SECTION 903
AUTOMATIC SPRINKLER SYSTEMS

903.1 General. Automatic sprinkler systems shall comply with this section.

This section identifies the conditions requiring an automatic sprinkler system for all occupancies. The need for an automatic sprinkler system may depend on not only the occupancy but also the occupant load, fuel load, height and area of the building as well as firefighting capabilities. Section 903.2 addresses all occupancy conditions requiring an automatic sprinkler system. Section 903.3 contains the installation requirements for all sprinkler systems in addition to the requirements of NFPA 13, NFPA 13R and NFPA 13D. The supervision and alarm requirements for sprinkler systems are contained in Section 903.4, whereas Section 903.5 refers to testing and maintenance requirements for sprinkler systems found in Section 901 and NFPA 25. Section 903.6 addresses existing buildings and references Chapter 11.

Unless specifically allowed by the code or the IBC, residential sprinkler systems installed in accordance with NFPA 13R or NFPA 13D are not recognized for reductions or exceptions permitted by other sections of this code or the IBC. NFPA 13 systems provide the level of protection associated with adequate fire suppression for all occupancies. NFPA 13R and NFPA 13D systems are intended more to provide adequate time for egress but not necessarily for complete suppression of the fire. Figure 903.2 lists examples of where the various sprinkler standards differ in application.

The area values contained in this section are intended to apply to fire areas, which are comprised of all floor areas bounded by fire barriers, fire walls or exterior walls. The minimum required fire-resistance rating of fire barrier assemblies that define a fire area is specified in Table 707.3.10 of the IBC. Because the areas are defined as fire areas, fire barriers, horizontal assemblies, fire walls or exterior walls are the only acceptable means of subdividing a building into smaller...
areas instead of installing an automatic sprinkler system. Whereas fire barriers and exterior walls define multiple fire areas within a single building, a fire wall defines separate buildings within one structure. Also note that some of the threshold limitations result in a requirement to install an automatic sprinkler system throughout the building while others may require only specific fire areas to be sprinklered.

Another important point is that one fire area may include floor areas in more than one story of a building (see the commentary to the definition of “Fire area” in Section 202).

The application of mixed occupancies and fire areas must be carefully researched. Often the required separation between occupancies for the purposes of applying the separated mixed-use option in Section 508.4 of the IBC will result in a separation that is less than what is required to define the boundaries of a fire area. It is possible to have two different occupancies within a given fire area, treated as separated uses but with code requirements applicable to both occupancies since they are not separated by the rating required for fire areas.

903.1.1 Alternative protection. Alternative automatic fire extinguishing systems complying with Section 904 shall be permitted in lieu of automatic sprinkler protection where recognized by the applicable standard and approved by the fire code official.

- This section permits the use of an alternative automatic fire-extinguishing system when approved by the fire code official as a means of compliance with the occupancy requirements of Section 903. Although the use of an alternative extinguishing system allowed by Section 904, such as a carbon dioxide system or clean agent system, would satisfy the requirements of Section 903.2, it would not be considered an acceptable alternative for the purposes of exceptions, reductions or other code alternatives that would be applicable if an automatic sprinkler system were installed.

903.2 Where required. Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

Exception: Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided those spaces or areas are equipped throughout with an automatic smoke detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour fire barriers constructed in accordance with Section 707 of the International Building Code or not less than 2-hour horizontal assemblies constructed in accordance with Section 711 of the International Building Code, or both.

- Sections 903.2.1 through 903.2.12 identify the conditions requiring an automatic sprinkler system (see Figure 903.2). The type of sprinkler system must be one that is permitted for the specific occupancy condition. An NFPA 13R sprinkler system, for example, may not be installed to satisfy the sprinkler threshold requirements for a mercantile occupancy (see Section 903.2.7). As indicated in Section 903.3.1.2, the use of an NFPA 13R sprinkler system is limited to Group R occupancies not exceeding four stories in height.

