

Chapter Ind 52

GENERAL REQUIREMENTS

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Ind 52.01 Fire prevention, detection and suppression for high rise buildings. (1) **AUTOMATIC FIRE SPRINKLER SYSTEM.** A complete automatic sprinkler system, as specified in s. Ind 51.23, shall be provided in every building more than 60 feet in height, the initial construction of which is commenced after July 2, 1974. The requirements of this section shall not apply to open parking structures as defined in s. Ind 62.10 (2). FP

(a) *Additions to existing buildings.* Building additions more than 60 feet in height shall have an automatic sprinkler system installed. The sprinkler protection shall be provided throughout the existing building unless the addition is separated from the existing building by a fire division wall as specified in s. Ind 51.02 (13). The requirements of this section shall not apply to open parking structures as defined in s. Ind 62.10 (2).

(b) *Substitute suppression systems.* When approved by the department, substitute automatic suppression systems may be used in lieu of a sprinkler system in areas where the use of water could cause unusual damage to equipment, or where water may have a limited effect or may be hazardous to use because of the nature of processes involved.

Note: The department will accept design and installation in accordance with the latest edition of the national fire protection association standards for special extinguishing systems.

(c) *Alternate methods.* When approved by the department, alternate methods of fire prevention, detection and suppression may be provided in lieu of a complete automatic sprinkler system.

Note #1: The department will request a position statement regarding the proposed method to be submitted by the fire chief of the municipality wherein the building is located.

Note #2: The department will consider alternate methods of fire prevention, detection and suppression to include, but not limited to, fire-resistive construction, compartmentation, automatic detection systems, interior finish restriction, and partial sprinkler protection.

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(2) **ADDITIONAL REQUIREMENTS FOR HIGH-RISE BUILDINGS.** The following requirements apply to all buildings more than 100 feet in height or having more than 10 stories. Open parking structures and buildings used for low hazard industrial processes, including the production and distribution of gas, steam or electric power, foundries and similar uses which require unusual heights to accommodate cranes, special machinery or equipment, are exempt from the provisions of this subsection.

(a) *Smoke control.* Natural or mechanical ventilation for the removal of products of combustion shall be provided in every story and shall consist of one or more of the following methods. Controlling devices may be automatic or manual as approved by the local fire department.

1. Panels or windows in the exterior wall which can be opened from a location other than the fire floor. Such venting facilities shall be provided at the rate of at least 20 square feet per 50 lineal feet of exterior wall in each story, and distributed around the perimeter at not more than 50-foot intervals. Such panels shall be clearly identified as required by the fire department.

2. Openable windows in habitable rooms of residential units.

3. When an automatic sprinkler system is installed in compliance with s. Ind 51.23, the mechanical air handling equipment may be designed to assist smoke removal. Under fire conditions, the return and exhaust air shall be taken directly to the outside without recirculation to other sections of the building.

4. A mechanical ventilation system which will prevent the transfer of smoke from the fire source to other floors of the building. The design shall be substantiated by calculations or tests showing that a pressure differential of 0.10 inch of water column will be produced.

5. Any other design which will produce equivalent results.

(b) *Exit stairways.* 1. All stairways shall be pressurized. The pressure across each door shall be at least 0.15 but not more than 0.20 inch of water column with all doors closed. Pressurization shall be activated by the fire alarm system, the detection systems, and the sprinkler system. In lieu of pressurization, a smokeproof stair tower, as defined in s. Ind 51.17, will be accepted.

Note: The department will accept alternate designs which will produce equivalent results.

2. All stairway doors which are to be locked from the stairway side shall have the capability of being unlocked without unlatching upon a signal from the central control station.

(c) *Elevators.* There shall be provided at least one elevator suitable for fire department access to any floor. If the building is not provided with an approved automatic sprinkler system, the elevator lobby at each level shall be separated from the remainder of the building by an effective smoke barrier.

Note: Refer to ch. Ind 4 for additional requirements.

(d) *Fire alarm and detection system.* 1. A manual fire alarm box shall be located adjacent to exit doors into stairway shafts and in every elevator lobby.

2. An approved system which will provide for automatic detection of products of combustion other than heat shall be installed in every air-handling equipment room, unless sprinklered, and in the return air portion of every air conditioning and mechanical ventilation system. Approved heat detectors may be installed in boiler rooms and furnace rooms in lieu of product of combustion detectors.

a. Detectors shall be located in the main return air and supply air ducts of each ventilation system and at each opening into a vertical return air shaft or duct.

b. The detectors shall actuate an alarm or signaling system and shut down the ventilation system except where automatic smoke control is incorporated in the system.

