

**4.11 AUTOMATIC FIRE SPRINKLER SYSTEMS - (Ord. 1460)**

1. AUTOMATIC FIRE SPRINKLER SYSTEM REQUIRED FOR CERTAIN BUILDINGS

- (a) An approved Automatic Fire Sprinkler system shall be installed throughout and maintained in operable condition in all new buildings regardless of size, construction, height, fire division wall separations and occupancy, except as provided in Section 4.11 (b).
- (b) Exceptions. Automatic fire sprinkler systems shall not be required in:
  - (i) One and two-family dwellings
  - (ii) Any other locations where the installation of sprinklers may increase the occupational hazard as determined by the Fire Chief.
  - (iii) The Fire Department is authorized to modify any of the provisions of this code upon application by the owner, lessee, or a duly authorized representative where there are practical difficulties in the way of carrying out the provisions of the code, provided that the intent of the code shall be complied with, public safety secured, and substantial justice done. (Ord. 1681)

2. DESIGN AND INSTALLATION

- (a) The design and installation of any automatic fire sprinkler system shall be completed in accordance with NFPA 13-- Standard for Installation of Sprinkler Systems and other applicable standards of NFPA.
- (b) Additional design requirements:
  - (1) System Drain: The system shall have a drain piped to the outside of the building or to a drain suitable to handle the required flows.
  - (2) Inspector's Test Valve: The system shall have an inspector's test valve piped so as to discharge to the outside of the building, or to a drain suitable to handle the required flows.
  - (3) Alarm Bells or Horns: Alarms, bells or horns shall be installed on all systems. Bells or horns shall be installed on the inside of the building, and shall be in each unit or tenant space. A Mechanical Water Gong alarm shall be installed on the outside of the building.

- (4) Residential Occupancies: In multifamily residential buildings without a common interior area, the sprinkler system riser shall be located in a separate heated room with direct access to the outside of the building for use by the fire department.

3. MONITORING REQUIREMENTS

- (a) New sprinkler systems installed under this chapter shall be monitored by an approved off-site central station monitoring service.
- (b) The monitoring shall include water flow indication and tamper switches on all valves in the system. The system shall be tied into the building fire and smoke detection alarm system to signal to the occupants that water is flowing.

4. CONDITIONAL APPROVAL REQUIRED FOR INSTALLATION

No automatic sprinkler equipment shall be installed or altered in any building until plans have been submitted to and conditionally approved by the Building Inspector and the Fire Department. Two copies of the plans and the specifications shall be submitted.

5. INSTALLATION OF SPRINKLER SYSTEMS - INSPECTION SERVICES REQUIRED

- (a) Installation of Sprinkler Systems: The installations of all sprinkler piping, heads, risers shall be inspected by the Fire Department before being covered.
- (b) Installation of Underground Piping: The installation of underground piping shall be inspected by the Fire Department prior to being covered.
- (c) The installer shall provide minimum three (3) working days advanced notice to the Fire Department prior to performance of final acceptance test.

6. FINAL APPROVAL, ACCEPTANCE TEST - AUTOMATIC SPRINKLER SYSTEM

- (a) The sprinkler system shall have a hydrostatic test performed in the presence of a Fire Department inspector.
- (b) The sprinkler system shall be tested by flows of the main drain and inspector's test. The acceptance test shall be conducted by the installer in the presence of a Fire Department inspector.
- (c) The installer shall provide minimum three (3) working days

advanced notice to the Fire Department prior to performance of final acceptance test.

7. AUTOMATIC SPRINKLER SYSTEM -- ANNUAL TEST REQUIREMENTS -- OWNER'S RESPONSIBILITY TO MAINTAIN AUTOMATIC SPRINKLER SYSTEM

- (a) Maintenance - Automatic fire sprinkler systems shall be maintained for efficient service as specified within NFPA 13A -- Standard for the Care and Maintenance of Systems.
- (b) A qualified sprinkler technician shall inspect and test the automatic sprinkler system at least annually. The provisions of NFPA 13A, Chapters 7-21, shall be used as the inspection criteria.
- (c) A current test record shall be posted adjacent the sprinkler control valve.

8. MAINTENANCE OF EQUIPMENT

Any sprinkler system which has been installed pursuant to this section or in compliance with any other statute, ordinance or regulation, shall be maintained in operative condition at all time. It shall be unlawful for any owner or occupant to reduce the effectiveness of the protection so required; provided, however, that the owner or occupant may temporarily reduce or discontinue the protection where necessary to make tests, repairs, alterations or addition to the system or appliance. The Fire Chief shall be notified before any system is reduced or discontinued for such repair, alteration or addition and shall be notified promptly upon the system's restoration to service.

