

adjoining the building) to the highest part of the roof, if a flat roof, or to a point 2/3 of the height of the roof, if a gabled or hipped roof. If the grade of the lot or adjoining sidewalk in the rear or alongside of the building falls below the grade at the front, the height shall be measured at the center of the lowest side.

**Ind 51.13 Basement; first floor; number of stories.** A basement is a story whose floorline is below grade at any entrance or exit and whose ceiling is not more than 5 feet above grade at any such entrance or exit. The first floor is the floor next above the basement, or the lowest floor if there is no basement. The number of stories of a building includes all stories except the basement.

**Ind 51.14 Street; alley; court.** (1) A street is any public thoroughfare 30 feet or more in width.

(2) An alley is any public thoroughfare less than 30 feet, but not less than 10 feet, in width.

(3) A court is an open, unoccupied space other than a street or alley and bounded on one or more sides by the walls of a building.

**Ind 51.15 Standard exit.** (1) Every door which serves as a required exit from a public passageway, stairway or building shall be a standard exit door unless exempted by the occupancy requirements of this code.

*Note:* For required exits see Wis. Adm. Code sections Ind 54.06, 55.10, 56.08, 57.09.

(2) Every standard exit door shall swing outward or toward the natural means of egress (except as below). It shall be level with the floor, and shall be so hung that, when open, it will not block any part of the required width of any other doorway, passageway, stairway or fire escape. No revolving door, and no sliding door except where it opens onto a stairway enclosure or serves as a horizontal exit, shall be considered as a standard exit door.

(3) A standard exit door shall have such fastenings or hardware that it can be opened from the inside without using a key, by pushing against a single bar or plate, or turning a single knob or handle; it shall not be locked, barred, or bolted at any time while the building is occupied.

(4) A standard exit doorway shall not be less than 6 feet 4 inches high by 3 feet 4 inches wide, except where especially provided under occupancy classifications and in Wis. Adm. Code section Ind 51.20. Where double doors are provided with or without mullions, the width of each single door may be reduced to 2 feet 6 inches.

(5) All exit doors, unless otherwise exempted by the occupancy requirements of this code, shall be plainly marked by a red illuminated translucent exit sign bearing the word EXIT or OUT in plain letters not less than 5 inches in height and in such other places as may be necessary to direct the occupants to the exit doorways.

(6) Doors, windows or other openings which are not exits but which give the appearance of exits shall be effectively guarded.

(7) Safeguards for physically handicapped persons:

(a) Every public building, the construction of which is commenced after January 1, 1964, shall be so designed and constructed to provide

a reasonable means of ingress and egress for physically handicapped persons with the exception of those listed in subsection (j).

(b) There shall be at least one grade or street level entrance without steps. The door shall be at least 6 feet 4 inches high and not less than 3 feet 4 inches wide and shall comply with all other requirements of this section.

(c) Where the door sill or floor is above or below grade or street level, the difference in elevation shall be accomplished by a ramp with a slope of not more than one foot of rise in 12 feet, and shall be finished with a non-slippery surface.

(d) Other grade or street level entrances not so designed or constructed shall be marked with a sign indicating the location of the entrance or exit available for wheel chair service.

(e) The ramp shall be at least 3 feet 8 inches in width of which not more than 4 inches on each side may be occupied by a handrail.

(f) All ramps shall have a handrail on each side. Handrail shall not be less than 2 feet 6 inches in height with an intermediate rail at mid-height.

(g) The floor on the inside and outside of each ramp doorway shall be level for a distance of 6 feet from the door.

(h) Every ramp shall have at least 6 feet of level clearance at the bottom.

(i) All ramps shall have a level platform at 30-ft. intervals and shall have a level platform at least 6 feet in length wherever they turn.

(j) *Exceptions:*

1. Apartment buildings with less than 20 living units.
2. Row houses.
3. Convents and monasteries.
4. Jails and other places of detention.
5. Garages, service stations, hangers, boathouses, and other buildings in the hazardous occupancy classification.
6. Factories and mercantile buildings.
7. State owned buildings built for field service purposes such as, but not limited to, conservation commission fire towers, fish hatcheries, tree nursery buildings, and warehouses.
8. Existing buildings to be remodeled or changed in use where compliance cannot reasonably be obtained.

**History:** 1-2-56; am. Register, December, 1962, No. 84, eff. 1-1-63; am. (5) and cr. (7), Register, November, 1963, No. 95, eff. 12-1-63.

**Ind 51.16 Stairways.** (1) **DEFINITION.** By a stairway is meant one or more flights of steps and the necessary platforms connecting them to form a continuous passage from one level to another within a building or structure, except as provided in subsection (3) (b).

