirements.

29.1(1) Every building or structure, new or old, designed for school or college occupancy, shall be provided with exits sufficient to permit the prompt escape of students and teachers in case of fire or other emergency. The design of exits and other safeguards shall be such that reliance for safety to life in case of fire or other emergencies will not depend solely on any single safeguard; additional safeguards shall be provided for life safety in case any single safeguard is ineffective due to some human or mechanical failure.

29.1(2) Every building or structure shall be so constructed, arranged, equipped, maintained and operated as to avoid undue danger to lives and safety of its occupants from fire, smoke, fumes or resulting panic during the period of time reasonably necessary for escape from the building or structure in case of fire or other emergency.

29.1(3) Exits shall be provided of kinds, numbers, location and capacity appropriate to the individual building or structure, with due regard to the character of the occupancy, the number of persons exposed, the fire protection available, and the height and type of construction of the building or structure, to afford all occupants convenient facilities for escape.

29.1(4) Fire escapes, where specified shall be installed and the design and use of materials shall be in accordance with chapter 103 of the Code, and the fire escape regulations set forth in these rules.

29.1(5) All changes or alterations to be made in any school or college building, whether new or existing, shall conform with the applicable provisions of these rules and before any construction of new or additional installation is undertaken, drawings and specifications thereof made to scale shall be submitted to the state fire marshal, in duplicate, for his approval. Within a reasonable time (ten days) after receipt of the drawings and specifications, the state fire marshal shall cause the same to be examined and if he finds that they conform as submitted or modified with the requirements of this division, he shall forthwith signify his approval of the application either by endorsement thereon or by attachment thereto, retain one copy for his files and return to the applicant

the other copy plus any additional copies submitted by the applicant. If the drawings and specifications do not conform with applicable requirements of this division as aforesaid, he shall within the time aforesaid notify the applicant accordingly.

29.1(6) Each school building of two or more classrooms, not having a principal or superintendent on duty, shall have a teacher appointed by the school officials to supervise school fire drills and be in charge in event of fire or other emergency. This subrule shall not apply to college buildings.

29.1(7) Compliance with these rules shall not be construed as eliminating or reducing the necessity for other provisions for fire safety of persons using a school or college building under normal occupancy conditions nor shall any provision of these rules be construed as requiring or permitting any conditions that may be hazardous under normal occupancy conditions.

29.1(8) In existing multistoried buildings where there is substantial compliance with these rules, the state fire marshal may waive specific requirements of these rules. Such waivers shall be granted only after taking into consideration: The age of the regular occupants of the building, the use to which the building is put, the potential hazard to occupants occasioned by noncompliance, the design of the building and difficulty of installing the fire safety device, the excessive cost of full compliance and availability of funds therefore.

29.2(100)T.III Definitions.

29.2(1) School and college buildings. For the purpose of these rules, school and college buildings are those used as a gathering of groups of persons for the purpose of instruction and they are distinguished from other types of occupancies in that the same occupants are regularly present and are subject to discipline and control.

29.2(2) Elementary school. An elementary school shall be those buildings that include kindergarten through sixth grade (k-6).

29.2(3) Classroom. Any room originally designed, or later suitably adapted to accommodate some form of group instruction on a day by day basis, excluding such areas as auditoriums, gymnasiums, lunch rooms, libraries, multipurpose rooms, study halls and similar areas. Storage and other service areas opening into and serving as an adjunct to a particular classroom shall be considered as part of that classroom area.

29.2(4) Exit. An exit is a way to get from the interior of a building or structure to the open air outside at the ground level.

It may comprise vertical and horizontal means of travel such as doorways, stairways, ramps, corridors, passageways and fire escapes. An exit begins at any doorway or other point from which occupants may proceed to the exterior of the building or structure with reasonable safety under emergency conditions.

29.2(5) Story. If the finished floor level directly above a basement or cellar is more than six feet above grade, such basement or cellar shall be considered a story.

29.2(6) Basement. A basement is a story partly underground but having at least one-half of its height measuring from floor to ceiling above the grade level of the adjoining ground.

29.2(7) New construction. Those buildings designed and constructed after the effective date of these rules.

29.2(8) Approved. Approved is defined as being acceptable to the state fire marshal. Any equipment or device which bears the seal of the Underwriters' Laboratories, Inc., Factory Mutual Laboratory, American Standards Association, or the American Gas Association shall be accepted as approved. In the case of standards for safety, the criteria shall be the National Fire codes as published by the National Fire Protection Association.

29.2(9) Fire alarm system. A fire alarm system shall be an electrically energized system approved by the state fire marshal, using component parts approved by the Underwriters' Laboratories, Inc., and providing facilities of a type to warn the occupants of an existence of fire so that they may escape or to facilitate the orderly conduct of fire exit drills.

29.2(10) Interior finish material. Interior finish material shall be classified in accordance with the method of tests of surface burning characteristics of building material National Fire Protection Association Standard No. 255, Test Methods, Surface Burning-Building Materials, 1969. Classification of interior finish material shall be in accordance with tests made under conditions simulating actual installations, provided that the state fire marshal may by rule establish the classification of any material on which a rating by standard test is not available. Interior finish material shall be grouped in the following classes in accordance with their flame spread and related characteristics:

Class A. Interior finish flame spread 0-25.

Class B. Interior finish flame spread 25-75.

Class C. Interior finish flame spread 75-200.

29.2(11) Portable classroom building. A building designed and constructed so that it can be disassembled and transported to

another location, or transported to another location without disassembling.

29.3(100)T.III Exits.

29.3(1) The population of all school buildings, for the purpose of determining the required exits and the required space for classroom use shall be determined on the following basis:

a. The square feet of floor space for persons in school buildings shall be one person for each forty square feet of gross area.

b. In the case of individual classrooms in schools, there shall be twenty square feet of classroom space for each student.

c. In gymnasiums and auditoriums, the capacity for seating shall be on the basis of six square feet net per person.

29.3(2) Exits shall be provided of kinds, numbers, location and capacity appropriate to the individual building.

29.3(3) Exits shall be so arranged and maintained as to provide free and unobstructed egress from all parts of every building or structure at all times when the building or structure is occupied. No locks or fasteners to prevent free escape from the inside of any building shall be installed.

29.3(4) Exits shall be clearly visible or routes to reach them shall be conspicuously indicated in such manner that every occupant of every educational building who is physically and mentally capable will readily know the direction of the escape from any point and each path of escape in its entirety shall be so arranged or marked that the way to a place of safety outside is unmistakable.

29.3(5) In all school buildings where artificial illumination is needed, electric exit signs or directional indicators shall be installed and adequate lighting provided for all corridors and passageways.

29.3(6) Where additional outside stairs or fire escapes are required by law, they shall be class B, double width (forty-four inches), and shall extend to the ground. Platforms for outside stairs or fire escapes shall have a minimum dimension of forty-four inches. Outside stairs and fire escapes shall be constructed in accordance with the state law and regulations. Fire escapes shall not be permitted on new construction.

29.3(7) There shall be a minimum of two means of exit remote from each other from each floor of every school building. The traveled distance from any point to an exit shall not exceed 150

feet measured along the line of travel. In sprinklered buildings, the distance may be increased to 200 feet.

29.3(8) Every room with a capacity of fifty persons or over and having more than 1000 square feet of floor area shall have at least two doorways as remote from each other as practicable. Such doorways shall provide access to separate exits but may open onto a common corridor leading to separate exits in opposite directions.

29.3(9) Each elementary classroom shall have a secondary avenue of escape. This may be a door leading directly outside the building, a window (see 29.6(100)T.III), another door to an alternate corridor or a connecting door to a second room and thence to a secondary route of escape. In one-room classroom buildings the second exit shall be a door remote from the door used for normal entrance.