Where the thresholds for sprinkler protection include the number of occupants and the fire area, it is important to remember that the proper application is the determination of the hazard present. If the actual fire area is less than the fire area threshold but the total occupant load exceeds the occupant load threshold, it is still necessary to determine whether or not the occupant load of that occupancy is present. For example, if the occupant load threshold is 300 for a given occupancy, it is necessary to determine that there are 300 occupants of that occupancy classification. Just because the fire area has an occupant load exceeding the occupant threshold does not in itself indicate that sprinkler protection is required. The code requires automatic sprinkler protection when the occupant load for the specific occupancy exceeds the established threshold. In applying the occupant load thresholds, it is important to note that they are to be evaluated and applied per occupancy and not as an aggregate of all occupancies that may be present in the building.

There is one exception for those spaces or areas used exclusively for telecommunications equipment. The telecommunications industry has continually stressed the need for the continuity of telephone service, and the ability to maintain this service is of prime importance. This service is a vital link between the community and the various life safety services, including fire, police and
<table>
<thead>
<tr>
<th>Occupancy</th>
<th>Threshold</th>
<th>Exception</th>
</tr>
</thead>
<tbody>
<tr>
<td>All occupancies</td>
<td>Buildings with floor level &gt; 55 feet above or below fire department vehicle access and occupant load ≥ 30</td>
<td>Airport control towers, open parking structures (F-2)</td>
</tr>
<tr>
<td>Assembly (A-1, A-3, A-4)</td>
<td>Fire area &gt; 12,000 sq. ft. or fire area occupant load &gt; 300 or fire area above/below level of exit discharge Multitheater complex (A-1 only)</td>
<td>None</td>
</tr>
<tr>
<td>Assembly (A-2)</td>
<td>Fire area &gt; 5,000 sq. ft. or fire area occupant load ≥ 100 or fire area above/below level of exit discharge</td>
<td>None</td>
</tr>
<tr>
<td>Assembly (A-5)</td>
<td>Accessory areas &gt; 1,000 sq. ft.</td>
<td>None</td>
</tr>
<tr>
<td>Ambulatory care facility (B)</td>
<td>≥ 4 care recipients incapable of self preservation or any care recipients incapable of self preservation above or below level of exit discharge</td>
<td>None</td>
</tr>
<tr>
<td>Educational (E)</td>
<td>Fire area &gt; 12,000 sq. ft. or below level of exit discharge</td>
<td>Each classroom has exterior door at grade</td>
</tr>
<tr>
<td>Factory (F-1)</td>
<td>Fire area &gt; 12,000 sq. ft. or fire area located &gt; 3 stories above grade, or combined fire area &gt; 24,000 sq. ft.</td>
<td>None</td>
</tr>
<tr>
<td>Mercantile (M)</td>
<td>Woodworking &gt; 2,500 sq. ft. (F-1 only) Manufacture (F1), display and sale (M), storage (S-1) of upholstered furniture or mattresses. Bulk storage of tires &gt; 20,000 cu. ft. (S-1 only)</td>
<td>None</td>
</tr>
<tr>
<td>Storage (S-1)</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>High-hazard (H-1, H-2, H-3, H-4, H-5)</td>
<td>Sprinklers required</td>
<td>Daycare at level of exit discharge and each classroom has exterior exit door.</td>
</tr>
<tr>
<td>Institutional (I-1, I-2, I-3, I-4)</td>
<td>Sprinklers required</td>
<td></td>
</tr>
<tr>
<td>Residential (R)</td>
<td>Sprinklers required</td>
<td>None</td>
</tr>
<tr>
<td>Repair garage (S-1)</td>
<td>Fire area &gt; 12,000 sq. ft. or &gt; 2 stories above grade with fire area 10,000 sq. ft. or repair garage servicing vehicles in basement or servicing commercial trucks/buses in fire area &gt; 5,000 sq. ft.</td>
<td>None</td>
</tr>
<tr>
<td>Parking garage (S-1)</td>
<td>Enclosed automobile parking sprinklers required commercial trucks/buses parking area &gt; 5,000 sq. ft.</td>
<td>None</td>
</tr>
<tr>
<td>Parking garage (S-2)</td>
<td>Fire area &gt; 12,000 sq. ft. or fire area &gt; 5,000 sq. ft. for storage of commercial trucks/buses; or beneath other groups.</td>
<td>Not if beneath Group R-3</td>
</tr>
<tr>
<td>Covered and open malls (914.2.1)</td>
<td>Sprinklers required</td>
<td>Attached open parking structures</td>
</tr>
<tr>
<td>High-rises (914.3.1)</td>
<td>Sprinklers required</td>
<td>Open garages: certain telecommunications equipment buildings</td>
</tr>
</tbody>
</table>

For S1: 1 foot = 304.8 mm, 1 square foot = 0.0929 m².
a. Thresholds located in Section 903.2 unless noted. See also Table 903.2.11.6 for additional required suppression systems.