3. The manual alarm and automatic detection system shall conform to the Wisconsin State Electrical Code, Volume 2, ch. ILHR 16 and one of the following standards [Ind 51.27 (7a)]:

a. Standard for Central Station Protective Signaling Systems, NFPA No. 71;

b. Standard for Auxiliary Protective Signaling Systems, NFPA No. 72B;

c. Standard for Remote Station Protective Signaling Systems, NFPA No. 72C;

d. Standard for Proprietary Protective Signaling Systems, NFPA No. 72D.

4. Detectors shall conform to the Standard for Automatic Fire Detectors, NFPA No. 72E.

(e) *Alarm and communication systems.* The following alarm and communication systems shall be provided. The systems shall be supervised and exposed wiring shall be encased in a metal conduit.

1. Voice alarm system. The detection system, sprinkler water flow device and the fire alarm system shall actuate a prerecorded message or voice alarm capable of being operated from the central control station on a general as well as a selective basis to the area involved. The alarm shall be designed to be heard by all occupants within the building or designated portions.

2. Voice communication system. There shall be a voice communication system between the central control station and the following areas:

Note: The department will accept systems installed in accordance with the Standard for the Installation, Maintenance and Use of Local Protective Signaling Systems for Watchmen, Fire Alarm and Supervisory Service, NFPA No. 72A.

a. Elevators, elevator lobbies, in stairways at every fifth floor, and all manual fire alarm boxes (2-way communication system);

b. Every office area exceeding 1,000 square feet in area (one-way address system); and

c. Each dwelling unit and hotel guest room (one-way address system).

3. Fire department communication system. A system providing 2-way communication shall be provided at all floor levels, stairways, the central control station, and other locations required by the fire department.

a. The system shall be designed so the fire department communication system will override the other communication systems.

b. Wiring shall be arranged so that open circuits or short circuits on individual floors will not interfere with communications on another floor.

4. Combined system. When approved by the local fire department, the fire department communication system may be combined with the voice communication system and the voice alarm system.

(f) *Central control station.* A central control station for fire department operations shall be provided in a location approved by the fire department. It shall contain the voice communication systems panel; fire detection and alarm system panels; status indicators and controls for elevators, smoke venting and air handling systems; controls for unlocking stairway doors; a public telephone; sprinkler valve and water flow detectors; and standby power controls. All fire alarm and water flow signals shall be transmitted directly to the systems indicated in s. Ind 52.01 (2) (d) 3.

(g) *Standby power and light.* An approved permanently installed standby power generating system shall be provided. The system shall be equipped with suitable means for automatically starting the generator set upon failure of the normal electrical service and for automatic transfer and operation of the required electrical functions at full power within 60 seconds of such normal service failure. System supervision with manual start and transfer features shall be provided at the central control station.

1. An on-premise fuel supply sufficient for not less than 2 hours full demand operation of the system shall be provided.

2. The power requirement shall be determined so as to provide service to, but not limited to the following:

a. Fire alarm system;

b. Exit and other emergency lighting;

c. Fire protection equipment;

Note: Standby power to service fire pumps may be omitted if approved by the local fire department.

d. Mechanical ventilation required by this section;

e. Fire department elevator; and

f. Communication systems.

(h) *Maintenance.* All communication, fire prevention, detection and suppression systems required under this section shall be tested and maintained in an operable condition. All installed automatic sprinkler systems shall be maintained pursuant to NFPA No. 13A-1981 - Standard for the Care and Maintenance of Sprinkler Systems. A copy of the test report as specified in NFPA No. 13A-1981 shall be kept and shall be

made available, upon request, to the department or its authorized deputies. The local fire department shall be notified whenever the life safety systems are shut down for repair and when placed back in service.

(1) *Floor level identification.* Each floor level or story shall be identified as to its number or name. Identification signs shall be posted in all elevator lobbies and in all required exit stairways.