**4.12 ALARM SYSTEMS (Fire and Smoke Detection) (Ord. 1461)**

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2. WHERE REQUIRED (Ord. 1681)

Smoke and heat detection systems shall be installed in all spaces in all new buildings regardless of size or construction except for one and two-family dwellings. The detection systems shall be in all spaces, including, but not limited to, hidden spaces (e.g. attics, crawl spaces, truss constructed areas), basements, store rooms, closets, occupied and unoccupied areas. One and two-family dwellings shall have smoke detection systems as required by the Wisconsin Statutes and the Wisconsin Administrative Code. The Fire Department is authorized to modify any of the provisions of this code upon application by the owner, lessee, or a duly authorized representative where there are practical difficulties in the way of carrying out the provisions of the code, provided that the intent of the code shall be complied with, public safety secured, and substantial justice done.

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4. INSTALLATION

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(e) External Devices:

- (i) The system shall utilize UL or FM listed fire alarm initiating devices (pull stations, smoke detectors, heat detectors, water flow switches, duct detectors, etc.) and UL or FM listed fire alarm indicating devices (horns, bells, visual lights, etc.). Smoke detectors shall possess a Light Emitting Diode (LED) lamp to indicate "ready" or "alarm" status.
- (ii) Smoke Detectors (Photoelectric, Ionization) shall be installed approximately 30 feet on center, locate don the ceiling or wall of the protected area. Smoke detection shall be provided but not limited to the following areas: basements, common hallways, stairwells, sleeping rooms and all other rooms over 50 square feet in size.
- (iii) Heat detectors shall be installed approximately 50 feet on center, located on the ceiling of the protected area. Heat detection shall be provided but not limited to the following areas: furnace rooms, engine rooms, garages, hidden spaces and kitchens and all other rooms under 50 square feet in area. Heat detectors shall also be installed as a

substitution for smoke detectors in locations determined by the Fire Chief to be unsuitable for smoke detector installation.

(iv) Horns/Bells:

- (a) Alarm System Horns: Horns used as the audible alarm indicating appliance shall be 24 volt direct current (DC) horns of metal construction with a minimum sound pressure output of 87 db at 10 feet. Fire alarm horns shall be UL or FM listed for fire alarm use. Horns shall be adaptable for surface or semi-flush mounting and be suitable for use within combination audio- visual systems.
- (b) Alarm System Bells: Bells used as the audible alarm indicating appliance shall be 24 volt DC bells of the vibrating or single stroke type with a minimum sound pressure output of 90 db at 10 feet. Bells shall be UL or FM listed for fire alarm use. Bells shall be suitable for surface or semi-flush mounting and be suitable for use within combination audio-visual systems.
- (c) Visual Flashing Lamps: Visual indicating appliances shall be comprised of a strobe-type flashtube and be entirely solid state. These devices shall be UL or FM listed and be capable of either ceiling or wall mounting. Visual units shall incorporate a built-in reflector to improve lighting characteristics. Visual units shall be incorporated as part of the horn or bell assemble.
- (d) Horns, Bells, or Visual Flashing Lamps shall be installed in each unit, living space or tenant space in the building.

5. SYSTEM OPERATION

- (a) Alarm initiating devices shall be grouped in zones identified by Zone LED's on the control panel and at the remote annunciator.
- (b) Actuation of an alarm initiating device shall:
  - (i) Cause the respective red zone alarm LED on the control panel to flash until the "acknowledge" switch is actuated at the control panel. Once acknowledged, the zone LED shall be constantly illuminated until the actuating device is

restored to normal and the system is reset or equivalent operation.

- (ii) The audible system indicating appliance shall sound through the entire facility until the system alarm acknowledge/silence switch is operated.
  - (iii) Visual indicating appliances shall flash until the acknowledge/silence switch is operated.
  - (iv) After the acknowledge switch is operated, subsequent activation of an initiating appliance shall cause the alarm bells or horns to resound, and the visual indicating appliances to flash.
- (c) Each alarm circuit and indicating appliance circuit shall be electrically supervised. Any disarrangement of system wiring such as opens or grounds shall activate the audible and visual trouble indicators at the control panel. Actuation of the trouble silence switch shall silence the audible trouble indicator but the trouble LED shall remain lit. The trouble LED shall be non-canceling, except by an actual clearing of the trouble condition and restoring the trouble silence switch to normal.
- (d) The alarm system shall provide for the selection of:
- (i) Desired type of signal operation; alarm signal tempos, area selective codes, zone codes, general alarm codes, and alarm silence inhibit.
  - (ii) UL or FM approved alarm verification operation.
  - (iii) Water flow/Sprinkler supervisory operation on a distinct zone of the system.
- (e) Upon actuation of smoke detector, the LED on the smoke detector shall remain constantly illuminated until the system is reset.

