

Chapter ILHR 52

GENERAL REQUIREMENTS

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Note: Chapter Ind 52 was renumbered to be Chapter ILHR 52 effective 1-1-84.

**ILHR 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. ILHR 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. ILHR 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. ILHR 51.02 (13). The requirements of this section shall not apply to open parking structures as defined in s. ILHR 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.

(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. ILHR 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. ILHR 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 [ILHR 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. ILHR 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.

**FP** (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.

(i) *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. 1-1-75; cr. (1), Register, April, 1975, No. 232, eff. 5-1-75; cr. (2), Register, April, 1975, 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.

**ILHR 52.015 Automatic fire sprinkler systems for low rise buildings. (1) FP**  
**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. ILHR 51.23.

**Note #1:** See s. ILHR 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. a. Except as provided in subpars. b. and c., storage and workshop areas exceeding 50 sq. ft. in area and located in assembly halls, theaters, offices, schools and residential occupancies;

b. Storage and workshop areas within individual living units are exempt from the provisions of subpar. a.

c. Rooms or areas used for storage of noncombustible materials, low hazard wares that do not burn rapidly or combustible materials stored in metal cabinets are exempt from the provisions of subpar. a.

**Note:** See A52.015 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. ILHR 64.67 (6); and

5. Windowless floor levels. a. Except as provided in subpars. b. to e., floor levels of buildings without openings as specified in s. ILHR 52.02 (2) (a) shall be protected by an automatic fire sprinkler system.

b. Buildings or portions of buildings of totally noncombustible construction and containing noncombustible contents are exempt from the provisions of subpar. a.

c. Factory occupancies housing low hazard industrial processing are exempt from the provisions of subpar. a.

d. Within telephone central office equipment buildings, the automatic fire suppression system may be omitted in the generator and transformer rooms and the communication equipment areas provided the rooms or areas are protected with an approved automatic fire alarm system. The communication equipment areas shall be used exclusively for the equipment and shall be separated from the remainder of the building by at least one-hour fire-resistive rated walls and at least 2-hour fire-resistive rated floor/ceiling assemblies.

e. Windowless floor levels within individual living units are exempt from the provisions of subpar. a.

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

(c) *Restaurants and recreation centers.* 1. Except as provided in subd. 2., restaurants and recreation centers, either of which exceed 12,000 square feet in area per floor.

2. Indoor participant recreation centers, including tennis courts, skating rinks, swimming pools and equestrian clubs, are exempt from the provisions of subd. 1., provided the following conditions are satisfied.

a. Direct exits to the outside are provided for all the occupants;

b. The recreation area is conspicuously posted as to use and occupant load;

c. The building is equipped with a manual fire alarm system as specified in s. ILHR 51.24; and

d. All areas of the building other than the participant recreation areas are protected by an automatic fire suppression system.

(d) *Dance halls and night clubs.* Dance halls and night clubs either of which exceed 5,000 square feet in total area or are more than one story in height.

(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 and other places of assembly with fixed seats except places of worship.* Except for places of worship, all areas of theatres and other places of assembly 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:

1. Over the stage;

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) *Museums, art galleries and libraries.* Museums, art galleries and libraries any of which exceed 12,000 square feet in area per floor.

(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) **AREA SEPARATION WALLS.** (a) Buildings having an area exceeding the area limitations specified in sub. (3) may be constructed without complete automatic fire sprinkler systems provided the building is divided into areas less than the specified area limitations by at least 2-hour rated vertical fire separation walls.

(b) Where additions to buildings result in the area of the entire building exceeding the area limitations specified in sub. (3), the existing building and the building addition shall be protected as follows:

1. The existing building and the building addition shall be completely protected by an automatic fire sprinkler system;

2. The building addition shall be separated from the existing building by a 2-hour rated vertical fire separation wall. If the area of the building addition exceeds the area limitations specified in sub. (3), the building addition shall be completely protected by an automatic fire sprinkler system or the building addition shall be divided with 2-hour rated vertical fire separation walls as specified in par. (a); or

3. The existing building and the building addition shall be separated by 2-hour rated vertical fire separation walls as specified in par. (a).

(5) **MULTIPLE USE BUILDINGS.** Where a building contains multiple occupancies or use areas and one occupancy or use area is required by sub.



(3) (b) to (1) to be protected by an automatic fire sprinkler system having more than 20 sprinkler heads, one of the following conditions shall apply:

(a) The occupancy or use area protected by the automatic fire sprinkler system shall be separated from the unprotected areas by at least 2-hour fire-resistive rated construction; or

(b) The entire building shall be protected by an automatic fire sprinkler system.

Note: See ss. ILHR 55.05 and 59.22 for occupancy separation requirements mandating fire-resistive separations of more than 2-hour rating.

(6) SEPARATION WALLS FOR PARTIAL AUTOMATIC FIRE SPRINKLER SYSTEMS. Where the provisions of sub. (3) (a) require the protection of an automatic fire sprinkler system, the protected area or room shall be enclosed with construction assemblies as specified in chs. ILHR 54 to 62 and as designated in Table 51.03-A for the class of construction.

Note: This rule is intended to require an effective fire barrier between those portions of the building protected by the automatic fire sprinkler system and the adjoining unprotected portions. The fire barrier is not required to be of fire-resistive construction unless required for the occupancy, use or class of construction.

History: Cr. Register, June, 1983, No. 330, eff. 7-1-83; emerg. r. and recr. (4) and r. (5), eff. 10-10-83; am. (3) (a) 1. and 5., (h), r. (3) (b) 2. b., renum. (3) (b) 2. c. to be (3) (b) 2. b., r. and recr. (3) (c), (d), (j), (4) and (5), cr. (6), Register, February, 1984, No. 338, eff. 3-1-84.

**ILHR 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. ILHR 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 or basement either of which is not protected by an automatic fire sprinkler system shall be provided with at least 20 square feet of aggregate opening entirely above the adjoining ground level in each 50 lineal feet or fraction thereof of exterior wall in the story or basement, on at least one side of the building.

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1. Openings shall have minimum dimensions of not less than 22 inches by 42 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.

a. A clear space not less than 5 feet in width measured perpendicular to the building wall shall be provided outside of windows or access panels.

b. Access to a basement may be provided by a door opening directly to an outside stairway not less than 3 feet in width.

c. A skylight or hatch may serve as a basement access opening if a ladder or stairs from the floor below is provided.

d. Access openings shall be doors, windows, glazed panels or other panels readily indentifiable and openable from the outside. Access panels requiring the use of a key, special tools or devices for opening will be permitted if approved by the fire department having jurisdiction.

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

(b) The provisions of par. (a) do not apply to the following:

1. Hospitals;
2. Nursing homes;
3. Community-based residential facilities;
4. Day care centers;
5. Buildings used for farming purposes or primarily for the sale of farm machinery; and
6. Buildings listed in s. ILHR 52.015 (3) (a) 5. b. to e.

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; r. and recr. (2), Register, February, 1984, No. 338, eff. 3-1-84.

**ILHR 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.