

The Importance of the Early Adoption of UL 268 – 7th Edition

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Smoke detection devices are utilized in fire alarm systems throughout the world as a means of detecting fires in their earlier stages and subsequently notifying all occupants of the fire in the building or area protected. Where required to be installed by any nationally recognized code or standard, such as those issued by the International Code Council (ICC) or the National Fire Protection Association (NFPA®), system smoke detection devices are required to be listed for the purpose for which they are used. Underwriters Laboratories (UL) is perhaps the most globally recognized safety certification company, and is certainly among the most widely utilized, accepted and trusted certification companies with regard to fire protection and life safety equipment.

For a fire alarm system smoke detector to bear the UL certification mark, it is required to comply with the UL 268 Standard for Safety, Smoke Detectors for Fire Alarm Systems. According to UL, the UL 268 Standard for Safety sets forth requirements for smoke detectors to be employed in indoor locations in accordance with the National Fire Alarm and Signaling Code, NFPA® 72.

Currently, most manufacturers of UL listed smoke detectors list their devices to the 6th Edition of UL 268, which has been in effect for the last decade. UL recently finalized and released the 7th Edition of UL 268, however manufacturers are not yet required to comply with its requirements. The effective date for the 7th Edition of UL 268 is May 29, 2020. After this date, manufacturers will no longer be able to manufacture and label smoke detectors listed under the 6th Edition.

UL 268 7th Edition has extensive revisions, the most prominent of which being the introduction of three (3) new detection performance tests. These new tests include a flaming polyurethane foam test, a smoldering polyurethane foam test, and a cooking nuisance test. Due to the extent of the new and revised requirements, UL has indicated that new requirements will have a major impact on all currently listed smoke detectors. UL also anticipates that all the older version smoke detectors (manufactured to the 6th Edition of UL 268) will need to be re-designed to meet the requirements outlined in the 7th Edition.

The new flaming and smoldering polyurethane tests were added to ensure that newly manufactured smoke detectors perform adequately and in a timely manner when installed in modern building construction environments. Over the past few decades, a drastic shift in the types of commonly used building materials



Flaming Polyurethane Foam Test



Smoldering Polyurethane Foam Test

has been made. New engineered and synthetic materials, such as polyurethane foam, have quickly taken the place of the natural materials which were used in building construction years ago. The concern related to this shift in building materials is that they generally burn much hotter and faster than the natural materials that they have replaced. Several studies and tests have shown that escape times available during a fire event have also drastically decreased in structures with the newer construction materials. Given these factors, smoke detectors listed to the 7th Edition of UL 268 will be required to demonstrate greater sensitivity to the smoke produced by fires in newly constructed buildings.



The new cooking nuisance test has been added for the exact reason that you would expect, to reduce the number of smoke detector nuisance activations caused from cooking activities. Regardless of the occupancy use classification of a building, nuisance alarms are never desired as they create unnecessary costs and fire department responses, cause interruption to the occupants, and in some cases can have negative impacts on occupant evacuation response as well as possible injury to first responders. Smoke detectors listed to the 7th Edition of UL 268 will be required to demonstrate increased resilience to nuisance smoke detector activations due to cooking activities.

Creating a smoke detector which satisfies the requirements of the three new fire tests, in addition to the existing fire tests, presents quite a challenge for smoke detector manufacturers. While the challenge is unique, it is not impossible. There is at least one manufacturer who has chosen early adoption of the revised standard and is now manufacturing their smoke detection devices to the 7th Edition of UL 268.

The early adoption of the 7th Edition of UL 268 is important and advantageous to engineered systems distributors, engineering specifiers, AHJ's, installing contractors and end users in many ways:

- For the engineered systems distributor, stocking the new 7th Edition listed smoke detectors gives a competitive advantage in that smoke detectors listed to the 7th Edition of UL 268 translates to a very marketable device. Having the most technologically advanced, nuisance activation resistant and stable smoke detector available makes for an easy pitch to installing contractors and end users alike. Additionally, following the effective date for the implementation of 7th Edition of UL 268, distributors will rest assured knowing that they will not find themselves with a backstock of detectors which are no longer listed to the appropriate edition of UL 268. For the engineering specifier whose core values include achieving the highest level of life safety and reliability in their fire alarm system designs, specifying a UL 268 7th Edition smoke detector meets both core values. Designing a reliable system results in a satisfied end user who is more likely to retain and recommend your services.
- For AHJ's the obvious benefit of not dealing with multiple responses to false alarms will be a major cost saving (to the jurisdiction).
- For the installing contractor, a quiet system without nuisance activations means less call backs, which results in a happier end user.
- For the end user, utilizing smoke detectors listed to the 7th Edition of UL 268 gives peace of mind knowing that less disturbance to building occupants and business operation, and quicker detector response in the event of a fire, are on the horizon.

In conclusion, although manufacturers are not yet required to adopt the 7th Edition of UL 268, there are early adopters whose current system smoke detectors meet the new testing criteria and are readily available for use. These state-of-the-art devices offer advantages to all parties involved in a fire alarm system related project: the design engineers, specifiers, distributors and installing contractors, and end users who will see the system through to the end of its lifecycle. Having knowledge of the UL 268 changes which are forthcoming in the 7th Edition of the standard and its implications on the fire protection industry is important and should be understood and adopted by those in the industry.

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