29.4(100)T.III Corridors.

29.4(1) Corridors used as a means of access to exits, and corridors used for discharge from exits, shall provide a clearance of at least six feet in width, except in the case of buildings constructed prior to the effective date of this rule. Room doors or locker doors swinging into corridors shall not, at any point in the swing, reduce the clear effective width of the corridor to less than six feet, nor shall drinking fountains or other equipment, fixed or movable, be so placed as to obstruct the required minimum six-foot width.

29.4(2) Open clothing storage in existing buildings.

a. In existing buildings, where clothes are hung exposed in exit corridors, they shall be separated by partitions of sheet metal or equivalent material. Partitions shall be placed at six-foot intervals, be a minimum of eighteen inches in depth, extend at least one foot above the coat hooks and within eight inches of the floor.

b. Where open clothing is hung in exit corridors as described above, an automatic fire detection system shall be installed in the corridor. Sprinkler systems may be installed in lieu of the automatic detection system.

29.4(3) In new construction, open clothing storage shall not be permitted in exit corridors.

29.4(4) Except as permitted in 29.4(2), no combustible materials shall be stored in exit corridors.

29.4(5) The walls of corridors, used for exit facilities, shall be solid partitions of noncombustible finish material.

29.4(6) Where borrowed light panels of clear glass are used in exit corridors, the requirements of 29.18(100)T.III, of these rules, shall apply, except that clear glass windows in doors and transoms may be permitted in existing buildings when nonhazardous activities are carried on in the classroom.

29.4(7) Any single corridor or combination of corridors having an unbroken length of three hundred feet or more shall be divided into sections by smoke barriers consisting of smoke stop doors. Doors may be of ordinary solid wood type not less than 1 3/4 inches thick with clear wired glass panels. Such doors shall be of self-closing type and may be either single or double. They shall close the opening completely with only such clearance as is reasonably necessary for proper operation. Underwriters' Laboratories, Inc., listed electromagnetic holders may be used to hold these doors open provided they are hooked into the fire alarm system and a smoke detector is located at a strategic point near the doors.

29.4(8) There shall be no dead end in any corridor or hall more than twenty feet beyond the exit.

29.5(100)T.III Doors.

29.5(1) The entrance and exit doors of all school buildings and the doors of all classrooms shall open outward.

29.5(2) Doors shall be provided for main exit facilities leading to a platform connecting with either outside stairs or fire escapes. Doors leading to outside stairways or fire escapes shall have a minimum width of forty inches, except that on existing buildings where it is not practical to install a door of forty-inch width, a narrower door at least thirty inches in width may be installed.

29.5(3) The main exit and entrance doors and doors leading to fire escapes shall be equipped with panic type latches that cannot be locked against the exit.

29.5(4) Doors protecting stairways and doors leading to fire escapes or outside stairs may have wire-glass panes installed providing that the size of any single pane does not exceed 900 square inches.

29.5(5) Doors protecting vertical openings or fire doors installed where protection of hazardous rooms or areas are required shall be equipped with door closers and shall not be blocked open. Underwriters' Laboratories, Inc., listed electromagnetic holders

may be used to hold these doors open provided they are hooked into the fire alarm system and a smoke detector is located at a strategic point near the doors.

29.5(6) Classroom doors.

a. Classroom doors, in new construction, shall be thirty-six inches wide. In existing buildings, doors of not less than thirty inches in width may be used. Doors must be a minimum of 1 3/4-inch solid core wood.

b. School buildings designed without doors to classrooms shall meet the requirements of 29.18(100)T.III.

29.5(7) Boiler, furnace or fuel-room doors, communicating to other building areas, shall be 1 1/2-hour rated doors and frames, normally closed and hung to swing into the boiler room.

29.5(8) Doors to storage of combustibles off corridors shall be at least 1 3/4-inch solid core wood.

29.5(9) Doors from classrooms to corridors may have closeable louvers up to twenty-four inches above the floor. No other louvers or openable transoms shall be permitted in corridor partitions.

29.6(100)T.III Windows.

29.6(1) Windows below or within ten feet of an outside stairway or fire escape shall have panes of wire-glass.

29.6(2) Where a window is to be used as a secondary avenue of escape for elementary classrooms (see 29.3(100)T.III), it shall (without the use of tools) be easily opened from the inside to provide a clear opening of adequate size to use in an emergency. The bottom of this window shall not exceed thirty-four inches above the floor. In existing buildings, solid platforms or permanent steps may be permitted to meet the requirements of this subrule.

29.6(3) Double hung or hinged windows, having a clear opening equal to or greater than thirty inches by thirty inches, will meet the standards of 29.6(2), providing the other requirements of 29.6(2) are followed.

29.7(100)T.III Stairway enclosures and floor cutoffs.

29.7(1) In buildings of more than one story, stairs shall be enclosed with protected noncombustible construction except those in accordance with 29.7(2). Doors shall be 1 3/4-inch solid wood construction, or better, with wire-glass allowable.

29.7(2) In existing buildings of two stories with no basement,

where such buildings are fire-resistive construction throughout, or fire-resistive first story and noncombustible or heavy timber second story, the stairs need not be enclosed, provided, (a) all exit-way finish is class A (flame spread rating not exceeding twenty-five), (b) no open storage of wardrobe, books, or furniture in exit ways or spaces common to them and (c) the stairs from the second floor lead directly to an outside door or vestibule leading to the outside of the building.

29.7(3) In new construction, the enclosures or protection of vertical openings shall be of the same type of construction as the surrounding material used for walls and partitions.

29.7(4) In existing buildings, the stairway enclosures or the protection of vertical openings shall be the equivalent of wood studding with gypsum lath and plaster on both sides. The doors shall be at least 1 3/4-inch solid core wood doors. Maximum 900 square inch glass panels allowable.

29.7(5) Stairways from boiler, furnace or fuel rooms, communicating to other building areas, shall be enclosed at top and bottom. The entire stair enclosure shall be noncombustible construction. The doors (other than to the boiler room) may be 1 3/4-inch solid wood with a maximum of 900 square inches of wired glass allowable.

29.7(6) Except as provided elsewhere in this section, interior stairways used as exits shall be enclosed. The construction of the enclosure shall be in accordance with the provisions of 29.7(1).

29.7(7) Cutoffs between floors for stairways not used as exit facilities shall use the same type of construction as provided in 29.7(1).

29.8(100)T.III Interior finishes.

29.8(1) The interior finishes of all exit corridors and passageways shall have class A finish with a flame spread rating of not more than twenty-five as determined by the "fire tunnel tests" conducted by the Underwriters' Laboratories, Inc., and assigned to materials used for interior finish.

29.8(2) Whenever the fire marshal determines the fire hazard is great enough, class A materials for room finishes shall be used in science laboratories, shop areas, and such other areas as the fire marshal shall designate, in addition to those areas designated by 29.8(1).

29.8(3) In new construction, all interior finishes shall be class C or better.

29.8(4) In existing buildings, ceiling finishes not meeting the requirements of 29.8(1) or 29.8(3) may be corrected by the use of a fire-retardant treatment provided however, if the material, is combustible, it shall be adhered to a continuous backing. The treatment may be used in lieu of replacing the finished material providing the material used for treatment is listed by Underwriters' Laboratories, Inc., and is applied in strict accordance with the manufacturers' directions.

29.9(100)T.III Construction.

29.9(1) Types of construction as defined in the National Fire Protection Association Pamphlet No. 220, Standard Types of building Construction, 1961.

- a. Fire-resistive.
- b. Heavy timber.
- c. Noncombustible.
- d. Ordinary.
- e. Wood frame.