History: Emerg. cr. eff. 1-1-76; cr. (1), Register, April, 1976, No. 232, eff. 5-1-76; cr. (2), Register, April, 1976, No. 232, eff. 1-1-76; (2), eff. 1-1-77; am. (2), Register, December, 1976, No. 252, eff. 1-1-77; am. (2) (d) 2. a. and cr. (2) (i), Register, December, 1977, No. 264, eff. 1-1-78; am. (1) (intro.), (a), (2) (intro.) and (2) (e) 2. a., Register, December, 1978, No. 276, eff. 1-1-79; am. (2) (h), Register, December, 1981, No. 312, eff. 1-1-82; am. (2) (h), Register, June, 1983, No. 330, eff. 7-1-83.

Ind 52.015 Automatic fire sprinkler systems for low rise buildings. (1) PURPOSE. Pursuant to s. 101.14 (4) (a), (c) and (d), Stats., created by ch. 320, Laws of 1981, this section establishes automatic fire sprinkler requirements for buildings under 60 feet in height which are used as public buildings or places of employment.

(2) GENERAL. The automatic fire sprinkler systems specified in this section shall conform to the definition specified in s. 145.01 (8), Stats., and shall satisfy the requirements specified in s. Ind 51.23.

Note #1: See s. Ind 50.03 for additional information regarding the application of these rules to new buildings, additions and changes of use.

Note #2: See s. A52.015 of Appendix A for additional information pertaining to fire hazard classifications, building usage and occupancy.

(3) APPLICATION. Automatic fire sprinkler systems shall be installed as follows:

(a) *Miscellaneous applications.* The following areas in all buildings, except hospitals, nursing homes, community-based residential facilities, day care centers, open parking structures and buildings used for farming purposes or primarily for the sale of farm machinery:

1. Storage and workshop areas. Storage and workshop areas exceeding 50 sq. ft. in area and located in assembly halls, theaters, offices, schools and residential occupancies;

Note: See Table A52.015-3 of Appendix A for additional information pertaining to low, moderate and high hazard classifications.

2. Spray painting rooms and shops. Spray painting rooms and shops where painting, brushing, dipping or mixing using flammable materials is involved;

3. Laundry collection and trash collection rooms and chutes. Laundry collection rooms and trash collection rooms and chutes and areas used for incineration. Automatic sprinklers shall be installed within the chute at the top of the chute and on alternate floor levels;

4. Exhaust hoods in commercial kitchens. Exhaust hoods in commercial kitchens shall be protected as specified in s. Ind 64.67 (6); and

5. Windowless floor levels. Floor levels of buildings without openings as specified in s. Ind 52.02 (2) (a) shall be protected by an automatic fire sprinkler system as specified in s. Ind 52.02 (2) (b).

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(b) *Factory, mercantile, class IV dry cleaning plants and moderate hazard storage and warehouse.* 1. Except as specified in subd. 2., buildings having more than 12,000 sq. ft. in area per floor or more than 24,000 sq. ft. in total area on all floors, or more than 3 stories in height and containing factory; mercantile; class IV dry cleaning plants; and storage or warehouse occupancies with moderate hazard contents, which are likely to burn with moderate rapidity, but which do not produce either poisonous gases or fumes or explosives.

Note: See s. A52.015 of Appendix A for additional information pertaining to low, moderate and high hazard classifications.

2. a. Factory occupancies housing low hazard industrial processing are exempt from the provisions of subd. 1.

Note: See s. A52.015 of Appendix A for additional information pertaining to low, moderate and high hazard classifications.

b. Generator and transformer rooms and communication equipment areas of telephone central office equipment buildings used exclusively for such equipment provided the areas are separated from the remainder of the building by at least one-hour fire-resistant rated walls and at least 2-hour fire-resistant rated floor/ceiling assemblies provided the rooms or areas are equipped with an approved automatic fire alarm system as specified in s. Ind 51.24.

c. Buildings used for farming purposes or primarily for the sale of farm machinery.

(c) *Restaurants, recreation centers and lecture halls.* Buildings having more than 12,000 sq. ft. in area per floor and containing restaurants, recreation centers or lecture halls.

(d) *Dance halls and night clubs.* Buildings having more than 5,000 sq. ft. in total area or more than one story in height and containing dance halls and night clubs.

(e) *Exhibition buildings.* Exhibition buildings having more than 12,000 sq. ft. in area per floor.

(f) *Passenger terminals.* Passenger terminals having more than 12,000 sq. ft. in area per floor or providing enclosed loading service for 4 or more buses.

(g) *High hazard buildings.* All high hazard buildings, including class II, IIIA and IIIB dry cleaning plants, used for the storage, manufacture or processing of highly combustible, explosive, corrosive or toxic materials, which are likely to burn with extreme rapidity or which may produce poisonous fumes or explosives.

