TR/19 update – key concerns addressed

With trade association for the heating, ventilating, air-conditioning, and refrigeration sectors, the Building and Engineering Services Association (B&ES), having recently updated its ‘TR/19’ guidance document – dealing with the internal cleanliness of ventilation systems – Health Estate Journal (HEJ) asks Richard Norman (RN), chairman of the Association’s Ventilation Hygiene Group Branch, and MD of specialist ventilation cleaning services provider, Indepth Hygiene, about the changes, and why the revisions were needed.

RN: It is nearly 10 years since TR/19 was last updated, and in that time requirements for levels of cleanliness of ventilation systems have become increasingly stringent.

HEJ: Why is that?
RN: There are two key factors driving this – firstly the increase in awareness of, and concern over, internal air pollution and its effect on building occupants. There is no shortage of research showing the impact of poor air quality on performance at work, and also on the general health of building occupants – including levels of morbidity. Just as we need to be aware of pollution in the atmosphere out-of-doors, we also need to be sure that our indoor air quality is not having a detrimental effect on us, and that the mechanical ventilation systems that we rely on to provide good quality air are properly cleaned and maintained. Of course it’s typically an invisible threat, so we have to take positive action to monitor air quality and clean effectively.

Kitchen extract system issue
Secondly, fire risk from grease build-up in kitchen extract systems is a huge concern. Grease extracts are linked to an alarming number of fires every year in non-domestic kitchens; in fact in nine out of 10 fires linked to catering facilities, uncleared grease deposits in grease extract ducting have ignited to make fires more widespread and destructive. It’s a big worry, indeed fire authorities believe that the grease extract ventilation system linked to catering facilities is the greatest risk to the safety of building occupants.

HEJ: So these key issues have been addressed in the updated TR/19?
RN: Yes, that was essential, but we also wanted to align our UK industry standard more closely to the British and European Standard. BS EN 15780 Ventilation for buildings – Ductwork – Cleanliness of Ventilation Systems, which was introduced in 2011. There are differences between the two standards which can make compliance more challenging for UK industry practitioners. BS EN 15780 takes precedence over TR/19, so it is essential that our industry standard is kept up to date, and reflects the contents of BS EN 15780.

Key changes on air quality
HEJ: So, can you summarise the key changes to TR/19 in relation to air quality?
RN: Of course. The first change is concerned with air quality and ventilation ducting pre-clean testing methods. BS EN 15780 summarises a variety of types of test methods that give a quantitative measurement of dust deposits on duct surfaces. This includes the TR/19 Deposit Thickness Test (DTT) and Vacuum Test (VT), which have historically been used to evaluate the cleanliness of ventilation systems. However, BS EN 15780 introduces a new preferred vacuum test (PVT) in its test guidance notes, designed to measure the total amount of dust deposited in a duct. The UK industry, through TR/19, has historically used deposit thickness testing (DTT) to give a similar measurement of total dust accumulation when evaluating duct cleanliness prior to cleaning, and the vacuum test (VT) to validate cleanliness after duct cleaning.

Total impacted and loose dust
The PVT testing protocol produces a measurement of the total impacted and loose dust and debris found in a duct; the VT only measures the loose dust that is released when the filter cartridge is
Ductwork before and after efficient, effective, cleaning.

passed over the template area, replicating normal airflows in ducting, but resulting in impacted dust being left in the duct system. Testing has shown that residual or impacted dust is a latent source of microbial activity, and can contaminate air with harmful microorganisms.

However, until now neither document provided a comparison of PTV values (measured in grams) and DTT (measured in microns). So we have now added a reference table that does this, in order that practitioners using the DTT method can easily check that they are compliant with the requirements of BS EN 15780 when determining if a system needs to be cleaned, without the need to wait for laboratory analysis of the test filters (DTT giving an instant on-site test result). For post-clean validation, both BS EN 15780, and the new TR/19, specify the PTV as the only test method.

Buildings defined by classifications

In addition, BS EN 15780 defines buildings by classifications – 'cleanliness quality classes', which set different benchmarks for the amount of soiling within a duct, based on the type and usage of that building or area. So, for instance, a store room or basement area of a building with low usage would be allowed higher levels of soiling than clinical areas within a hospital. TR/19 thus now includes a table showing typical applications of cleanliness quality classes, with the levels of acceptable soiling for each class, using either PTV or DTT testing methods.

BS EN 15780, equally importantly for the construction industry, describes in detail the requirements for cleanliness of newly-installed duct systems. This has also been included in the updated TR/19 guide, again with levels of acceptable dust accumulation for each cleanliness quality class.