29.9(2) Noncombustible, ordinary or wood frame construction may be modified by using materials giving one-hour or greater fire protection.

29.9(3) Types of construction permitted:

a. One-story buildings and one-story wings on multistory buildings may be any of the types designated in 29.9(1), or combinations thereof, but with ordinary or wood frame construction, protected materials shall be used.

b. One-room portable classroom buildings may be of lesser construction provided the interior finish of the classroom complies with 29.8(2) and 29.8(3) as use requires. Only noncombustible types of insulation may be used in such instances and each building shall be a minimum of twenty feet from another building.

c. Two-story buildings may be constructed of fire-resistive or protected noncombustible materials throughout, or the first story may be constructed of fire-resistive or protected noncombustible materials with the second story having either heavy timber or noncombustible materials.

d. Buildings of more than two stories shall be fire-resistive throughout.

29.9(4) Construction of the floor located above a basement shall be of fire-resistive or protected noncombustible materials.

29.9(5) Construction of the floor located above a crawl space or a pipe tunnel shall be of fire-resistive or noncombustible materials except in portable one-room classroom buildings an Underwriters' Laboratories, Inc., approved fire-retardant paint may be used.

29.9(6) Portable classroom buildings shall maintain a minimum of twenty feet distance from another building if complying with 29.9(3) "b". One-room portable classroom buildings located twenty feet or less between adjacent walls shall have not less than a one-hour, fire-rated separation. All portable classroom buildings with raised floors shall be skirted to the ground with material equal to the siding of the building.

29.9(7) Boiler rooms, furnace rooms or fuel rooms which have no stories located above may be constructed of fire-resistive, non-combustible, protected heavy timber or protected ordinary materials.

29.9(8) Boiler rooms, furnace rooms or fuel rooms with building above shall be of two-hour, fire-resistive construction.

29.10(100)T.III Fire alarm systems.

29.10(1) All schools having two or more classrooms shall be equipped with a fire alarm system. Alarm stations shall be provided on each floor and so located that the alarm station is not more than seventy-five feet from any classroom door within the building. Horns or bells that provide a distinctive sound different from other bell systems shall be provided that will give audible warning to all occupants of the building in case of a fire or other emergency. A test device shall be provided for the purpose of conducting fire drills and tests of the alarm system. One-room classroom buildings placed in a complex of other classrooms shall be connected to the central alarm system.

29.10(2) Underwriters' Laboratories, Inc., equipment and component parts shall be used in the installation of the fire alarm system. The electrical energy for the fire alarm system shall be on a separate circuit and shall be taken off the utility service to the school building ahead of the entrance disconnect.

29.10(3) Whenever the fire marshal determines it advisable, he may require that the fire alarm system be extended or designed to provide automatic fire detection devices in unsupervised areas, boiler rooms, storerooms or shop areas.

29.11(100)T.III Electrical wiring.

29.11(1) The electrical wiring of any educational building shall have enough circuits to provide adequate service without the need of overfusing the circuits.

29.11(2) The electrical wiring and component parts shall be properly maintained and serviced so as to eliminate the overheating or shorting that could cause a fire.

29.11(3) In new construction, electrical wiring shall be in metal raceways.

29.11(4) All exit lights shall be connected ahead of the service disconnect.

29.12(100)T.III Heating equipment.

29.12(1) Heating equipment shall be installed, where applicable, in rooms constructed in accordance with 29.9(6) and 29.9(7).

29.12(2) Installation for any heating equipment shall be in accordance with the manufacturer's instruction and conditions of safe operation.

29.12(3) Acceptable evidence for complying with 29.12(2) shall be labeling or listed equipment by Underwriters' Laboratories, Inc., The American Gas Association Testing Laboratories, or approval of the state fire marshal.

29.12(4) Oil burning equipment shall be installed, maintained and operated in accordance with chapter 14 of the flammable liquid rules of the state of Iowa.

29.12(5) All gas burning equipment shall be installed and maintained in accordance with chapter 5 of the liquefied petroleum gas rules of the state of Iowa.

29.12(6) Floor-mounted flame heating equipment shall not be allowed to be installed in any classroom.

29.13(100)T.III Gas piping.

29.13(1) Gas piping shall be in accordance with chapter 5 of the liquefied petroleum gas rules of the state of Iowa.

29.13(2) All gas service lines into buildings shall be brought out of the ground before entering the building and shall be equipped with a shutoff valve outside the building.

29.13(3) Gas piping cannot run in enclosed space without proper venting.

29.14(100)T.III Fire extinguishers.

29.14(1) Each school building shall be equipped with fire

extinguishers of a type, size and number approved by the state fire marshal.

29.14(2) National Fire Protection Association Standard No. 10, Installation of Portable Fire Extinguishers, 1969 is applicable. Vaporizing extinguishers containing halogenated hydrocarbon extinguishing agents shall not be approved.

29.15(100)T.III Basement, underground and windowless educational buildings.

29.15(1) In existing school buildings, basement classrooms may be used provided there is compliance with either paragraphs "a" and "d", or compliance with paragraphs "b", "c", "d", and "e" below.

- a. Direct approved egress door from classrooms to the outside.
- b. Classroom doors open into a corridor that leads directly outside.
- c. Inside stairs from basement corridors, serving basement classrooms, shall not communicate with other stories above.
- d. Doors from basement classroom corridors, to other areas of the basement, shall be at least 1 3/4-inch solid core wood and equipped with door closers.
- e. Buildings, unless of fire-resistive construction, using the basement area for classroom purposes, shall have sprinkler or automatic alarm systems in the entire basement area.

29.15(2) In new construction, basement rooms shall not be used for classroom purposes in elementary and junior high school buildings. This provision shall not apply to that portion of a building built on a sloping site which faces the lower grade level.

29.15(3) After October 17, 1969, in new construction only, underground or windowless educational buildings shall be provided with complete approved, automatic sprinkler systems.

29.15(4) After October 17, 1969, in new construction only, underground or windowless educational buildings shall have approved automatic smoke venting facilities in addition to automatic sprinkler protection.

29.15(5) After October 17, 1969, in new construction only, underground or windowless educational buildings for which no natural lighting is provided shall be provided with an approved type emergency exit lighting system.

29.15(6) After October 17, 1969, in new construction only, where required exit from underground structures involves upward travel, such as ascending stairs or ramp, such upward exits shall be cut off from main floor areas. If the area contains any combustible contents or combustible interior finish, it shall be provided with outside vented smoke traps or other means to prevent the exit serving as flues for smoke from any fire in the area served by the exits, thereby making the exit impassable.

29.15(7) After October 17, 1969, in new construction only, where windowless building shall be provided with outside access panels on each floor level, designed for fire department access from ladders for purposes of ventilation and rescue of trapped occupants.

29.16(100)T.III Fire hazard safeguards in new and existing buildings.

29.16(1) Ventilating ducts discharging into attics of combustible construction shall be blocked off, protected with fire dampers or extended in a standard manner through the roof.

29.16(2) Cooking ranges and other cooking appliances in food service area kitchens shall be provided with ventilating hoods, grease filters, and shall be vented to the outside in an approved manner.

29.16(3) Discarded furniture, furnishings or other combustible material shall not be stored or allowed to accumulate in attics or concealed spaces. Designated storage space shall be provided for equipment that may be used periodically throughout the school year and necessary to the school operation or curriculum schedule.

29.16(4) Space under stairways in existing buildings shall not be used for storage unless the storage area is lined with material that will provide a one-hour, fire-resistant rating and provided with a tight-fitting door that has a comparable fire-resistant rating. Except when removing or storing stock, the door shall be kept closed and locked.