(2) **WIDTH.** Every required exit stairway, whether enclosed or not, shall be not less than 3 feet 8 inches wide of which not more than 4 inches on each side may be occupied by a handrail. Every platform shall be at least as wide as the stairway, measuring at right angles to the direction of travel. Every straight run platform shall measure at least 3 feet in the direction of travel. Wherever a door opens onto a stairway, a platform shall be provided extending at least the full width of the door in the direction of travel. *Exception:*

(a) In apartment buildings not more than 2 stories in height and having not more than 2 apartments on a floor and in rooming houses, hospitals, hotels and similar buildings not more than 2 stories in height and having not more than 6 living or sleeping rooms on a floor, such stairways shall not be less than 3 feet wide.

(b) If other stairways are provided in addition to those required by this code, such additional stairways need not conform to the width requirements of this code.

(3) **HANDRAILS.** All stairways and steps of more than 3 risers shall have at least one handrail. Stairways and steps 5 feet or more in width, or open on both sides, shall have a handrail on each side. Stairways and steps which are less than 5 feet in width shall have a handrail on the left hand side as one mounts the stairs and on the open side, if any.

(a) Stairways which are more than 8 feet wide shall be divided by center rails into widths not more than 8 feet nor less than 3 feet 8 inches. Rails shall be not less than 2 feet 6 inches above the nose of the treads or 3 feet 6 inches above the platform except as specified in Wis. Adm. Code section Ind 51.20. Railings on the open sides of stairways and platforms shall be provided with an intermediate member at midheight or with vertical members having a maximum spacing of 11 inches, or its equivalent in safety.

(b) Stairways on the outside of buildings and an integral part thereof, having more than 3 risers, shall have a handrail at each side, and if the stairway is more than 50 feet wide, one or more intermediate handrails shall be provided.

(c) Where an exit door leads to an outside stairway, platform or sidewalk, the level of the platform or sidewalk shall not be more than  $7\frac{3}{4}$  inches below the door sill except as provided in section Ind 51.20 (4) (g).

(4) **RISERS AND TREADS.** All stairways and steps required as exits by this code shall have a uniform rise of not more than  $7\frac{3}{4}$  inches and a uniform tread of not less than  $9\frac{1}{2}$  inches, measuring from tread to tread, and from riser to riser. No winders shall be used. There shall not be more than 18, nor less than 3 risers between platforms or between floor and platform and not more than 22 risers from floor to floor with no platform.

(a) Stairways and steps not required as exits by this code shall have a uniform rise of not more than 8 inches and a uniform tread of not less than 9 inches. If winders are used, the tread shall be at least 7 inches wide at a point one foot from the narrow end.

(b) Standpipes shall be sufficient in number so that any part of every floor area can be reached within 20 feet by a nozzle attached to not more than 75 feet of hose connected to a standpipe.

*Note:* Standpipe outlets should be located in occupied areas, and usually at interior columns in large area buildings. Asylums and places of detention may require special arrangements. It should be possible in all cases to direct the stream into all important enclosures, such as closets, etc.

(c) No required standpipe shall be less than 2 inches in diameter, and not less than 2½ inches in diameter for buildings 5 stories or more in height. Material shall be wrought iron or steel and pipe and fittings shall be of suitable weight for the pressure used. An approved 1½ inch hose valve shall be located in each story, not more than 5 feet above the floor level; valves of the gate type shall be equipped with a suitable open drip connection. An approved pressure-reducing device shall be installed at hose valves where pressure would otherwise be over 50 pounds.

(d) Not more than 75 feet of hose shall be attached to each outlet. Hose shall be of unlined linen construction, 1½ inches in diameter, with a ½ inch nozzle attached, and shall be located in approved cabinets or racks.

(e) Water supply shall be automatic, and be designed for 70 gallons per minute for 30 minutes with 25 pounds flowing pressure at the top outlet. Such supply may be from city connection, gravity tank, pressure tank or pump.

*Note:* Data on the design of standpipe systems can be found in the Standards of the National Board of Fire Underwriters for the Installation of Standpipe and Hose Systems. The industrial commission will ordinarily approve any installation which is approved by the Underwriters.

**Ind 51.22 Fire extinguishers.** (1) Where fire extinguishers are required, they shall be of a type approved by the industrial commission. All fire extinguishers shall be charged in accordance with the instructions of the manufacturer.

(2) Extinguishers shall be conspicuously located where they will always be readily accessible and so distributed as to be immediately available in event of fire. They shall be hung on hangers or set on brackets or shelves so that the top of the extinguisher is not more than 5 feet above the floor.

*Note:* The industrial commission will ordinarily approve any extinguisher which bears the Underwriters' label and which is of the size, and suitable, for the hazard for which it is intended. Consult the industrial commission for lists of approved extinguishers.