HEJ: And what has changed in relation to kitchen grease extract cleaning?
RN: The significant change is in the recommendations for frequency of cleaning based on type of cooking and hours of usage. We have added a new table which provides clearer guidance to assist in assessing the requirements for cleaning, particularly where cooking methods produce high volumes of airborne grease contaminants.

Insurance considerations

It is important to note that commercial liability and property insurance policies often contain conditions and warranties that stipulate a minimum cleaning frequency for grease extract ductwork systems and canopy filters. While some may base their requirements on TR/19 recommendations, we are aware that some insurers are now stipulating a higher frequency of cleaning: failure to comply with such requirements will, of course, invalidate the building insurance policy. Clearly it is vital that those responsible for management of the property are aware not only of TR/19 recommendations, but also of their own insurer’s requirements, and, of course, statutory duties under the Fire Safety Order, by ensuring that their extraction system is regularly inspected between planned cleaning visits, to confirm that the cleaning frequency is correct.

In addition, the canopy and canopy/extract plenum is an area of higher fire risk, and consideration should be given to more frequent cleaning in accordance with insurers’ requirements.

HEJ: How does the BS EN 15780 deal with grease extract cleaning?
RN: In the UK, grease extract cleaning is larger by value than regular ventilation duct cleaning, and likely to increase with the growing demands of insurers. However, there are no standards for grease extract cleaning in BS EN 15780 currently. Clearly this is one area where

Richard Norman

Richard Norman, who became chairman of the B&ES Ventilation Hygiene Group Branch earlier this year, holds qualifications from the Institute of Chartered Secretaries and Administrators, and the Chartered Institute of Marketing. He joined the family business, Indepth Hygiene Services, in 1993. Working alongside his father, who founded the business in 1970, he was responsible for sales and marketing, but in 2003 became the company’s managing director.

During his time in the duct and ventilation cleaning industry, Richard Norman has done much to refine standards and guidelines, and raise awareness of key issues. In 2005, he was elected deputy chairman of the B&ES (previously the HVCA) Ventilation Hygiene Group Branch committee. He was on the sub-committee that re-wrote the industry standard TR/17 document to create TR/19, setting out a guide to good practice around the internal cleanliness of ventilation systems. Six years later he joined the working party which created the first industry-wide training programme for ductwork cleaning – the Greenbook Training Scheme – in 2011. Richard Norman was part of a team undertaking the ‘revamp’ of TR/19 and, chip companies, the MOD, and local and central government. A Royal Warrant holder, the company is a trusted partner to over 20 facilities management companies, including Carillion, Interserve, and Serco.

Indepth Hygiene is registered to BS EN 001:2008, a member of the Building & Engineering Services Association, the Facilities Management Association, Constructionline, the British Institute of Facilities Management, and the Fire Protection Association. One of the sector’s first companies to be SAFECO contractor-approved, its services include general ventilation system cleaning; grease extract cleaning; hospital ventilation cleaning; fire and smoke damper testing; indoor air quality monitoring; ventilation hygiene risk assessments, and expert witness service.
the UK leads the way, but it's another example of inconsistencies between the two standards, and one which must be rectified.

**HEJ:** How straightforward is it to amend the content of the BS EN 15780?

**RN:** The BS EN 15780 is an 'umbrella' standard, with informative annexes that can be revised and added. This allows us the opportunity to correct discrepancies like this. We are now acting on behalf of the industry to have grease extract ductwork cleaning included. The move has already been agreed in principle by the British Standards Institute. I sit on the CEN Committee (European Committee for Standardisation), and we have been asked to provide a summary of TR/19 section 7 (Specific considerations for kitchen extract systems) to the Committee, for consideration for inclusion in BS EN 15780.

Raising the Standard's profile

**HEJ:** Earlier this year you were appointed chairman of the B&S Ventilation Hygiene Group Branch. How do you see your role evolving?

**RN:** I am delighted to have had the opportunity to be a part of the important revisions to TR/19, which are set to raise our industry standards still further. I intend to use the 'PR opportunity' that the second edition of TR/19 offers us to raise the standard's profile, and to put the focus firmly on cleanliness in relation to health and safety matters. It is vital that all our stakeholders – cleaning companies, facilities managers, and facilities management contractors, as well, clearly, as property owners and managers – are fully aware of their obligations in terms of the cleanliness of ductwork systems, and make health and safety a priority.

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