CHAPTER 9
FIRE PROTECTION SYSTEMS

SECTION 901
GENERAL

901.1 Scope. Provisions of this chapter shall govern the application, design, installation, testing and maintenance of automatic sprinklers, standpipes and fire alarms.

SECTION 902
DEFINITIONS

For definitions, see Chapter 2.

SECTION 903
SPRINKLERS

903.1 Approved equipment and layout. Only approved sprinklers and devices shall be used in automatic sprinkler systems, and the complete layout of the system shall be submitted to the building official for approval before installation.

903.2 Requirements. Every automatic sprinkler system required by this code shall conform to NFPA 13, as modified by NFPA 231 and NFPA 231C, except that a single water supply of adequate pressure, capacity and reliability, equal to the primary supply required by those standards, may be permitted by the building official. Automatic sprinkler systems installed in lieu of or as an alternate to other requirements, as permitted by this code, shall be considered required systems and shall comply with NFPA 13.

903.3 Material. Piping shall be as specified in NFPA 13.

903.4 Hose threads. All hose threads in connections shall be uniform with that used by the fire department of the applicable governing body.

903.5 General. Approved automatic sprinkler equipment meeting the requirements of 903 shall be installed in buildings as follows:
1. Basements having floor areas exceeding 2,500 sq ft (232 m²) when used as workshops or for manufacture, repair, sale or storage of combustible materials or when used as lounges or nightclubs regardless of the size. (See 903.4.1, Exception 2.)
2. In buildings which do not have suitable access, as set forth in 1405, to each story above grade on at least one accessible side of the building. Openings which are glazed with security glazing designed to withstand breakage shall not be considered as access openings.
3. See the Florida Fire Prevention Code.
4. See 407.1.3, 411.7.6 and 411.7.7.
5. Spray finishing booth, area or room shall comply with the Florida Fire Prevention Code.

903.6 Garages. Approved automatic sprinkler systems shall be provided in the following garages:
1. Enclosed parking garages over 65 ft (19.8 m) high and exceeding 10,000 sq ft (929 m²) per floor.
2. Repair garages two stories or more high, and exceeding 10,000 sq ft (929 m²) in a single floor area.
3. One story repair garages exceeding 15,000 sq ft (1394 m²).
4. Basement garages or repair garages in a basement.
   Exception: Group R3 occupancies.
5. Garages used for the storage of commercial trucks and having an area exceeding 5,000 sq ft (465 m²).
6. Bus garages when used as passenger terminals for four or more buses or when used for bus storage or loading of four or more buses.

903.7 Other occupancy sprinkler requirements
903.7.1 Group M. An approved automatic sprinkler system shall be provided in all mercantile occupancies as follows:
1. In all mercantile occupancies three or more stories in height.
2. In all mercantile occupancies exceeding 12,000 sq ft (1115 m²) in gross area.
3. Throughout stories below the level of exit discharge where such stories have an area exceeding 2500 sq ft (230 m²) where used for the sale, storage or handling of combustible goods and merchandise.
4. In mixed occupancies including a mercantile occupancy meeting any of the provisions of 1 through 3 above.

903.7.2 Group A
903.7.2.1 An approved automatic sprinkler system shall be provided in Group A-1 occupancies over areas which could be used for the display, sale or storage of combustible materials when such display, sale or storage floor area exceeds 15,000 sq ft (1394 m²).
903.7.2.2 Stages shall be provided with an approved automatic sprinkler system. Such sprinklers shall be provided throughout the stage and in dressing rooms, workshops, storerooms and other accessory spaces contiguous to such stages.

Exceptions:
1. Sprinklers are not required where stages are 1,000 sq ft (93 m²) or less in area and 50 ft (15.2 m) or less in height and curtains, scenery or other combustible hangings are not retracted vertically. Combustible hangings shall be limited to a single main curtain, borders, legs and a single backdrop.
2. Sprinklers are not required under stage areas less than 4 ft (1219 mm) in clear height used...
exclusively for chair or table storage and lined on the inside with 5/8 inch (15.9 mm) Type X gypsum wallboard or approved equal.