**Ind 51.23 Automatic sprinklers.** (1) Required automatic sprinkler systems shall be designed and constructed in conformity with good established practice. Only materials and devices approved by the industrial commission may be used. Reinstallation of used sprinkler heads is prohibited, and other secondhand devices may be installed by special permission only.

(2) Where an automatic sprinkler system is required throughout a building, supply shall be from a city water main, or from a gravity or pressure tank. If the city water supply is inadequate in either pressure or volume, a tank of not less than 5,000 gallons capacity shall be provided. The bottom of a gravity tank shall be not less than 35 feet above the under side of the roof.

(3) Where automatic sprinklers are required in a basement only, the supply shall be from a city water main. Where there is no city

water supply, such basement sprinklers need not be installed; but at such time as a city supply becomes available, such required basement sprinklers shall be installed.

(4) Every basement sprinkler system shall also include sprinklers in all shafts (except elevator shafts) leading to the story above.

(5) Every sprinkler system shall have a suitable audible alarm and an approved siamese connection marked "To Automatic Sprinklers", and otherwise conforming to Wis. Adm. Code section Ind 51.21 (2) (e).

*Note:* It will be the policy of the industrial commission to approve equipment conforming to standards of the National Board of Fire Underwriters for Sprinkler Equipment, also materials and devices currently listed by the Underwriters' Laboratories. The commission reserves the right to order a sprinkler system in any building, regardless of height or number of persons, if the occupancy is especially hazardous.

**Ind 51.24 Fire alarm systems.** (1) Interior fire alarm systems required under Wis. Adm. Code sections Ind 54.16, Ind 56.19 and Ind 57.22 shall be designed and constructed in conformity with the following requirements:

(2) All such alarm systems shall consist of operating stations on each floor of the building, including the basement, with bells, horns, or other approved sounding devices which are effective throughout the building. The system shall be so arranged that the operation of any one station will actuate all alarm devices connected to the system except in the case of a presignal system. Fire alarms shall be readily distinguishable from any other signalling devices used in the building. A system designed for fire alarm and paging service may be used if the design is such that fire alarm signals will have precedence over all others.

(3) Every fire alarm system shall be electrically operated except as provided in Wis. Adm. Code section Ind 56.19 and shall be operated on closed circuit current under constant electrical supervision, so arranged that upon a circuit opening and remaining open, or in case of a ground or short circuit in the ungrounded conductor, audible trouble signals will be given instantly.

(4) In buildings more than 3 stories in height, coded fire alarm systems shall be provided, and the systems shall be so arranged that the code transmitted shall indicate the location and the story of the structure in which the signal originated.

*Exception:* (a) In apartment buildings, non-coded electrically supervised continuous sounding fire alarm systems will be approved.

(5) Operating stations shall be prominently located in an accessible position at all required exit doors and required exit stairways. Operating stations shall be of an approved type and shall be conspicuously identified. All such operating stations shall be of a type, which after being operated, will indicate that an alarm has been sent therefrom until reset by an authorized means. (Operating stations having a "Break Glass" panel will be acceptable. On coded systems having a device to permanently record the transmission of an alarm, "Open Door" type stations may be used). The fire alarm operating stations shall be mounted approximately 5 feet above the finished floor as measured from the floor to the center of the box.

(6) All such alarm systems shall be tested at least once a week and a record of such tests shall be kept.

(7) Existing fire alarm systems that are effective in operation will be accepted if approved by the industrial commission.

*Note.* The following sections are taken from the Wisconsin state electrical code:

(8) The energy for operation of fire alarm systems shall be taken from sources suited to the design of the system. Primary batteries shall not be used.

(9) A 3-wire 120-240 or 120-208 volt (3 phase 4 wire) service will be accepted for supervised systems provided the operating current is secured from one ungrounded conductor and the neutral, or grounded conductor, and the current for operating trouble signal or signals is secured from the other ungrounded conductor and the neutral or grounded conductor.

(10) Electrical wiring in connection with fire alarm systems shall be installed in rigid metal conduit, flexible metal conduit, electrical metallic tubing or surface metal raceway. Armored cable (metal) may be used where it can be fished in hollow spaces of walls or partitions in apartments or rooming houses not over 3 stories in height. Where the wiring is subject to excessive moisture or severe mechanical injury, rigid metal conduit shall be used. The smallest size conductor to be used in any fire alarm system in a building over 3 stories in height shall be #14 AWG or #16 AWG for buildings not over 3 stories in height. The wires shall be provided with insulation suitable for use on circuits not exceeding 600 volts. Fire alarm systems shall be connected to the line side of the service switch or to the emergency bus, where available, through an approved fire alarm cutout or equivalent.

**History:** 1-2-56; am. (3) (a), Register, November, 1963, No. 95, eff. 12-1-63.