Ventilation is vital in curbing false fire alarms

Carefully designed and "controlled" ventilation has a massive role to play in ensuring that false fire alarms are reduced. The government must now step in to ensure the latest standards account for this, says **Phil West** of West Energy

The standard BS 5839-6:2019 advises designers and installers to minimise the frequency of false fire alarms. As it stands, it only relates to the type and positioning of detectors as opposed to the role of ventilation.

This focus within the British standards on the equipment associated with the fire alarm system, rather than addressing the root cause of the issue, is creating big problems for building managers.

Not only is it extremely short-sighted, but it also demonstrates the lack of understanding of how building services can actually work in unison to benefit both the fabric of the building and protect the safety of occupants.

Cooking-related false fire alarms are mainly caused by airborne fat and grease particulates, being allowed to escape from kitchens/cooking areas, rather than being arrested or extracted.

Generally, 'rate of heat to rise' detectors are used in kitchens to mitigate false fire alarms. These optical or ionisation detectors are very sensitive to fat and grease particulates. This is understandable so as to ensure they recognise smoke and particulates from real fires. The downside of these detectors is that if fat and grease particulates are not removed at source, they will inevitably activate the fire alarm system.

Designing out cooking-related false fire alarms requires a properly designed ventilation system with adequate air flows in a direction which prevents fat and grease particulates reaching the detectors.

Otherwise, false fire alarms can become so frequent in certain buildings that they are simply ignored.

A recent BBC article on a fire at The Cube student accommodation in Bolton has highlighted the issue: "Residents of The Cube were confused as to whether there was actually a fire in the building on Friday because, as one said, fire alarms go off "almost every day". One resident, Afnan Gohar said she thought it was a false alarm and told the BBC: "We didn't take notice of it until a girl came running and screamed, telling us to get out and we didn't believe it at first."

Because occupants, in particular students and the elderly, will either forget or not be bothered to turn on extract ventilation fans and systems when cooking, a precise automatic ventilation control device is an essential part of the system.

Government directive

The Cube incident led to a directive from the Secretary of State for Education to ensure the safety of all students in both university-owned accommodation and private accommodation.

Precise automatic ventilation control when linked to a suitably sized extract fan can prevent such false fire alarms. False fire alarms are a huge problem in the UK, with more than 500,000 call outs to the emergency services being recorded each year. Some 293,000 turn out to be false alarms, which when totalled up cost the UK government nearly £1bn.

One of the biggest causes of 'false fire alarm' is classed as apparatus misuse, which can be anything from carelessly setting off the alarm to cooking issues. Burnt toast is one of the biggest culprits, with a whopping 35,000 false alarms alone last year.

Inadequate ventilation and a lack of controls often go hand in hand with false fire alarms – particularly in student and nurse accommodation. Installing controls which automatically activate the ventilation in every kitchen in these types of residencies could save the government and the taxpayer well over £10m pounds. The average callout costs the fire service roughly £300 per tender – usually two fire engines are sent to each callout, so this cost saving might be closer to £20m pounds. It is worth noting that most fire and rescue services are now charging those establishments who frequently have cooking-related false fire alarms.

There are various products on the market that can turn off the cooker or hob should a fire occur, but these do not help with the huge issue of false alarms.

The solution, we believe, is installing demand control ventilation systems like a Cookermiser/Ventmiser unit, which senses the current of the cooking appliances and automates the ventilation when cooking is taking place. This also removes the need for the occupants to manually turn on the cooker/hood, a common problem as occupants often forget.

Importantly, it removes fat and grease particulates at source, which will reduce the volume of cooking-related false fire alarms in huge numbers, saving the government and fire services precious time, resource and taxpayer money.

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