903.7.2.3 Buildings or portions thereof used for the specific purpose of sound stages for motion picture or television productions and greater than 1,000 sq ft (93 m²) shall be protected with an approved automatic sprinkler system.

903.7.2.4 In addition to sprinklers as may be required by Table 500, buildings containing assembly occupancies with occupant loads greater than 300 shall be protected by an approved automatic sprinkler system installed in accordance with 903.2 as follows:

1. Throughout the story containing the assembly occupancy; and
2. Throughout all stories below the story containing the assembly occupancy; and
3. In the case of an assembly occupancy located below the level of exit discharge, throughout all stories intervening between that story and the level of exit discharge including the level of exit discharge.

Exceptions:
1. Assembly occupancies used primarily for worship with fixed seating and not part of a mixed occupancy.
2. Assembly occupancies consisting of a single multipurpose room of less than 12,000 sq ft (1100 sq m) and not used for exhibition or display.
3. Gymnasiums, skating rinks, and swimming pools used exclusively for participant sports with no audience facilities for more than 300 persons.
4. In stadia and arenas, sprinklers shall be permitted to be omitted over the floor area used for contest, performance, or entertainment; over the seating areas; and over open-air concourses where an approved engineering analysis substantiates the ineffectiveness of the sprinkler protection due to building height and combustible loading.
5. In unenclosed stadia and arenas, sprinklers shall be permitted to be omitted in the following areas:
   (1) Press boxes less than 1000 ft² (93 m²)
   (2) Storage facilities less than 1000 ft² (93 m²).
   (3) Enclosed areas underneath grandstands that are kept free of flammable or combustible materials, that are not greater than 300 ft² (28 m²), of noncombustible material or fire resistive construction; or, are not greater than 1000 ft² (93 m²) and of one-hour fire resistant construction. Such enclosed areas shall be in facilities not required to be sprinklered by other provisions of this code.

903.7.3 High-Piled combustible stock. An approved automatic sprinkler system shall be provided throughout buildings required by the Florida Fire Prevention Code to have sprinkler protection.

Exception: Automatic sprinkler systems may be provided only in the storage area of the building when the storage is separated from the remainder of the building by a minimum 2-hour fire resistant separation.

903.7.4 Hazardous production material (HPM) facility. An approved automatic sprinkler system shall be provided throughout buildings containing Group H (HPM) facilities as defined in 408, shall be designed in accordance with NFPA 13 and not less than that required for the special fire hazard areas shown in Table 903.7.4.

<table>
<thead>
<tr>
<th>TABLE 903.7.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZARDOUS PRODUCTION MATERIAL FACILITIES</td>
</tr>
<tr>
<td>SPECIAL FIRE HAZARD AREA REQUIREMENTS</td>
</tr>
<tr>
<td>LOCATION</td>
</tr>
<tr>
<td>Fabrication Areas</td>
</tr>
<tr>
<td>HPM Service Corridors</td>
</tr>
<tr>
<td>HPM Separate Inside Storage Rooms Without Dispensing</td>
</tr>
<tr>
<td>Exit Access Corridors</td>
</tr>
</tbody>
</table>

903.7.5 Group R1 - Residential Occupancy. An approved automatic sprinkler system shall be provided throughout Group R1 occupancies three or more stories in height.

903.7.6 Group R2 - Residential Occupancy. An approved automatic sprinkler system shall be provided throughout Group R2 occupancies three or more stories in height.

Exceptions:
1. Three-story buildings which are not required to have an automatic sprinkler system by other provisions of the code and provided with exterior exitway stairs complying with 1006.2.
2. An automatic sprinkler system complying with NFPA 13R shall be permitted for buildings not exceeding four stories in height provided the automatic sprinkler system shall not be considered as an alternate to other requirements of the code. (See 903.2.)