Figure 903.2
SUMMARY OF OCCUPANCY-RELATED AUTOMATIC SPRINKLER_THRESHOLDS
emergency medical services. The integrity of this communications service can be jeopardized not only by fire, but also by water, from whatever the source.

It must be emphasized that the exception applies only to those spaces or areas that are used exclusively for telecommunications equipment. Historically, those spaces have a low incidence of fire events. Fires in telecommunication equipment are difficult to start and, if started, grow slowly, thus permitting early detection. Such fires are typically of the smoldering type, do not spread beyond the immediate area and generally self-extinguish.

Note, however, that this exception requires fire resistive separation from other portions of the building and that the building cannot qualify for any code tradeoffs for fully sprinklered buildings.

903.2.1 Group A. An automatic sprinkler system shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section. For Group A-1, A-2, A-3 and A-4 occupancies, the automatic sprinkler system shall be provided throughout the floor area where the Group A-1, A-2, A-3 or A-4 occupancy is located, and in all floors from the Group A occupancy to, and including, the nearest level of exit discharge serving the Group A occupancy. For Group A-5 occupancies, the automatic sprinkler system shall be provided in the spaces indicated in Section 903.2.1.5.

Occupancies of Group A are characterized by a significant number of people who are not familiar with their surroundings. The requirement for a suppression system reflects the additional time needed for egress. The extent of protection is also intended to extend to the occupants of the assembly group from unobserved fires in other building areas located between the floor level containing the assembly occupancy and the level of exit discharge serving such occupancies. The only exception to the coverage is for Group A-5 occupancies that are open to the atmosphere. Such occupancies require only certain aspects to be sprinklered, such as concession stands (see commentary, Section 903.2.1.5).

The requirement for sprinklers is based on the location and function of the space. It is not dependant on whether or not the area is provided with exterior walls. IFC Committee Interpretation No. 25-05 to this section discusses this issue and states, in part, that “where no surrounding exterior walls are provided along the perimeter of the building, the building area is used to identify and determine applicable fire area.” Outdoor areas, such as pavilions and patios, may have no walls but will have an occupant load and other factors that identify the assembly occupancy as such. If any of the thresholds are reached requiring sprinkler protection, then sprinkler protection must be provided whether there are exterior walls or not.

903.2.1.1 Group A-1. An automatic sprinkler system shall be provided for Group A-1 occupancies where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m²).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.
4. The fire area contains a multitheater complex.

Group A-1 occupancies are identified as assembly occupancies with fixed seating, such as theaters. In addition to the high occupant load associated with these types of facilities, egress is further complicated by the possibility of low lighting levels customary during performances. The fuel load in these buildings is usually of a type and quantity that would support fairly rapid fire development and sustained duration.

Theaters with stages pose a greater hazard. Sections 410.6 and 410.7 of the IBC require stages to be equipped with an automatic sprinkler system and standpipe system, respectively. The proscenium opening must also be protected. These features compensate for the additional hazards associated with stages in Group A-1 occupancies.

This section lists four conditions that require installing a suppression system in a Group A-1 occupancy. Condition 1 requires that, if any one fire area of Group A-1 exceeds 12,000 square feet (1115 m²), the automatic fire suppression system is to be installed throughout the entire story or floor level where a Group A-1 occupancy is located, regardless of whether the building is divided into more than one fire area. However, if all the fire areas are less than 12,000 square feet (1115 m²) (and less than the other thresholds) then sprinklers would not be required. Compartmentalization into multiple fire...
areas in compliance with Chapter 7 of the IBC is deemed an adequate alternative to sprinkler protection.

Condition 2 establishes the minimum number of occupants for which a suppression system is considered necessary. The determination of the actual occupant load must be based on Section 1004.

