FIVE KEY FEATURES OF UL 268 7TH EDITION AND THEIR IMPACT ON ASD SYSTEM DESIGN

UL 268 7th Edition (UL7) is the latest standard for smoke detectors from Underwriters Laboratories and represents a significant shift from previous editions. Regulators worldwide, including the National Fire Protection Agency (NFPA), are adopting the new edition, which will impact the selection and design of Aspirating Smoke Detection (ASD) systems. So, what are the key new features of UL 268 7th Edition?

1.

ADJUSTING TO THE DEMANDS OF NEW SYNTHETIC MATERIALS

The rise of synthetic materials in modern buildings and furniture has significantly changed how quickly fires spread. Forty years ago, a person had 17 minutes to escape a fire, but that time has reduced to 3 minutes today.[1]

UL7 introduces new tests and requirements so that smoke detection systems provide adequate protection in the case of synthetic material fires.

2.

ADDRESSING SPECIFIC NEW MATERIALS LIKE POLYURETHANE FOAM

Polyurethane foam is a synthetic material commonly found in modern furniture. This material burns with unique characteristics that affect the propagation speed and intensity of a fire through a building.

UL7 includes two new tests to address this risk. The smoldering polyurethane foam test replicates the conditions where furniture smolders without producing open flames. The flaming polyurethane test replicates conditions where the material burns in a full-blown fire. ASD systems must provide adequate warning in both scenarios to comply with the standard.

3.

DISTINGUISHING BETWEEN COOKING FUMES AND SMOKE

One of the primary sources of nuisance alarms in buildings is cooking fumes mistaken for smoke by a smoke detector. Research by the NFPA shows that 63% of US homes surveyed reported that the last time their smoke alarm sounded was during regular cooking.[2]

The cooking nuisance alarm test replicates the fumes produced by cooking using a hamburger patty as the test material. Smoke detectors that pass this test will minimize the number of nuisance alarms due to cooking.

4.

MEETING THE SPECIFIC NEEDS OF "SPECIAL APPLICATIONS"

Environments like Data centers, computer rooms, telecoms, warehouses, and others have stringent requirements for early fire detection. ASD is typically used in these applications that UL7 categorizes as "Special Applications". Detectors used in Special Applications do not need to meet the stringent nuisance alarm criteria of Open Areas, including cooking kitchens, cafeterias, and food courts.

5.

SHIFTING THE FOCUS FROM TRANSPORT TIME TO SMOKE LEVELS

The previous edition of UL 268 (6th Edition) specified a standard smoke transport time of up to 120 seconds. The thinking behind this requirement was that smoke had to be detected within two minutes to enable safe evacuation from a building. Under UL7, the focus has shifted from transport time to smoke levels. The detector must activate before the room reaches a certain smoke concentration threshold in order to enable safe egress. Consequently, whereas UL 268 6th Edition required the same transport time for all ASD products, under UL7, each product type has its own hole sensitivity and maximum transport time, which is further differentiated depending on whether the application is Open Area or a Special Application.

Maximum transport times are shorter for Open Areas than Special Applications, but hole sensitivity thresholds are much lower for Special Applications than Open Areas.

LEARN MORE – HOW TO ACHIEVE OPTIMAL ASD PERFORMANCE UNDER UL7

UL7 introduces several new features aimed at reducing the number of nuisance alarms and providing early warning for synthetic material fires that propagate rapidly.

Download The Ultimate Guide to Aspirated Smoke Detection under UL 268 7th Edition from Xtralis to find out more about the new requirements and how to achieve optimal ASD performance while complying with UL7.

[1] *Close Your Door, Fire is Getting Faster, [accessed August 15, 2023]*
[2] *NFPA, Smoke Alarms in US Home Fires, 2021, [accessed August 15, 2023]*

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