Note: See s. A52.015 of Appendix A for additional information pertaining to low, moderate and high hazard classifications.

(h) *Theatres with fixed seats.* All areas of theatres with fixed seats except the auditorium, foyer, lobby and toilet rooms.

(i) *Stages.* Stages of any size and the areas within or behind the proscenium separation as follows:

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2. Under the stage gridiron with side wall sprinkler heads rated at 135° F. having heat baffle plates. The heads shall be installed around the entire perimeter of the stage, except above the proscenium opening, at points not more than 30 inches below the gridiron, nor more than 6 inches below the baffle plate;

3. Under all fly galleries;

4. Under the stage;

5. In all basements, cellars, workrooms, dressing rooms, store rooms and property rooms; and

6. In toilet, lounge and smoking rooms.

(j) *Art galleries, museums or libraries.* Buildings having more than 12,000 sq. ft. in area per floor occupied as art galleries, museums or libraries.

(k) *Detention and correctional facilities.* 1. Except as provided in subd. 2., in all detention and correctional facilities.

2. Automatic sprinkler systems need not be provided in detention and correctional facilities with a resident load of less than 6.

(l) *Storage or repair garages.* Except as provided in subd. 3., in storage or repair garages which can accommodate more than 4 passenger motor vehicles, more than 4 motor powered boats, or more than one commercial motor vehicle under the following conditions:

1. Garages used exclusively for the storage of passenger vehicles, which will accommodate not more than 9 passengers as follows:

a. Greater than 10,000 sq. ft. in area per floor and more than one story in height;

b. More than 2 stories in height; or

c. When located in buildings where the upper stories are used for another occupancy and the garage is not separated from the other occupancy by at least 3-hour fire-resistive rated construction.

2. All other garages in which provisions are made for the care, storage, repair or painting of motor vehicles as follows:

a. Greater than 10,000 sq. ft. in area per floor;

b. Greater than 7,500 sq. ft. in area per floor and more than one story in height;

c. Greater than 5,000 sq. ft. in area per floor and more than 2 stories in height;

d. More than 3 stories in height;

e. When located in buildings where the upper stories are used for another occupancy and the garage is not separated from the other occupancy by at least 3-hour fire-resistive rated construction;

f. Where located in any floor level more than 50% below grade; or

g. Bus garages for storage of 4 or more buses.

3. Buildings used primarily for the sale of farm machinery are exempt from provisions of this section.

(4) **FIRE DIVISION WALL SEPARATIONS.** Buildings requiring complete automatic fire sprinkler systems because the area of the building exceeds the area limitations specified in sub. (3) may be constructed without the automatic fire sprinkler system provided the building is divided into areas less than the area limitations specified in sub. (3) by 4-hour rated vertical fire division walls as specified in s. Ind 51.02 (14).

(5) **ADDITIONS TO BUILDINGS.** Additions to buildings which result in the area of the entire building exceeding the area limitations specified in sub. (3) shall be protected as follows:

(a) The existing building and the building addition shall be completely protected by an automatic fire sprinkler system;

(b) The building addition shall be separated from the existing building by a 4-hour rated vertical fire division wall as specified in s. Ind 51.02 (14) and the building addition shall be completely protected by an automatic fire sprinkler system; or

(c) The existing building and the building addition shall be separated by 4-hour rated fire division walls as specified in sub. (4).

History: A Register, June, 1983, No. 330, eff. 7-1-83.

**Ind 52.02 Windows.** (1) **NATURAL LIGHT.** (a) Except as provided in par. (b), every room in which one or more persons live, sleep, shall be lighted by a window or windows opening directly upon a street or alley, or upon a court on the same lot with the building.

1. The windows shall be so constructed and distributed as to afford light.

2. Every building more than 40 feet deep measuring at right angles to the windows, shall have windows on at least 2 sides of the building.

Note: For windows and other outdoor openings used for natural ventilation, see ss. Ind 64.07, 57.13, 58.03, 58.45 and 60.13.

(b) 1. Windows shall not be required in storage rooms, factories, offices, mercantile facilities, educational facilities or areas where the nature of occupancy will not permit windows provided artificial lighting as specified in ch. Ind 19 is provided.