903.7.7 Group R4 — Residential Care/Assisted Living Occupancies. An approved automatic sprinkler system shall be provided throughout all Group R4 occupancies in accordance with NFPA 13. Group R4 occupancies shall be protected with quick-response or residential sprinklers.

Exceptions:
1. In Group R4 Small Occupancies an automatic sprinkler system installed in accordance with
NFPA 13D or NFPA 13R in accordance with their scopes, shall be permitted provided the automatic sprinkler system shall not be considered an alternate to other requirements of the code.

2. Standard response sprinklers shall be permitted in hazardous areas in accordance with Table 410.2.2.

903.8 Buildings three stories or more in height.

903.8.1 Any building which is of three stories or more in height shall be equipped with an approved automatic sprinkler system installed in accordance with 903.1.

Exceptions:
2. A stand-alone parking garage constructed with noncombustible materials, the design of which is such that all levels of the garage are uniformly open to the atmosphere on all sides with the percentages of openings equal to or greater than those specified at 411. Such garages shall be separated from any other structure by not less than 20 ft.
3. Telecommunication spaces located within telecommunication buildings, if the spaces are equipped to meet an equivalent fire-prevention standard approved by both the Florida Building Commission and the State Fire Marshal.

903.8.2 The National Fire Protection Association Standard 101, as regarding the requirements for fire protection sprinklers, is applicable to all multiple-family residential buildings, whether designated as townhouses, condominiums, "apartment houses, tenements, garden apartments or by any other name." The Attorney General has determined that for the purpose of the fire protection sprinkler requirements in Section 553.895(2), Florida Statutes, townhouses that are three or more stories tall and consist of three or more units together are multiple-family dwellings. Therefore, these types of townhouses are not exempt from being considered for the requirements to provide fire protection sprinklers (even if there are any other definitions that define townhouse as single-family residences). When determining whether townhouses require fire protection sprinkler systems, the building official must consider in parallel: (a) The Attorney General's opinion defining the statutory language for townhouses; and (b) The Building Code requirements, including all life-safety chapters, that provide additional determining criteria, such as construction types, fire-resistance, fire protection systems and egress; and (c) The NFPA 101 egress and protection determining criteria. The more restrictive criteria are then applied.

903.9 Supervision

903.9.1 Where an automatic sprinkler system is provided either as a requirement or as an alternate to another requirement of this code, the system shall be supervised by an approved central, proprietary, auxiliary, or remote station system in accordance with NFPA 72.

Exception: Supervisory facilities in accordance with 903.9 shall not be required for extinguishing systems in one- and two-family dwellings.

903.9.2 In HPM Facilities, as defined in 408, all valves shall be provided with supervisory tamper switches. In addition to the requirements of 903.9.1, the closing of a valve shall activate an audible and visual signal at the emergency control station.

903.9.3 When a building fire alarm system is provided, actuation of the sprinkler system shall cause the building alarm to sound.

SECTION 904
STANDPIPES

904.1 Approval

904.1.1 Unless otherwise provided herein, standpipe system design, installation and testing requirements shall comply with NFPA 14.

904.1.2 The complete layout of the standpipe and hose system shall be submitted to the building official before installation.

904.2 Where required

904.2.1 Standpipes shall be provided in all buildings in which the highest floor is greater than 30 ft (9144 mm) above the lowest level of fire department vehicle access.

Exception: Standpipes are not required in Group R3 buildings.

904.2.2 Standpipes shall be provided in buildings in which the highest floor is 30 ft (9144 mm) or less above the lowest level of fire department vehicle access and exceeding 10,000 sq ft (929 m²) in area per story when any portion of the building's interior area is more than 200 ft (61 m) of travel from the nearest point of fire department vehicle access.

Exceptions:
1. Standpipes are not required in Group R2 with eight units or less, R3 and S2 occupancies.
2. Standpipes are not required in buildings protected throughout with automatic sprinklers installed in accordance with NFPA 13.
904.2.3 Stages greater than 1,000 sq ft (93 m²) in area shall be provided with 1 1/2 in. hose lines for first aid fire fighting at each side of the stage. Hose connections shall be in accordance with NFPA 13, or, where Class II or III standpipes are provided, in accordance with NFPA 14.