29.16(5) Waste paper baling and storage shall be in a room without ignition hazards and separated from other parts of the building by fire-resistant construction. Storage of paint products and flammable liquids shall be in a fire-resistive room or approved metal cabinet.

29.16(6) Decorative materials.

a. No furnishings, decorations, wall coverings, paints, etc., shall be used which are of a highly flammable character or

which in the amounts used will endanger egress due to rapid spread of fire or formation of heavy smoke or toxic gases.

b. Highly flammable finishes such as lacquer and shellac are not permitted.

c. Draperies, curtains, loosely attached wall coverings, cloth hangings and similar materials shall be noncombustible or flame-proof in corridor exit ways and assembly occupancies. In other areas up to ten percent of the wall area may have combustible coverings and hangings.

29.16(7) Spray finishing operations shall not be conducted in a school building except in a room designed for the purpose, protected with an approved automatic extinguishing system, and separated vertically and horizontally from such occupancies by construction having not less than two-hour fire resistance. National Fire Protection Association Standard No. 33, Spray Finishing, 1969, shall be applicable for construction and operation of all paint spray booths.

29.17(100)T.III Automatic sprinklers.

29.17(1) Where automatic sprinkler protection is provided, other requirements of these regulations may be modified to such extent as permitted by other provisions in this section.

29.17(2) Automatic sprinkler systems shall be of standard, approved types so installed and maintained as to provide complete coverage for all portions of the premises protected, except insofar as partial protection is specified in other paragraphs of this section.

29.17(3) Automatic sprinkler systems for schools shall be those designed to protect occupancy classifications that are considered light hazard occupancies.

29.17(4) Automatic sprinkler systems shall be provided with water flow alarm devices to give warning of operation of the sprinkler due to fire, and such alarm devices shall be installed so as to give warning throughout the entire school building. The sprinkler alarm detection may be connected to the fire alarm system required by state law.

29.17(5) Partial automatic sprinkler systems shall provide complete protection in the basement and other hazardous areas. Above the basement area, stairwells and corridors shall be sprinklered. Non-hazardous classrooms are not required to be sprinklered for partial systems.

29.17(6) Water supplies.

a. All automatic sprinklers installed in school buildings shall be provided with adequate and reliable water supplies.

b. Public water supplies for sprinkler systems in schools shall have a minimum of four-inch service pipe providing a minimum of 500 gallons of water per minute and shall have at least fifteen pounds pressure at the highest sprinkler head.

c. Where public water supply is not available and a pressure supply tank is used, the tank shall be a minimum of 6000 gallons capacity. The pressure tank shall operate at an air pressure adequate to discharge all of the water in the tank.

29.17(7) All automatic sprinkler systems required by these regulations shall be maintained in a reliable operating condition at all times and such periodic inspections and tests as are necessary shall be made to assure proper maintenance.

29.17(8) In existing buildings of ordinary or better construction, stairway enclosures will not be required if protected by a partial or standard sprinkler system. Basement cutoffs of vertical openings will be required. This modification of open stairways is permitted only in buildings that do not exceed a basement and two full stories.

29.18(100)T.III Open plan buildings.

29.18(1) An "open plan building" is defined as any building where there are no permanent solid partitions between rooms or between rooms and corridors that are used for exit facilities.

29.18(2) Open plan buildings shall have enclosed stairways and any other vertical openings between floors protected in accordance with 29.17(1).

29.18(3) Open plan buildings shall not exceed 30,000 square feet in undivided area. Solid walls or smoke stop partitions shall be provided at intervals not to exceed 300 feet. Such walls or partitions shall have doors of a type that are at least 1 3/4-inch solid core wood doors and the partitions shall be the equivalent of one-hour construction.

29.18(4) Any cafeterias, gymnasiums or auditoriums shall be separated from the rest of the building by solid walls and no exits from other parts of the building shall require passing through such assembly areas.

29.18(5) Open plan buildings that do not have a direct exit door from each classroom to the outside shall be protected by a complete automatic fire detection system.

29.18(6) A sprinkler system may be installed in lieu of an automatic fire detection system in an open plan building.

29.18(7) Distance of travel to the nearest exit in an open plan building shall not exceed 100 feet from any point except that in a sprinklered building the distance may be increased to 150 feet.

(Filed June 22, 1962; amended April 6, 1965 and October 17, 1969)

CHAPTER 30

NEW COLLEGE BUILDINGS

30.1(100)T.III Exits.

30.1(1) Exits shall be provided of kinds, numbers, location and capacity appropriate to the individual building or structure, with due regard to the character of the occupancy, the number of persons exposed, the fire protection available, and the height and type of construction of the building or structure, to afford all occupants convenient facilities for escape.

30.1(2) The population of all college buildings, for the purpose of determining the required exits and the required space for classroom use, shall be determined on the following basis.

a. The square feet of floor space for persons in college buildings shall be one person for each forty square feet of gross area.

b. In gymnasiums and auditoriums, the capacity for seating shall be on the basis of six square feet net per person.

30.1(3) Exits shall be so arranged and maintained as to provide free and unobstructed egress from all parts of every building or structure at all times when the building or structure is occupied. No locks or fasteners to prevent free escape from the inside of any building shall be installed.

30.1(4) Exits shall be clearly visible or routes to reach them shall be conspicuously indicated in such manner that every occupant of every educational building who is physically and mentally capable will readily know the direction of the escape from any point and each path of escape in its entirety shall be so arranged or marked that the way to a place of safety outside is unmistakable.

30.1(5) In all college buildings where artificial illumination is needed, electric exit signs or directional indicators shall be installed and adequate lighting provided for all corridors and passageways.

30.1(6) Fire escapes shall not be permitted on new construction.

30.1(7) There shall be a minimum of two means of exit remote from each other from each floor of every college building. The traveled distance from any point to an exit shall not exceed 150 feet measured along the line of travel. In sprinklered buildings,

the distance may be increased to 200 feet.

30.1(8) Every room with a capacity of 50 persons or over and having more than 1000 square feet of floor area shall have at least two doorways as remote from each other as practicable. Such doorways shall provide access to separate exits but may open onto a common corridor leading to separate exits in opposite directions.

30.2(100)T.III Corridors.

30.2(1) Corridors used as means of access to exits, and corridors used for discharge from exits, shall provide a clearance of at least six feet in width. Room doors or locker doors swinging into corridors shall not, at any point in the swing, reduce the clear effective width of the corridor to less than six feet, nor shall drinking fountains or other equipment, fixed or movable, be so placed as to obstruct the required minimum six-foot width.

30.2(2) In new construction, open clothing storage shall not be permitted in exit corridors.

30.2(3) No combustible materials shall be stored in exit corridors.

30.2(4) The walls of corridors, used for exit facilities, shall be solid partitions of noncombustible finish material.

30.2(5) Where borrowed light panels of clear glass are used in exit corridors, the requirements of 30.15(100)T.III shall apply.

30.2(6) Any single corridor or combination of corridors having an unbroken length of 300 feet or more shall be divided into sections by smoke barriers consisting of smoke stop doors. Doors may be of ordinary solid wood type not less than 1 3/4-inches thick with clear wired glass panels. Such doors shall be of self-closing type and may be either single or double. They shall close the opening completely with only such clearance as is reasonably necessary for proper operation. Underwriters' Laboratories, Inc., listed electromagnetic holders may be used to hold these doors open provided they are hooked into the fire alarm system and a smoke detector is located at a strategic point near the doors.

30.2(7) There shall be no dead end in any corridor or hall more than twenty feet beyond the exit.

30.3(100)T.III Doors.

30.3(1) The entrance and exit doors of all college buildings and the doors of all classrooms shall open outward.

30.3(2) Doors protecting stairways may have wire glass panes installed providing that the size of any single pane does not exceed 900 square inches.