2. Hotel and motel rooms and similar sleeping rooms in buildings accommodating transients need not be provided with openable windows provided the rooms have clear glazed panels facing naturally lighted pool or recreation areas. The rooms shall be provided with mechanical ventilation supplying at least 5 CFM of tempered outside air per occupant.

(2) **FIRE DEPARTMENT ACCESS OPENINGS.** (a) Except as provided in par. (b), every story, cellar or basement of all buildings except hospitals, nursing homes, community-based residential facilities, day care centers and buildings used for farming purposes or primarily for the sale of farm machinery shall be provided with at least 20 square feet of opening en-

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tirely above the adjoining ground level in each 50 lineal feet or fraction thereof of exterior wall in the story, cellar or basement, on at least one side of the building.

1. Openings shall have a minimum dimension of not less than 22 inches.

2. The openings shall be accessible to the fire department from the exterior and shall be unobstructed to allow firefighting and rescue operations from the exterior.

3. Every story of a building more than 75 feet deep, measuring at right angles to the openings, shall have openings in that story on at least 2 sides of the building.

4. Openings in the basement or cellar shall be located so any location in the basement or cellar is within 75 feet of an opening.

(b) Automatic fire sprinkler systems shall be required under the following conditions:

1. When openings in a story are provided on only one side of the building and the building is more than 75 feet deep, measuring at right angles to the building; or

2. When any location in a basement or cellar is located more than 75 feet from any fire department access opening.

History: 1-2-56; am. Register, December, 1962, No. 84, eff. 1-1-63; r. and recr. (1) (a), Register, October, 1967, No. 142, eff. 11-1-67; am. (1) (a) Register, May, 1971, No. 185, eff. 6-1-71; r. and recr., Register, September, 1973, No. 213, eff. 10-1-73; cr. (1) (b), Register, January, 1980, No. 289, eff. 2-1-80; r. and recr. Register, June, 1983, No. 330, eff. 7-1-83.

Ind 52.03 Window cleaning. (1) Where the tops of windows to be cleaned are more than 20 feet above the floor, ground, flat roof, balcony, or permanent platform, one of the following means shall be provided to protect the window cleaners.

(a) Approved attachments for window cleaner safety belts to which belts may be fastened at each end. The attachments shall be permanent devices that shall be firmly attached to the window frame, or to the building proper, and so designed that a standard safety belt may be attached thereto; or

(b) An approved portable platform that is projected through the window or supported from the ground, floor, roof or platform level, for the window cleaner to stand upon and that is designed, constructed, maintained and equipped with handrail and toeboard in compliance with the requirements of ch. Ind 1.

(c) A suspended scaffold, swinging scaffold, swinging chair scaffold, or boatswain's chair scaffold designed, constructed, equipped and maintained in compliance with the requirements of ch. Ind 35, or

(d) Other equally effective devices.

(e) Where the window consists of a fixed panel not more than 24 inches in width alongside a removable panel, the fixed panel may be cleaned by reaching through the opening of the removable panel. Where the window consists of a fixed panel between 2 removable panels, the fixed panel may

be cleaned by reaching through the openings if such fixed panel is not more than 36 inches in width.

(2) For cleaning the insides of skylights (the highest parts of which are more than 20 feet above the floor, ground, balcony or permanent platform), to which access cannot be gained by any of the means described in s. Ind 1.16 (1), scaffolds as specified in ch. Ind 35 shall be provided.

(3) All equipment, including building parts and attachments, used in connection with window cleaning, shall be maintained in reasonably safe condition while in use and shall be inspected at least once each month while in use, and within 30 days before their use. It shall be the responsibility of the owner of the individual safety devices or equipment to inspect and maintain the devices or equipment belonging to the owner so that each will comply with the requirements of this section.

(4) Where the attachments specified in sub. (1) (a) are relied upon for compliance with the provisions sub. (1), the employer shall furnish or see that there is provided, an approved suitable safety belt for each employe while cleaning windows.

History: 1-2-56; am. Register, December, 1962, No. 84, eff. 1-1-63; am. (1) (a), (3) and (4), Register, December, 1981, No. 312, eff. 1-1-82.

**Ind 52.04 Requirements for barrier-free environments. (1) SCOPE.** The requirements of this section are intended to insure that all public buildings and places of employment shall be accessible and usable by all citizens, including those with functional limitations.

Note: Owners intending to utilize federal funds for buildings may have to comply with other requirements in addition to Ind 52.04, such as the latest revised ANSI A 117.1, Specific-