Condition 3 accounts for occupant egress delay when traversing a stairway, requiring a sprinkler system regardless of the size of occupant load. In such cases alternative emergency escape elements such as windows may not be available, making the suppression needs all the greater. It is not necessary for the occupant load to exceed 300 on a level other than the level of exit discharge serving such occupancy. Any number of Group A-1 occupants on the alternative level would be cause to apply the requirement for sprinklers. The text does not make reference to “story” but uses the term “floor,” which could include mezzanines and basements.

Condition 4 states that a sprinkler system is required for multiplex theater complexes to account for the delay associated with the notification of adjacent compartmentalized spaces where the occupants may not be immediately aware of an emergency.

903.2.1.2 Group A-2. An automatic sprinkler system shall be provided for Group A-2 occupancies where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464 m²).
2. The fire area has an occupant load of 100 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

- Group A-2 assembly occupancies are intended for food or drink consumption, such as banquet halls, nightclubs and restaurants. Occupancies in Group A-2 involve life safety factors, such as a high occupant density, flexible fuel loading, movable furnishings and limited lighting; therefore, they must be protected with an automatic sprinkler system under any of the listed conditions.

In the case of an assembly use, the purpose of the automatic sprinkler system is to provide life safety from fire as well as preserving property. By requiring fire suppression in areas through which the occupants may egress, including the level of exit discharge serving such occupancies, the possibility of unobserved fire development affecting the occupant egress is minimized.

The 5,000-square-foot (464 m²) threshold for the automatic sprinkler system reflects the higher degree of life safety hazard associated with Group A-2 occupancies. As alluded to earlier, Group A-2 occupancies could have low lighting levels, loud music, late hours of operation, dense seating with ill-defined aisles and alcoholic beverage service. These factors in combination could delay fire recognition, confuse occupant response and increase egress time.

Although the calculated occupant load for a 5,000 square-foot (465 m²) space at 15 square feet (1.4 m²) per occupant would be over 100, the occupant load threshold in Condition 2 is meant to reflect the concern for safety in these higher density occupancies. Although the major reason for establishing the occupant threshold at 100 was due to several recent nightclub incidents, the requirement is not limited to nightclubs or banquet facilities but to all Group A-2 occupancies. Any restaurant with an occupant load greater than 100 would require sprinkler protection as well. This includes fast food facilities with no low lighting or alcohol sales.

The similar intent of Condition 3 is addressed in the commentary to Section 903.2.1.1.

903.2.1.3 Group A-3. An automatic sprinkler system shall be provided for Group A-3 occupancies where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m²).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

- Group A-3 occupancies are assembly occupancies intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A, such as churches, museums and libraries. While Group A-3 occupancies could potentially have a high occupant load, they normally do not have the same potential combination of life safety hazards associated with Group A-2 oc-
occupancies. As with most assembly occupancies, however, most of the occupants are typically not completely familiar with their surroundings. When any of the three listed conditions are applicable, an automatic sprinkler system is required throughout the fire area containing the Group A-3 occupancy and in all floors between the Group A occupancy and exit discharge that serves that occupancy (see commentary, Sections 903.2.1 and 903.2.1.1).

903.2.1.4 Group A-4. An automatic sprinkler system shall be provided for Group A-4 occupancies where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m²).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

Group A-4 occupancies are assembly uses intended for viewing of indoor sporting events and activities such as arenas, skating rinks and swimming pools. The occupant load density may be high depending on the extent and style of seating, such as bleachers or fixed seats, and the potential for standing-room viewing. When any of the three listed conditions are applicable, an automatic sprinkler system is required throughout the fire area containing the Group A-4 occupancy and in all floors between the Group A occupancy and exit discharge (see commentary, Sections 903.2.1 and 903.2.1.1).

903.2.1.5 Group A-5. An automatic sprinkler system shall be provided for Group A-5 occupancies in the following areas: concession stands, retail areas, press boxes and other accessory use areas in excess of 1,000 square feet (93 m²).