904.2.4 Covered malls shall be provided with standpipe connections in accordance with 413.9.

904.2.5 Standpipes shall be provided in public assembly halls more than 5,000 sq ft (465 m²) in area used for exhibition or display purposes.

904.2.6 Standpipes shall be provided in nonsprinklered Group A buildings having an occupant load exceeding 1,000 persons.

904.3 Class and type system
904.3.1 Standpipes required by 904.2.1 and 904.2.6 shall be Class I automatic wet standpipes.

Exception: Class I automatic and semi-automatic dry standpipes shall be permitted in those buildings where the highest floor surface used for human occupancy is 75 ft (22.9 m) or less above the lowest level of fire department vehicle access.

904.3.2 Standpipes required by 904.2.3 shall be Class III dry standpipes.

904.3.3 Standpipes required by 904.2.5 shall be Class II wet standpipes.

904.3.4 Standpipes required by 904.2.2 shall be Class I dry filled standpipes having a small water supply connection to keep the piping full but requiring water to be pumped into the system for fire fighting purposes or any Class I standpipe permitted by 904.2.

904.3.5 In buildings requiring standpipes in accordance with 904.2, dry standpipes having no permanent water supply may be installed when, in the opinion of the building official and the fire official, a constant and automatic water supply is not necessary.

904.3.6 In a building less than 75 feet in height which is protected throughout with an approved and maintained fire sprinkler system, a manual wet standpipe, as defined in the National Fire Protection Association Standard 14, Standard for the Installation of Standpipe Private Hydrant and Hose Systems, shall be allowed.

904.4 Hose connection location. Hose connections for standpipes shall be in accordance with NFPA 14.

904.5 Standpipes during construction. See 3311.3 for standpipes required during construction.

904.6 Supervisory facilities. Where a building fire alarm system is provided, the closing of any standpipe water supply valve including any valves associated with a fire pump installation shall cause an audible supervisory signal to sound at the fire alarm annunciator or at a constantly attended location. If the building does not have a fire alarm system, locks shall be provided on all valves and shall be of a type acceptable to the building official.

904.7 Water supply
904.7.1 Standpipe piping may be used to supply water for automatic sprinkler systems.

904.7.2 For nonsprinklered buildings, and sprinklered buildings having floor surfaces used for human occupancy located more than 75 ft (22.9 m) above the lowest level of fire department vehicle access, the water supply shall meet the requirements of NFPA 14.

904.7.3 For sprinklered buildings having floor surfaces used for human occupancy located 75 ft (22.9 m) or less above the lowest level of fire department vehicle access, required water supply shall meet minimum water pressure requirements of NFPA 13 and shall be:

1. 500 gpm (31.6 L/s) for light hazard occupancy as defined in NFPA 13.
2. 1,000 gpm (63.1 L/s) for ordinary hazard occupancy as defined in NFPA 13.
3. In no case shall the water supply be less than the automatic sprinkler demand including hose stream allowance.

904.8 Signs. If control valves are located in a separate room, a sign shall be provided on the entrance door to that room. The lettering shall be at least 4 inches (102 mm) high, of a color contrasting with the background, and shall read STANDPIPE CONTROL VALVE.

SECTION 905
FIRE ALARMS

905.1 Manual fire alarm systems
905.1.1 General. A fire alarm system in accordance with NFPA 72 shall be installed in all the following occupancies:

- Group A having an occupant load of 1,000 persons or more.
- Group B having an occupant load of 500 or more persons or more than 100 persons above or below the street floor.
- Group E.
- Group F two stories or more in height, and having an occupant load of 500 or more persons above or below the street floor level.
- Group H.
- Group I.
- Group M having an occupant load of 500 or more persons or more than 100 persons above or below the street floor level.
- Group R.
- R1 occupancies having accommodations for more than 15 guests.
- R2 Apartment houses four or more stories in height, and dormitories or rooming houses (not transient) having more than 15 sleeping accommodations.
- R4 occupancies.

