

# City of Hendersonville, TN

## Automatic Sprinkler System Requirements

This document is to be used as a guide in determining whether or not an automatic sprinkling system will be required for any building and/or structure that is to be built or modified within the City of Hendersonville. It does not set aside or modify any code and/or regulation lawfully adopted by the City of Hendersonville or the State of Tennessee. For detailed information or specific questions, please contact the Hendersonville Fire Department or the Department of Building & Codes.

**General** - The need for automatic sprinkler system is not dependent on one particular set of criteria. The need for a system may be due to one or more of the following criteria: *Occupancy classification, occupant load, fuel load, height and area of the building as well as fire-fighting capabilities*. All references in this document to an automatic sprinkler system shall be considered to be to a *NFPA 13, 13R and 13D systems*. Unless specifically allowed by the code, residential sprinkler systems installed in accordance with NFPA 13R or NFPA 13D are not recognized for reductions or exceptions permitted by other sections of the code. 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. The attached 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 *IBC Table 707.3.10*.

**Commercial** – For all buildings that fall under the jurisdiction of the *International Building Code (IBC)* please refer to the attached Figure 903.2. However, a project that would not normally be required to be sprinkled may be required to do so if adequate water for fire protection is not available to the site. For more information regarding whether or not your project has sufficient water for fire protection, please contact the Hendersonville Fire Department.

**Residential** – All residential buildings and occupancies that fall outside the scope of the *International Residential Code (IRC)* must comply with the requirements as noted above. All other residential buildings and projects must comply with the following:

- **One- and two-family dwellings.** The minimum fire-flow and flow duration requirements for one- and two-family dwellings having a fire-flow calculation area that does not exceed 3,600 square feet shall be 1,000 gallons per minute for 1 hour. Fire-flow and flow duration for dwellings having a fire-flow calculation area in excess of 3,600 square feet shall not be less than that specified in *IFC Table B105.1*.

**Exception:** A reduction in required fire-flow of 50 percent, as approved, is allowed when the building is equipped with an approved automatic sprinkler system.

- **Townhouses** – Townhouses as defined in *T.C.A. Section 68-120-101(a)(8)*, and having a two-hour fire resistance rated assembly common wall, are not required to be sprinkled. All other townhouses may be required to be sprinkled in accordance with all locally adopted codes, as amended.

**Exception:** A townhouse may be required to be sprinkled that otherwise would not be if adequate water for fire protection is not available to the site.

As mentioned previously, for additional information or specific questions, please contact the Department of Building & Codes or the Hendersonville Fire Department.

**FIRE PROTECTION SYSTEMS**

Occupancy	Threshold	Exception
All occupancies	Buildings with floor level $\geq$ 55 feet above fire department vehicle access and occupant load $\geq$ 30.	Airport control towers, open parking structures. F-2
Assembly (A-1, A-3, A-4)	Fire area > 12,000 sq. ft. or fire area occupant load > 300 or fire area above/below level of exit discharge. Multitheater complex (A-1 only)	None
Assembly (A-2)	Fire area > 5,000 sq. ft. or fire area occupant load > 100 or fire area above/below level of exit discharge.	None
Assembly (A-5)	Accessory areas > 1,000 sq. ft.	None
Ambulatory care facility (B)	$\geq$ 4 care recipients incapable of self-preservation or any care recipients incapable of self-preservation above or below level of exit discharge.	None
Educational (E)	Fire area > 12,000 sq. ft. or below level of exit discharge.	Each classroom has exterior door at grade.
Factory (F-1)	Fire area > 12,000 sq. ft. or building > three stories or combined fire area > 24,000 sq. ft.	None
Mercantile (M)	Woodworking > 2,500 sq. ft. (F-1 only).	
Storage (S-1)	Manufacture (F-1), display and sale (M), storage (S-1) of upholstered furniture or mattresses. Bulk storage of tires > 20,000 cu. ft. (S-1 only).	
High hazard (H-1, H-2, H-3, H-4, H-5)	Sprinklers required.	None
Institutional (I-1, I-2, I-3, I-4)	Sprinklers required.	Day Care at level of exit discharge and each classroom has exterior exit door.
Residential (R)	Sprinklers required.	None
Repair garage (S-1)	Fire area > 12,000 sq. ft. or $\geq$ two stories (including basement) with fire area > 10,000 sq. ft. or repair garage servicing vehicles in basement or servicing commercial trucks/buses in fire area > 5,000 sq. ft.	None
Parking garage (S-1)	Enclosed automobile parking—sprinklers required. Commercial trucks/buses parking area > 5,000 sq. ft.	None
Parking garage (S-2)	Fire area > 12,000 sq. ft. or fire area > 5,000 sq. ft. for storage of commercial trucks/buses; or beneath other groups. (enclosed parking)	Not if beneath Group R-3
Covered and open malls (402.5)	Sprinklers required.	Attached open parking structures.
High-rises (403.3)	Sprinklers required.	Open garages; certain telecommunications buildings
Unlimited area buildings (507)	A-3, A-4, B, F, M, S: one story. B, F, M, S: two story.	One story F-2 or S-2.

Note: Thresholds located in Section 903.2 unless noted. See also Table 903.2.11.6 for additional required suppression systems.  
For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m<sup>2</sup>.

**Figure 903.2**  
**SUMMARY OF OCCUPANCY-RELATED AUTOMATIC SPRINKLER THRESHOLDS**