# Changes To Standards And The Effect On Detector Testing

When fire detection technology evolves to take advantage of new and emerging technologies, the standards that govern the installation and maintenance of such systems also need to evolve. These changes not only drive innovation within the industry, but also ensure the most suitable systems are installed and crucially acknowledge that only appropriate, approved solutions are used when it comes to on-going testing and maintenance.

The rise of the multi-sensor detector

One of the most recent examples of change within the fire detection industry involves the increase in the use of multi-sensor detectors. In a recent Twitter poll, 73% of the 165 people who responded said they were now testing more or the same amount of multi-sensors as they were 2 years ago\*. While these detectors help to reduce false alarms – a major driver in their use, they also throw up another challenge when it comes to testing – with up to three sensors requiring testing.

Despite multi-sensors being available for over 10 years, the recent update to BS:5839-1 placed, for the first time, an emphasis on how multi-sensors should be tested.

“Multi-sensor fire detectors should be physically tested by a method that confirms that products of combustion in the vicinity of the detector can reach the sensors and that the appropriate response is confirmed at the CIE.” (45.4(j) sub-clause 2).

While NFPA 72 also reflects this statement, it also states:

“Test each of the detection principles present within the detector (e.g., smoke/heat/CO, etc.) independently for the specific detection principle, regardless of the configuration status at the time of testing.” (Table 14.4.3.2)

These standards mean that now, rather than testing just one sensor – typically smoke, testing of all sensors the detector is designed to detect should be carried out. With more sensors to test, the test process can become longer with more time required to test a multi-sensor than a standard single sensor smoke detector.

Engineers are therefore looking for faster test solutions, such as Testifire, that maintain productivity levels by enabling testing of Smoke, Heat and CO without the need for separate test tools for each sensor. Carrying such a solution also provides the reassurance that engineers will have a solution for testing all detectors on site – regardless of type (smoke, heat or CO) or whether they are single or multi-sensor.

Additionally, Testifire is the only test tool capable of simultaneously testing all sensors within a multi-sensor detector, for example when the detector is configured as a smoke and heat detector to help reduce false alarms.

Testifire allows testing of multi-sensors with one tool.

Increasingly hard-to-access detectors

While the majority of fire detectors are easily accessed, there are an increasing number of point detectors and aspirating smoke detection (ASD) systems installed in areas that are hard-to-access – making for challenging ongoing maintenance. The craving for creativity in modern buildings means there are increasing numbers of voids and open spaces which require fire detection installed. Detection in these areas is as important as any other which may be easier to access and see, as the detector is the only device that will detect a hidden fire. It is therefore essential that these detectors are tested as part of the regular fire system maintenance.

It is not just new buildings that suffer from hard-to-access detectors. Many buildings have lift shafts which should have smoke detection fitted. Historically, if these detectors are being tested, it has been at great cost and taken a significant amount of time – often involving third party engineers, additional access equipment and disruption around site.

In the past, such detectors may simply have not been tested to save time, cost, and disruption. However, the latest update to BS:5839-1, means greater consideration regarding the testing and maintenance of such detectors now needs to be given.

“For remotely situated or hard-to-access detection equipment, consideration needs to be given to the feasibility of testing and maintenance at the design stage.” (Clause 22.1).

Even before this update, many maintenance companies were seeking ways to enable fast, efficient testing of hard-to-access detectors. A significant number turned to Scorpion, a permanently installed tester which sits alongside the smoke detector and is controlled from a convenient and safe location.

The Scorpion solution has been installed in a wide range of sites including universities, warehouses, retail outlets and transport hubs around the world.

Worldwide codes and standards

More often than not, it’s the established fire codes and standards such as BS:5839-1, NFPA 72 and DIN 14675 which are most commonly referred to and used as a guide for best practice worldwide. With greater emphasis being placed on the way fire detection systems are installed and maintained, many regions are using some of the more established codes as a basis for developing their own guidelines.

With areas such as Dubai witnessing significant investment in building development, and some high-profile fire incidents, it is perhaps no surprise that the UAE now has its own code – the UAE Fire and Life Safety Code of Practice published in 2017. The UAE has always strived to ensure compliance with best practice and promoted the adoption of the highest standards. For many, this has meant following the requirements of BS:5839 and NFPA 72, but the launch of a dedicated fire code for the region provides no doubt on the standards expected of fire professionals and the systems they install. It also ensures the maintenance of the system doesn’t end at the point of commissioning, but extends throughout the life of the building.

As other standards, the UAE Fire and Life Safety Code of Practice requires testing of each fire detector on a regular annual basis.

With the importance of regular testing and maintenance recognised, the responsibility then falls to the person carrying out the testing to source a suitable test solution. Whilst there may be several products which enable functional testing – the solution of course needs to be safe (for the detector and user) and importantly – approved by the detector manufacturer.

As exhibitors at Intersec in Dubai earlier this year, we witnessed first-hand the effect of the new code of practice – with a significant increase in discussions related to compliant testing of detectors and in particular, how this can be achieved quickly and economically.