Exceptions:
1. Group R1 and R2. Where each guest room in R1 occupancies, dormitories and rooming houses...
905.1.2 Manual fire alarm boxes shall be located not more than 5 ft (1524 mm) from the entrance to each exit.

905.1.3 Each floor shall be zoned separately. No one zone may exceed 15,000 sq ft (1394 m²). A zone indicator panel shall be located at grade level at the normal point of fire department access or at a constantly attended building security control center.

Exception: Automatic sprinkler system zones shall not exceed the area permitted by NFPA 13.

905.1.4 Upon completion of the fire alarm system, all alarm initiating devices and circuits, alarm indicating appliances and circuits, supervisory signal initiating devices and circuits, signaling line circuits and primary and secondary power supplies shall be subjected to a 100 percent acceptance test in accordance with NFPA 72.

905.1.5 Alarm indicating appliances

905.1.5.1 Required. Alarm indicating appliances listed for the purpose shall be provided.

905.1.5.2 Accessibility. Every required fire alarm system shall include visible alarm indicating appliances in public and common areas. For more specific accessibility requirements related to alarm indicating appliances, refer to 905.1.5.5 and 11-4.28.

905.1.5.3 Activation. The alarm indicating appliances shall be automatically activated by all of the following where provided:

1. Smoke detectors, other than single-station or multiple-station smoke detectors, as required by 905.2. Activation of the alarm system by smoke detectors shall be by either two cross-zoned smoke detectors within a single protected area or a single smoke detector monitored by an alarm verification zone or an approved equivalent method.
2. Sprinkler water-flow devices;
3. Manual fire alarm boxes; and
4. Other approved types of automatic fire detection device suppression systems.

905.1.5.4 Audible Alarms. Audible alarm indicating appliances shall provide a distinctive sound which shall not be used for any purpose other than that of a fire alarm. Such devices shall provide a sound pressure level of 15 dBA above the average ambient sound level in every occupied space within the building. The minimum sound pressure levels shall be: 70 dBA in buildings of Group R occupancy, 90 dBA in mechanical equipment rooms; and 60 dBA in all other occupancy classifications. The maximum sound pressure level for audible alarm indicating appliances shall not exceed 130 dBA at the minimum hearing distance from the audible appliance.

905.1.5.5 Accessibility. Alarm systems required to be accessible by 11-4.1 shall comply with 11-4.28.

905.2 Automatic fire detection

905.2.1 Approved single-station or multiple-station smoke detectors shall be installed in accordance with NFPA 72, Chapter 2, within every dwelling and every dwelling unit within an apartment house, condominium or townhouse; and every guest or sleeping room in a motel, hotel or dormitory and sleeping rooms in residential care/assisted living occupancies. Where more than one detector is required to be installed within an individual dwelling unit, the detectors shall be wired in such a manner that the activation of one alarm will actuate all of the alarms in the individual unit.

905.2.2 In dwellings and dwelling units, a smoke detector shall be mounted on the ceiling or wall at a point centrally located in the corridor or area giving access to each group of rooms used for sleeping purposes. Where the dwelling or dwelling unit contains more than one story, detectors are required on each story including basements, but not including uninhabitable attics, and shall be located in close proximity to the stairway leading to the floor above.

905.2.3 In dwelling units with split levels and without an intervening door between the adjacent levels, a smoke detector installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

905.2.4 Smoke detectors connected to a fire alarm system shall be installed in accordance with NFPA 72.

905.2.5 In dwelling, dwelling units and sleeping rooms in residential care/assisted living occupancies, smoke detectors shall be hardwired into an ac electrical power source and shall be equipped with a monitored battery backup in all new construction. A monitored battery power source shall be permitted in existing construction.