30.3(3) Doors protecting vertical openings or fire doors installed where protection of hazardous rooms or areas are required shall be equipped with door closers and shall not be blocked open. Underwriters' Laboratories, Inc., listed electromagnetic holders may be used to hold these doors open provided they are hooked into the fire alarm system and a smoke detector is located at a strategic point near the doors.

30.3(4) Classroom doors.

a. Classroom doors shall be thirty-six inches wide. Doors must be a minimum of 1 3/4-inch solid core wood.

b. College buildings designed without doors to classrooms shall meet the requirements of 30.15(100)T.III of these rules.

30.3(5) Boiler, furnace or fuel room doors, communicating to other building areas, shall be one and one-half hour rated doors and frames, normally closed and hung to swing into the boiler room.

30.3(6) Doors to storage of combustibles off corridors shall be at least 1 3/4-inch solid core wood.

30.3(7) Doors from classrooms to corridors may have closeable louvers up to twenty-four inches above the floor. No other louvers or openable transoms shall be permitted in corridor partitions.

30.4(100)T.III Stairway enclosures and floor cutoffs.

30.4(1) In new college buildings, stairs shall be enclosed with protected noncombustible construction. Doors shall be 1 3/4-inch solid wood construction, or better, with wire glass allowable.

30.4(2) In new construction, the enclosures or protection of vertical openings shall be of the same type of construction as the surrounding material used for walls and partitions.

30.4(3) Stairways from boiler, furnace or fuel rooms, communicating to other building areas, shall be enclosed at top and bottom. The entire stair enclosure shall be noncombustible construction. The doors (other than to the boiler room) may be 1 3/4-inch solid wood with a maximum of 900 square inches or wired glass allowable.

30.5(100)T.III Interior finishes.

30.5(1) The interior finishes of all exit corridors and passageways shall have class A finish with a flame spread rating of not more than twenty-five as determined by the "fire tunnel tests" conducted by the Underwriters' Laboratories, Inc., and assigned to materials used for interior finish.

30.5(2) Whenever the fire marshal determines the fire hazard is great enough, class A materials for room finishes shall be used in science Laboratories, shop areas, and such other areas as the fire marshal shall designate, in addition to those areas designated by 30.5(1).

30.5(3) In new construction, all interior finishes shall be class C or better.

30.6(100) T. III Construction.

30.6(1) Types of construction as defined in the National Fire Protection Association Pamphlet No. 220, Standard Types of Building Construction, 1961:

- a. Fire-resistive.
- b. Heavy timber.
- c. Noncombustible.
- d. Ordinary.
- e. Wood frame.

30.6(2) Noncombustible, ordinary or wood frame construction may be modified by using materials giving one-hour or greater fire protection.

30.6(3) Types of construction permitted:

a. One-story buildings and one-story wings on multistory buildings may be any of the types designated in 30.6(1), or combinations thereof, but with ordinary or wood frame construction, protected materials shall be used.

b. One-room portable classroom buildings may be of lesser construction provided the interior finish of the classroom complies with subrules 29.8(2) and 29.8(3) as use requires. Only noncombustible types of insulation may be used in such instances and each building shall be a minimum of twenty feet from another building.

c. Two-story buildings may be constructed of fire-resistive or protected noncombustible materials throughout, or the first story may be constructed of fire-resistive or protected noncombustible materials with the second story having either heavy timber or noncombustible materials.

d. Buildings of more than two stories shall be fire-resistive throughout.

30.6(4) Construction of the floor located above a basement shall be of fire-resistive or protected noncombustible materials.

30.6(5) Construction of the floor located above a crawl space or a pipe tunnel shall be of fire-resistive or noncombustible materials except in portable one-room classroom buildings an Underwriters' Laboratories, Inc., approved fire-retardant paint may be used.

30.6(6) Portable classroom buildings shall maintain a minimum of twenty feet distance from another building if complying with 29.9 (3) "b". One-room portable classroom buildings located twenty feet or less between adjacent walls shall have not less than a one-hour, fire-rated separation. All portable classroom buildings with raised floors shall be skirted to the ground with material equal to the siding of the building.

30.6(7) Boiler rooms, furnace rooms or fuel rooms which have no stories located above may be constructed of fire-resistive, noncombustible, protected heavy timber or protected ordinary materials.

30.6(8) Boiler rooms, furnace rooms or fuel rooms with building above shall be of two-hour, fire-resistive construction.

30.7(100)T.III Fire alarm systems.

30.7(1) All schools having two or more classrooms shall be equipped with a fire alarm system. Alarm stations shall be provided on each floor and so located that the alarm station is not more than seventy-five feet from any classroom door within the building. Horns or bells that provide a distinctive sound different from other bell systems shall be provided that will give audible warning to all occupants of the building in case of a fire or other emergency. A test device shall be provided for the purpose of conducting fire drills and tests of the alarm system. One-room classroom buildings placed in a complex of other classrooms shall be connected to the central alarm system.

30.7(2) Underwriters' laboratory equipment and component parts shall be used in the installation of the fire alarm system. The electrical energy for the fire alarm system shall be on a separate circuit and shall be taken off the utility service to the school building ahead of the entrance disconnect.

30.7(3) Whenever the fire marshal determines it advisable, he may require that the fire alarm system be extended or designed

to provide automatic fire detection devices in unsupervised areas, boiler rooms, storerooms or shop areas.

30.8(100)T.III Electrical wiring.

30.8(1) The electrical wiring of any educational building shall have enough circuits to provide adequate service without the need of overfusing the circuits.

30.8(2) The electrical wiring and component parts shall be properly maintained and serviced so as to eliminate the overheating of shorting that could cause a fire.

30.8(3) In new construction, electrical wiring shall be in metal raceways.

30.8(4) All exit lights shall be connected ahead of the service disconnect.

30.9(100)T.III Heating equipment.

30.9(1) Heating equipment shall be installed, where applicable, in rooms constructed in accordance with 30.6(6) and 30.6(7).

30.9(2) Installation for any heating equipment shall be in accordance with the manufacturer's instruction and conditions of safe operation.

30.9(3) Acceptable evidence for complying with 30.9(2) shall be labeling or listed equipment by Underwriters' Laboratories, Inc., The American Gas Association Testing Laboratories or approval of the state fire marshal.

30.9(4) Oil burning equipment shall be installed, maintained and operated in accordance with chapter 25, T.III.

30.9(5) All gas burning equipment shall be installed and maintained in accordance with chapter 5, T.III.

30.9(6) Floor-mounted flame heating equipment shall not be allowed to be installed in any classroom.

30.10(100)T.III Gas piping.

30.10(1) Gas piping shall be in accordance with chapter 5, T.III.

30.10(2) All gas service lines into buildings shall be brought out of the ground before entering the building and shall be equipped with a shutoff valve outside the building.

30.10(3) Gas piping cannot run in enclosed space without proper venting.

30.11(100)T.III Fire extinguishers.

30.11(1) Each college building shall be equipped with fire extinguishers of a type, size and number approved by the state fire marshal.

30.11(2) National Fire Protection Association Standard No. 10, Installation of Portable Fire Extinguishers, 1969 applicable. Vaporizing extinguishers containing halogenated hydrocarbon extinguishing agents shall not be approved.

30.12(100)T.III Basement, underground and windowless educational buildings.

30.12(1) Basement classrooms may be used provided there is compliance with paragraph "a" or "b" and compliance with paragraphs "c" and "d" below.

- a. Direct approved egress door from classrooms to the outside.
- b. Classroom doors open into a corridor that leads directly outside.
- c. Inside stairs from basement corridors, serving basement classrooms, shall not communicate with other stories above unless of fire-resistive construction.
- d. Doors from basement classroom corridors, to other areas of the basement, shall be class B and equipped with door closers except that solid frames and solid core wood doors, not less than 1 3/4 inches thick, shall be permitted.