Group A-5 occupancies are assembly uses intended for viewing of outdoor activities. This occupancy classification could include amusement park structures, grandstands and open stadiums. A sprinkler system is not required in the open area of Group A-5 occupancies because the buildings would not accumulate smoke and hot gases. A fire in open areas would also be obvious to all spectators. Enclosed areas such as retail areas, press boxes and concession stands require sprinklers if they are in excess of 1,000 square feet (93 m²). The 1,000 square-foot (93 m²) accessory use area is not intended to be an aggregate condition but rather per space. Thus, a press box that is 2,500 square feet (232 m²) in area would need to be subdivided into areas less than 1,000 square feet (93 m²) each in order to be below the threshold for sprinklers. There is no specific requirement for the separation of these spaces. It is assumed, however, that the separation would be a solid barrier of some type but without a required fire-resistance rating.

The provision is meant to mirror that in Section 1028.6.2.3, which exempts press boxes and storage facilities less than 1,000 square feet (93 m²) in area from sprinkler requirements in smoke-protected assembly seating areas.

903.2.2 Ambulatory care facilities. An automatic sprinkler system shall be installed throughout the entire floor containing an ambulatory care facility where either of the following conditions exist at any time:

1. Four or more care recipients are incapable of self-preservation, whether rendered incapable by staff or staff has accepted responsibility for care recipients already incapable.
2. One or more care recipients that are incapable of self preservation are located at other than the level of exit discharge serving such a facility.

In buildings where ambulatory care is provided on levels other than the level of exit discharge, an automatic sprinkler system shall be installed throughout the entire floor where such care is provided as well as all floors below, and all floors between the level of ambulatory care and the nearest level of exit discharge, including the level of exit discharge.

Ambulatory care facilities are Group B occupancies, which have an enhanced set of requirements that account for the fact that patients may be incapable of self-preservation and require rescue by other occupants or fire personnel. There are several aspects to the enhanced features, including smoke compartments, sprinklers and fire alarms. More specifically, the requirements for sprinklers are based on the presence of four or more care recipients at any given time that are incapable of self-preservation or any number of care recipients...
that are incapable of self preservation located on a floor, other than the level of exit discharge, that serves the ambulatory care facility. The sprinkler requirement is limited to the floor area that contains the Group B ambulatory care facility and any floors between the ambulatory care facility and level of exit discharge (see commentary, Section 422 of the IBC).

903.2.3 Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:

1. Throughout all Group E fire areas greater than 12,000 square feet (1115 m2) in area.

2. Throughout every portion of educational buildings below the lowest level of exit discharge serving that portion of the building.

Exception: An automatic sprinkler system is not required in any area below the lowest level of exit discharge serving that area where every classroom throughout the building has at least one exterior exit door at ground level.

Group E occupancies are limited to educational purposes through the 12th grade and day care centers serving children older than 21½ years of age. The 12,000-square-foot (1115 m2) fire area threshold for the sprinkler system was established to allow smaller schools and day care centers to be nonsprinklered to minimize the economic impact on these facilities. The 12,000-square-foot (1115 m2) threshold is similar to that used for several other occupancies, such as Group M occupancies.

Sprinklers would also be required in portions of the building located below the level of exit discharge serving that occupancy. However, there is an exception that would allow the omission of the automatic sprinkler system for the Group E fire area if there is a direct exit to the exterior from each classroom at ground level. The occupants must be able to go from the classroom directly to the outside without passing through intervening corridors, passageways or interior exit stairways.

903.2.4 Group F-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exists:

1. A Group F-1 fire area exceeds 12,000 square feet (1115 m2).

2. A Group F-1 fire area is located more than three stories above grade plane.

3. The combined area of all Group F-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m2).

4. A Group F-1 occupancy used for the manufacture of upholstered furniture or mattresses exceeds 2,500 square feet (232 m2).

Group F-1 occupancies must meet several different conditions as to when the fire area or occupancy must be sprinklered. The first three conditions are related to the difficulty of manually suppressing a fire involving a large area. Therefore, occupancies of Group F-1 must be protected throughout with an automatic sprinkler system if the fire area is in excess of 12,000 square feet (1115 m2), if the total of all fire areas is in excess of 24,000 square feet (2230 m2) or if the fire area is located more than three stories above grade plane. This is one of the few locations in the code where the total floor area of the building is aggregated for application of a code requirement. The stipulated conditions for when an automatic sprinkler system is required also apply to Group M (see Section 903.2.7) and S-1 (see Section 903.2.9) occupancies.

