

Residential Fire Sprinklers

A Highly Effective Safety Tool



Testing and certification laboratories play an important role in helping to determine that residential fire sprinkler systems operate as intended during a fire. Essential components of residential fire sprinkler systems, such as sprinklers and piping, are required to undergo comprehensive evaluations to verify that they meet rigorous nationally recognized standards.

As an OSHA-accredited Nationally Recognized Testing Laboratory, UL is a leading authority on fire sprinkler construction and performance requirements. UL has been Listing fire sprinklers since 1902, and UL engineering staff members have conducted hundreds of investigations of residential sprinklers. UL develops and publishes numerous standards on automatic fire sprinkler system components, most of which are ANSI-approved American National Standards.

ANSI standards are developed using an open, consensus building process that depends heavily on input provided by a diverse range of stakeholders.

As a part of UL's third-party certification program, comprehensive qualification and surveillance testing is conducted to confirm the ability of sprinklers to comply with specified performance criteria. In addition to this testing, UL closely monitors the field experience and performance of sprinklers, and regularly updates the standards to

address new technology and information learned from the use of these products in the field.

In recent years, a number of revisions have been introduced into UL's sprinkler standards to enhance the operating performance characteristics of both wet and dry-type sprinklers.

Residential sprinklers are investigated in accordance with ANSI/UL1626 the Standard for Safety for Residential Sprinklers for Fire-Protection Service.

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Residential Fire Sprinklers (continued)

UL 1626 is an ANSI-approved American National Standard, and includes over 30 different performance tests. The performance tests fall into five categories as indicated in the table. These tests provide a high level of confidence that fire sprinklers will perform as intended.

In addition to the performance tests conducted during the initial product investigation, UL 1626 requires the manufacturer to provide regular production controls, inspections, and tests. This program includes a leakage test and glass bulb Integrity test (if a glass bulb heat responsive element is used). These tests are conducted on each Listed residential sprinkler produced.

UL also requires that factories producing residential fire sprinklers undergo a comprehensive audit inspection program, which complements the manufacturer's quality control programs, to verify that ongoing production of residential sprinklers continues to comply with UL requirements.

UL's representatives conduct the audit inspections at manufacturing facilities located around the world.

UL's Market Surveillance program provides an additional audit of the Listed products through incident investigations and testing of samples procured from the marketplace.

In summary, residential sprinklers undergo a rigorous evaluation to provide a high level of assurance that they will resist leakage, provide many years of service, and be ready to respond in the event of a fire. Either installed as a separate system or integrated with the domestic water system, residential fire sprinklers have demonstrated during years of use to be a very effective tool in preventing injury and death from home fires.



Category of Tests in the UL 1626 Sprinkler Standard

Category	General Nature of Tests
Physical Strength and Leakage Tests	Strength of components, rough usage, and leakage resistance
Operation Tests	Determination of temperature rating, sensitivity to heated air conditions and sprinkler functionality
Corrosion and Environmental Exposure Tests	Vibration, temperature variation, loading, corrosion, stress corrosion, resistance to dealloying and other exposure conditions
Water Flow and Distribution	Determination of discharge coefficient and water distribution
Fire Tests	Fire tests relevant to the intended end use.