30.12(2) Underground or windowless educational buildings shall be provided with complete approved, automatic sprinkler systems.

30.12(3) Underground or windowless educational buildings shall have approved automatic smoke venting facilities in addition to automatic sprinkler protection.

30.12(4) Underground or windowless educational buildings for which no natural lighting is provided shall be provided with an approved type emergency exit lighting system.

30.12(5) Where required exit from underground structures involves upward travel, such as ascending stairs or ramp, such upward exits shall be cut off from main floor areas. If the area contains any combustible contents or combustible interior finish, it shall be provided with outside vented smoke traps or other

means to prevent the exit "serving as flues for smoke from any fire in the area served by the exits, thereby making the exit impassable.

30.12(6) Every windowless building shall be provided with outside access panels on each floor level, designed for fire department access from ladders for purposes of ventilation and rescue of trapped occupants.

30.13(100)T.III Fire hazard safeguards in new buildings.

30.13(1) Ventilating ducts discharging into attics of combustible construction shall be blocked off, protected with fire dampers or extended in a standard manner through the roof.

30.13(2) Cooking ranges and other cooking appliances in food service area kitchens shall be provided with ventilating hoods, grease filters, and shall be vented to the outside in an approved manner.

30.13(3) Discarded furniture, furnishings or other combustible material shall not be stored or allowed to accumulate in attics or concealed spaces. Designated storage space shall be provided for equipment that may be used periodically throughout the school year and necessary to the college operation or curriculum schedule.

30.13(4) Storage facilities for materials and supplies shall be in storage rooms designed for this purpose.

30.13(5) Waste paper baling and storage shall be in a room without ignition hazards and separated from other parts of the building by fire-resistant construction.

30.13(6) Storage of paint products and flammable liquids shall be in a fire-resistive room or approved metal cabinet.

30.13(7) Decorative materials.

a. No furnishings, decorations, wall coverings, paints, etc., shall be used which are of a highly flammable character or which in the amounts used will endanger egress due to rapid spread of fire or formation of heavy smoke or toxic gases.

b. Highly flammable finishes such as lacquer and shellac are not permitted.

c. Draperies, curtains, loosely attached wall coverings, cloth hangings and similar materials shall be noncombustible or flameproof in corridor exit ways and assembly occupancies. In other areas up to ten percent of the wall area may have combustible coverings and hangings.

30.13(8) Spray finishing operations shall not be conducted in a school building except in a room designed for the purpose, protected with an approved automatic extinguishing system, and separated vertically and horizontally from such occupancies by construction having not less than two-hour fire resistance. National Fire Protection Association Standard No. 33, Spray Finishing, 1969, shall be applicable for construction and operation of all paint spray booths.

30.14(100)T.III Automatic sprinklers.

30.14(1) Automatic sprinkler systems shall be of standard, approved types so installed and maintained as to provide complete coverage for all portions of the premises protected, except insofar as partial protection is specified in other paragraphs of this section.

30.14(2) Automatic sprinkler systems for college buildings shall be those designed to protect occupancy classifications that are considered light hazard occupancies.

30.14(3) Automatic sprinkler systems shall be provided with water flow alarm devices to give warning of operation of the sprinkler due to fire, and such alarm devices shall be installed so as to give warning throughout the entire building. The sprinkler alarm detection may be connected to the fire alarm system required by state law.

30.14(4) Water supplies.

a. All automatic sprinklers installed in college buildings shall be provided with adequate and reliable water supplies.

b. Public water supplies for sprinkler systems in college buildings shall have a minimum of four-inch service pipe providing a minimum of 500 gallons of water per minute and shall have at least fifteen pounds pressure at the highest sprinkler head.

c. Where public water supply is not available and a pressure supply tank is used, the tank shall be a minimum of 6000 gallons capacity. The pressure tank shall operate at an air pressure adequate to discharge all of the water in the tank.

30.14(5) All automatic sprinkler systems required by these regulations shall be maintained in a reliable operating condition at all times and such periodic inspections and tests as are necessary shall be made to assure proper maintenance.

30.15(100)T.III Open plan buildings.

30.15(1) An "open plan building" is defined as any building

where there are no permanent solid partitions between rooms or between rooms and corridors that are used for exit facilities.

30.15(2) Open plan building shall have enclosed stairways and any other vertical openings between floors protected in accordance with 30.4(1).

30.15(3) Open plan buildings shall not exceed 30,000 square feet in undivided area. Solid walls or smoke stop partitions shall be provided at intervals not to exceed 300 feet. Such walls or partitions shall have doors of a type that are at least 1 3/4-inch solid core wood doors and the partitions shall be the equivalent of one-hour construction.

30.15(4) Any cafeterias, gymnasiums or auditoriums shall be separated from the rest of the building by solid walls and no exits from other parts of the building shall require passing through such assembly areas.

30.15(5) Open plan buildings that do not have a direct exit door from each classroom to the outside shall be protected by a complete automatic fire detection system.

30.15(6) A sprinkler system may be installed in lieu of an automatic fire detection system in an open plan building.

30.15(7) Distance of travel to the nearest exit in an open plan building shall not exceed 100 feet from any point except that in a sprinklered building, the distance may be increased to 150 feet.

(Filed April 6, 1965; amended October 17, 1969)

CHAPTER 31

EXISTING COLLEGE BUILDINGS

31.1(100)T.III Exits.

31.1(1) Exits shall be provided of kinds, numbers, location and capacity appropriate to the individual building or structure, with due regard to the character of the occupancy, the number of persons exposed, the fire protection available, and the height and type of construction of the building or structure, to afford all occupants convenient facilities for escape.

31.1(2) The population of all college buildings, for the purpose of determining the required exits and the required space for classroom use, shall be determined on the following basis.

- a. The square feet of floor space for persons in college

buildings shall be one person for each forty square feet of gross area.

b. In gymnasiums and auditoriums, the capacity for seating shall be on the basis of six square feet net per person.

31.1(3) Exits shall be so arranged and maintained as to provide free and unobstructed egress from all parts of every building or structure at all times when the building or structure is occupied. No locks or fasteners to prevent free escape from the inside of any building shall be installed.

31.1(4) Exits shall be clearly visible or routes to reach them shall be conspicuously indicated in such manner that every occupant of every educational building who is physically and mentally capable will readily know the direction of the escape from any point and each path of escape in its entirety shall be so arranged or marked that the way to a place of safety outside is unmistakable.

31.1(5) In all college buildings where artificial illumination is needed, electric exit signs or directional indicators shall be installed and adequate lighting provided for all corridors and passageways.

31.1(6) Where additional outside stairs or fire escapes are required by law, they shall be class B, double width forty-four inches, and shall extend to the ground. Platforms for outside stairs or fire escapes shall have a minimum dimension of forty-four inches. Outside stairs and fire escapes shall be constructed in accordance with the state law and regulations.

31.1(7) There shall be a minimum of two means of exit remote from each other from each floor of every college building. The traveled distance from any point to an exit shall not exceed 150 feet measured along the line of travel. In sprinklered buildings, the distance may be increased to 200 feet.'

31.1(8) Every room with a capacity of 50 persons or over and having more than 1000 square feet of floor area shall have at least two doorways as remote from each other as practicable. Such doorways shall provide access to separate exits but may open onto a common corridor leading to separate exits in opposite directions.

31.1(9) In existing buildings where exits do not comply with the requirements of 31.1(10)T.III and in which hazardous conditions exist because of the number, width, construction or location of exits, the fire marshal may order additional exits to assure adequate safety of the occupants but under no condition may outside fire escapes exceed fifty percent of the required stairs.