Condition 4 for sprinklering a Group F-1 occupancy relates to the requirement for Group F-1 occupancies in excess of 2,500 square feet (232 m2) that are used for the manufacture of upholstered furniture or mattresses. Note that this requirement is based simply upon the square footage of the Group F-1 occupancy and is not related to fire areas. Upholstered furniture has the potential for rapid growing and high-heat-release fires. This hazard is increased substantially when there are numerous upholstered furniture or mattresses being manufactured. Such fires put the occupants and emergency responders at risk. This requirement exists regardless of whether the upholstered furniture has passed any fire-retardant tests.

See the commentary for Section 903.2.7 for more discussion on the subject of upholstered furniture.

The following examples illustrate how the criteria of this section are intended to be applied:
• If a building contains a single fire area of Group F-1 and the fire area is 13,000 square feet (1208 m²), an automatic sprinkler system is required throughout the entire building; however, if this fire area is separated into two fire areas and neither is in excess of 12,000 square feet (1115 m²), an automatic fire sprinkler system is not required. To be considered separate fire areas, the areas must be separated by fire barriers or horizontal assemblies having a fire-resistance rating as required in Table 707.3.10.

• If a 30,000-square-foot (2787 m²) Group F-1 building was equally divided into separate fire areas of 10,000 square feet (929 m²) each, an automatic sprinkler system would still be required throughout the entire building. Because the aggregate area of all fire areas exceeds 24,000 square feet (2230 m²), additional compartmentation will not eliminate the need for an automatic sprinkler system. However, the use of a fire wall to separate the structure into two buildings would reduce the aggregate area of each building to less than 24,000 square feet (2230 m²) and each fire area to less than 12,000 square feet (1115 m²), which would offset the need for an automatic sprinkler system.

903.2.4.1 Woodworking operations. An automatic sprinkler system shall be provided throughout all Group F-1 occupancy fire areas that contain woodworking operations in excess of 2,500 square feet in area (232 m²) which generate finely divided combustible waste or which use finely divided combustible materials.

Because the potential amount of combustible dust that could be generated during woodworking operations, an automatic sprinkler system is required throughout a fire area when it contains a woodworking operation that exceeds 2,500 square feet (232 m²) in area. Facilities where woodworking operations take place, such as cabinet making, are considered Group F-1 occupancies. The intent of the phrase “finely divided combustible waste” is to describe particle concentrations that are in the explosive range (see Chapter 22 for discussion of dust-producing operations).

The extent of sprinkler coverage is only intended to be for the Group F-1 occupancy involved in the woodworking activity. If the fire area is larger than 2,500 square feet (232 m²) but the woodworking area is less than 2,500 square feet (232 m²), sprinklers are not required.

It is not the intent to require the installation of sprinklers throughout the building but rather in the fire area where the hazard may be present.

903.2.5 Group H. Automatic sprinkler systems shall be provided in high-hazard occupancies as required in Sections 903.2.5.1 through 903.2.5.3.

Group H occupancies are those intended for the manufacturing, processing or storage of hazardous materials that constitute a physical or health hazard. To be considered a Group H occupancy, the amount of hazardous materials is assumed to be in excess of the maximum allowable quantities permitted by Tables 5003.1.1(1) and 5003.1.1(2).

903.2.5.1 General. An automatic sprinkler system shall be installed in Group H occupancies.

This section requires an automatic sprinkler system in all Group H occupancies. Even though in some instances the hazard associated with the occupancy may be one that is not a fire hazard, an automatic sprinkler system is still required to minimize the potential for fire spreading to the high-hazard use; that is, the sprinklers protect the high-hazard area from fire outside the area. This section does not prohibit the use of an alternative automatic fire-extinguishing system in accordance with Section 904. When a water-based system is not compatible with the hazardous materials involved and thus creates a dangerous condition, an alternative fire-extinguishing system should be used. For example, combustible metals, such as magnesium and titanium, have a serious record of involvement with fire and are typically not compatible with water (see commentary, Chapter 59).

Where control areas are used to regulate the quantity of hazardous material within a building, the building is not considered a Group H occupancy. Unless a building would be required by some other code provision to be protected with sprinklers, control areas can be used to control the allowable quantities of hazardous materials in a building so as to not warrant a Group H classification and its mandatory sprinkler requirements.

NEXT: Section 903.2.5.2 Group H-5 occupancies