31.2(100)T.III Corridors.

31.2(1) Corridors used as means of access to exits, and corridors used for discharge from exits, shall provide a clearance of at least six feet in width, except in the case of buildings constructed prior to May 6, 1965. Room doors or locker doors swinging into corridors shall not, at any point in the swing, reduce the clear effective width of the corridor to less than six feet, nor shall drinking fountains or other equipment, fixed or movable, be so placed as to obstruct the required minimum six-foot width.

31.2(2) Open clothing storage in existing buildings.

a. In existing buildings, where clothes are hung exposed in exit corridors, they shall be separated by partitions of sheet metal or equivalent material. Partitions shall be placed at six-foot intervals, be a minimum of eighteen inches in depth, extend at least one foot above the coat hooks and within eight inches of the floor.

b. Where open clothing is hung in exit corridors as described above, an automatic fire detection system shall be installed in the corridor. Sprinkler systems may be installed in lieu of the automatic detection system.

31.2(3) Except as permitted in 31.2(2), no combustible materials shall be stored in exit corridors.

31.2(4) The walls or corridors, used for exit facilities, shall be solid partitions of noncombustible finish material.

31.2(5) Where borrowed light panels of clear glass are used in exit corridors, the requirements of 31.16(100)T.III, shall apply, except that clear glass windows in doors and transoms may be permitted in existing buildings when nonhazardous activities are carried on in the classroom.

31.2(6) Any single corridor or combination of corridors having an unbroken length of 300 feet or more shall be divided into sections by smoke barriers consisting of smoke stop doors. Doors may be of ordinary solid wood type not less than 1 3/4 inches thick with clear wired glass panels. Such doors shall be of self-closing type and may be either single or double. They shall close the opening completely with only such clearance as is reasonably necessary for proper operation. Underwriters' Laboratories, Inc., listed electromagnetic holders may be used to hold these doors open provided they are hooked into the fire alarm system and a smoke detector is located at a strategic point near the doors.

31.2(7) There shall be no dead end in any corridor or hall

more than twenty feet beyond the exit.

31.3(100)T.III Doors.

31.3(1) The entrance and exit doors of all college buildings and the doors of all classrooms shall open outward.

31.3(2) Doors shall be provided for main exit facilities leading to a platform connecting with either outside stairs or fire escapes. Doors leading to outside stairways or fire escapes shall have a minimum width of forty inches, except that on existing buildings where it is not practical to install a door of forty-inch width, a narrower door at least thirty inches in width may be installed.

31.3(3) The main exit and entrance doors and doors leading to fire escapes shall be equipped with a latching device that cannot be locked against the exit.

31.3(4) Doors protecting stairways and doors leading to fire escapes or outside stairs may have wire-glass panes installed providing that the size of any single pane does not exceed 900 square inches.

31.3(5) Doors protecting vertical openings or fire doors installed where protection of hazardous rooms or areas is required shall be equipped with door closers and shall not be blocked open. Underwriters' Laboratories, Inc., listed electromagnetic holders may be used to hold these doors open provided they are hooked into the fire alarm system and a smoke detector is located at a strategic point near the doors.

31.3(6) Classroom doors.

a. In existing buildings, doors of not less than thirty inches in width may be used. Doors must be a minimum of 1 3/4-inch solid core wood.

b. Buildings designed without doors to classrooms shall meet the requirements of 31.16(100)T.III.

31.3(7) Boiler, furnace or fuel room doors, communicating to other building areas, shall be 1½-hour rated doors and frames, normally closed and hung to swing into the boiler room.

31.3(8) Doors to storage of combustibles off corridors shall be at least 1 3/4-inch solid core wood.

31.3(9) Doors from classrooms to corridors may have closeable louvers up to twenty-four inches above the floor. No other louvers or openable transoms shall be permitted in corridor partitions.

31.4(100)T.III Windows. Windows below or within ten feet of an outside stairway or fire escape shall have panes of wire glass.

31.5(100)T.III Stairway enclosures and floor cutoffs.

31.5(1) In buildings of more than one story, stairs shall be enclosed with protected noncombustible construction except those in accordance with 31.5(2). Doors shall be 1 3/4-inch solid wood construction, or better, with wire glass allowable.

31.5(2) In existing buildings of two stories with no basement where such buildings are fire-resistive construction throughout, or fire-resistive first story and noncombustible or heavy timber second story, the stairs need not be enclosed, provided, (a) all exit-way finish is class A (flame spread rating not exceeding twenty-five), (b) no open storage of wardrobe, books or furniture in exit ways or spaces common to them and (c) providing these stairs from the second floor lead directly to an outside door or vestibule leading to the outside of the building.

31.5(3) In existing buildings, the stairway enclosures or the protection of vertical openings shall be the equivalent of wood studding with gypsum lath and plaster on both sides. The doors shall be at least 1 3/4-inch solid core wood doors. Maximum 900 square-inch glass panels allowable.

31.5(4) Stairways from boiler, furnace or fuel rooms, communicating to other building areas, shall be enclosed at top and bottom. The entire stair enclosure shall be noncombustible construction. The doors (other than to the boiler room) may be 1 3/4-inch solid wood with a maximum of 900 square inches of wired glass allowable.

31.5(5) Except as provided elsewhere in this rule, interior stairways used as exits shall be enclosed. The construction of the enclosure shall be in accordance with the provisions of 31.5(1).

31.5(6) Cutoffs between floors for stairways not used as exit facilities shall use the same type of construction as provided in 31.5(1).

31.5(7) Where existing buildings because of layout or construction make it impossible to comply with 31.5(100)T.III, the fire marshal shall make an analysis of the building and may then order remedial construction or installation of fire detection or equipment which will correct hazardous conditions.

31.6(100)T.III Interior finishes.

31.6(1) The interior finishes of all exit corridors and passageways shall have class A finish with a flame spread rating

of not more than twenty-five as determined by the "fire tunnel tests" conducted by the Underwriters' Laboratories, Inc., and assigned to materials used for interior finish.

31.6(2) Whenever the fire marshal determines the fire hazard is great enough, class A materials for room finishes shall be used in science laboratories, shop areas, and such other areas as the fire marshal shall designate, in addition to those areas designated by 31.6(1).

31.7(100)T.III Construction. All additions to existing buildings shall comply with 30.6(100)T.III, 30.6(1)-30.6(7), inclusive.

31.8(100)T.III Fire alarm systems.

31.8(1) All schools having two or more classrooms shall be equipped with a fire alarm system. Alarm stations shall be provided on each floor and so located that the alarm station is not more than seventy-five feet from any classroom door within the building. Horns or bells that provide a distinctive sound different from other bell systems shall be provided that will give audible warning to all occupants of the building in case of a fire or other emergency. A test device shall be provided for the purpose of conducting fire drills and tests of the alarm system. One-room classroom buildings placed in a complex of other classrooms shall be connected to the central alarm system.

31.8(2) Underwriters' Laboratories, Inc., equipment and component parts shall be used in the installation of the fire alarm system. The electrical energy for the fire alarm system shall be on a separate circuit and shall be taken off the utility service to the school building ahead of the entrance disconnect.

31.8(3) Whenever the fire marshal determines it advisable, he may require that the fire alarm system be extended or designed to provide automatic fire detection devices in unsupervised areas, boiler rooms, storerooms or shop areas.

31.9(100)T.III Electrical wiring. Electrical service in existing buildings and all remodeling or additions to the electric service shall comply with 30.8(100)T.III.

31.10(100)T.III Heating equipment.

31.10(1) Heating equipment shall be installed, where applicable, in rooms constructed in accordance with 30.6(6) and 30.6(7).

31.10(2) Installation for any heating equipment shall be in accordance with the manufacturer's instruction and conditions of safe operation.

31.10(3) Acceptable evidence for complying with 31.10(2) shall be labeling or listed equipment by Underwriters' Laboratories, Inc., The American Gas Association Testing Laboratories, or approval of the state fire marshal.

31.10(4) Oil burning equipment shall be installed, maintained and operated in accordance with chapter 25, T.III.

31.10(5) All gas burning equipment shall be installed and maintained in accordance with chapter 5, T.III.

31.10(6) Floor-mounted flame heating equipment shall not be allowed to be installed in any classroom.

31.11(100)T.III Gas piping.

31.11(1) Gas piping shall be in accordance with chapter 5, T. III.

31.11(2) All gas service lines into buildings shall be brought out of the ground before entering the building and shall be equipped with a shutoff valve outside the building.

31.11(3) Gas piping cannot run in enclosed space without proper venting.

31.12(100)T.III Fire extinguishers.

31.12(1) Each college building shall be equipped with fire extinguishers of a type, size and number approved by the state fire marshal.

31.12(2) National Fire Protection Association Standard No. 10, Installation of Portable Fire Extinguishers, 1969 applicable. Vaporizing extinguishers containing halogenated hydrocarbon extinguishing agents shall not be approved.

31.13(100)T.III Basements. In existing college buildings, basement classrooms may be used provided there is compliance with paragraph "1" or "2" and compliance with paragraphs "3", "4" and "5".

1. Direct approved egress door from classrooms to the outside.

2. Classroom doors open into a corridor that leads directly outside.

3. Inside stairs from basement corridors, serving basement classrooms, shall not communicate with other stories above unless of fire-resistive construction.

4. Doors from basement classroom corridors, to other areas of the basement, shall be class B and equipped with door closers except that solid frames and solid core wood doors, not less than 1 3/4 inches thick, shall be permitted.

5. Buildings, unless of fire-resistive construction, using the basement area for classroom purposes, shall have sprinkler or automatic alarm systems in the entire basement area.

31.14(100)T.III Fire hazard safeguards in existing buildings.

31.14(1) Ventilating ducts discharging into attics of combustible construction shall be blocked off, protected with fire dampers or extended in a standard manner through the roof.

31.14(2) Cooking ranges and other cooking appliances in food service area kitchens shall be provided with ventilating hoods, grease filters, and shall be vented to the outside in an approved manner.

31.14(3) Discarded furniture, furnishings or other combustible material shall not be stored or allowed to accumulate in attics or concealed spaces. Designated storage space shall be provided for equipment that may be used periodically throughout the school year and necessary to the college operation or curriculum schedule.

31.14(4) Space used for storage under stairways in existing buildings shall not be allowed unless the storage area is lined with material that will provide a one-hour, fire-resistant rating and provided with a tightfitting door that has a comparable fire-resistant rating. Except when removing or storing stock, the door shall be kept closed and locked.

31.14(5) Waste paper baling and storage shall be in a room without ignition hazards and separated from other parts of the building by fire-resistant construction.

31.14(6) Storage of paint products and flammable liquids shall be in a fire-resistive room or approved metal cabinet.

31.14(7) Decorative materials.

a. No furnishings, decorations, wall coverings, paints, etc., shall be used which are of a highly flammable character or which in amounts used will endanger egress due to rapid spread of fire or formation of heavy smoke or toxic gases.

b. Highly flammable finishes such as lacquer and shellac are not permitted.

c. Draperies, curtains, loosely attached wall coverings, cloth hangings and similar materials shall be noncombustible or flameproof in corridor exit ways and assembly occupancies. In other areas up to ten percent of the wall area may have combustible coverings and hangings.

31.14(8) Spray finishing operations shall not be conducted in a school building except in a room designed for the purpose, protected with an approved automatic extinguishing system, and separated vertically and horizontally from such occupancies by construction having not less than two-hour fire resistance. National Fire Protection Association Standard No. 33, Spray Finishing, 1969, shall be applicable for construction and operation of all paint spray booths.

31.15(100)T.III Automatic sprinklers.

31.15(1) Subrules 31.15(2)-31.15(9), inclusive, shall apply, if upon inspection by the fire marshal a building or area is deemed hazardous for life safety and a sprinkler system installation is ordered.

31.15(2) Where automatic sprinkler protection is provided, other requirements of these rules may be modified to such extent as permitted by other provisions in 31.15(100)T.III.

31.15(3) Automatic sprinkler systems shall be of standard, approved types so installed and maintained as to provide complete coverage for all portions of the premises protected, except insofar as partial protection is specified in other subrules of 31.15(100)T.III.

31.15(4) Automatic sprinkler systems for college buildings shall be those designed to protect occupancy classifications that are considered light hazard occupancies.

31.15(5) Automatic sprinkler systems shall be provided with water flow alarm devices to give warning of operation of the sprinkler due to fire, and such alarm devices shall be installed so as to give warning throughout the entire building. The sprinkler alarm detection may be connected to the fire alarm system required by state law.

31.15(6) Partial automatic sprinkler systems shall provide complete protection in basement and other hazardous areas. Above the basement area, stairwells and corridors shall be sprinklered. Nonhazardous classrooms are not required to be sprinklered for partial systems.

31.15(7) Water supplies.

a. All automatic sprinklers installed in college buildings shall be provided with adequate and reliable water supplies.

b. Public water supplies for sprinkler systems in college buildings shall have a minimum of four-inch service pipe providing a minimum of 500 gallons of water per minute and shall have at least fifteen pounds pressure at the highest sprinkler head.

c. Where public water supply is not available and a pressure supply tank is used, the tank shall be a minimum of 6000 gallons capacity. The pressure tank shall operate at an air pressure adequate to discharge all of the water in the tank.

31.15(8) All automatic sprinkler systems required by these regulations shall be maintained in a reliable operating condition at all times and such periodic inspections and tests as are necessary shall be made to assure proper maintenance.

31.15(9) In existing buildings of ordinary or better construction, stairway enclosures will not be required if protected by a partial or standard sprinkler system. Basement cutoffs of vertical openings will be required. This modification of open stairways is permitted only in buildings that do not exceed a basement and two full stories.

31.16(100)T.III Open plan buildings.

31.16(1) In existing college buildings, where the design of the building lends itself to the classification of an open plan building, the requirements for fire safety of 31.15(2)-31.15(9), inclusive, shall apply.

31.16(2) This will include regulations for all buildings where there are no permanent solid partitions between rooms or between rooms and corridors that are used for exit facilities.

31.16(3) Open plan buildings shall have enclosed stairways and any other vertical openings between floors protected in accordance with 31.5(1).

31.16(4) Open plan buildings shall not exceed 30,000 square feet in undivided area. Solid walls or smoke stop partitions shall be provided at intervals not to exceed 300 feet. Such walls or partitions shall have doors of a type that are at least 1 3/4-inch solid core wood doors and the partitions shall be the equivalent of one-hour construction.

31.16(5) Any cafeterias, gymnasiums or auditoriums shall be separated from the rest of the building by solid walls and no exits from other parts of the building shall require passing through such

assembly areas.

31.16(6) Open plan buildings that do not have a direct exit door from each classroom to the outside shall be protected by a complete automatic fire detection system.

31.16(7) A sprinkler system may be installed in lieu of an automatic fire detection system in an open plan building.

31.16(8) Distance of travel to the nearest exit in an open plan building shall not exceed 100 feet from any point except that in a sprinklered building, the distance may be increased to 150 feet.

(Filed April 6, 1965; amended October 17, 1969)

STATE LIBRARY OF IOWA



3 1723 02092 0609