

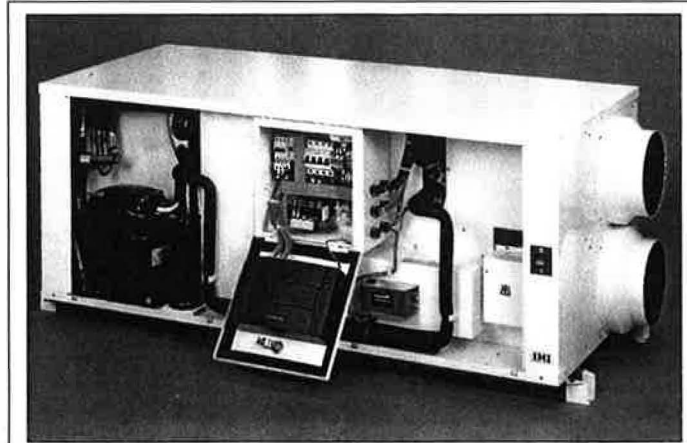
Worrying news is reaching us from the US about the failure of ventilation systems to cope with sooty deposits from candles. Cathy Flanders and Ron Bailey report from Florida on the technical reasons behind several pending legal actions. AIVC 11692

Candle in the wind

According to several Indoor Air Quality specialists soot deposition and contamination from candle use in residences is becoming a more frequent problem due to the popularity of scented and/or aromatic candles. We still haven't determined the impact of this exposure to health, but tests are now underway.

The emissions and soot produced by some of these scented and/or aromatic candles can not only damage a home, it's contents and the ventilation system, but there is evidence that it also can also present a health hazard from breathing sub-micron particulate soot emitted, especially to children, the elderly or anyone with a compromised respiratory system.

Sub-micron (means <1 micron), the EPA and the American Lung Association have determined that particulate matter 2.5 microns and smaller are the most detrimental to our health. These particles are so small they are able to pass through our body's own "filter system", and as a result they are inhaled



IMI's Heat Pump Ventilator incorporates the features of a ventilation unit within a single module to provide heat recovery simultaneously with ventilation. The unit is claimed to reduce humidity and air contamination. Enquiry No 217



The Jarvis hotel chain is hopeful of avoiding any potential asthma attacks among its guests by fitting Trion RX Hepa air cleaning units supplied by IHS. The unit has received approval from the National Pollen Centre. Enquiry No 218

deeply into the lungs and are absorbed by the bloodstream or can become imbedded in the linings of the lungs.

Scientists

Chemists, IAQ Specialist and other scientists are speculating that the cause is the tendency of candle manufacturers to add more and more essential and fragranced oils (some of which are not even suitable for combustion) to candles in

order to achieve a higher or more intense fragrance while burning. It also appears that many inexperienced & amateur candlemakers have jumped into the manufacturing of candles to capitalise on their current popularity without the proper training or expertise. The result is an abundance of inferior or poorly performing candles.

The particulate or fuel source is hydrocarbon based and when fuel oil, gas or candle materials burn inefficiently soot is created. The soot then deposits on surfaces, particularly impact zones without any necessary "duct charging".

ACCA Bulletin 146 suggests that products of combustion may have unburned fuel attached to the "soot" particle. Carbon Black produced by combustion has a large surface to mass ratio and has an affinity to adsorb volatile fractions giving it the "tacky" quality.

Tobacco smoke, another product of combustion, coalesces and conjoins with other particles and itself due to its qualities and concentration. A low soot production candle will produce more products of combustion per minute than a cigarette.

The worrying thing is how

much longer a candle is left to burn than a cigarette.

Hvac contractors in the US are being targeted for litigation or pending civil action as a direct result of soot deposition from candles. With construction advances allowing builders to produce a "tighter" (fewer air exchanges) and more energy efficient home, this is a problem we are likely to see occurring more and more frequently in newly constructed homes.

Aromatic

However, it is not the home or the hvac system that is causing the soot deposition, it is scented and aromatic candles - the tighter conditions just allow for the deposition to accumulate and become evident to the building occupier more quickly. Unfortunately, once it has got to the stage where it is obvious, it is often too late to prevent much of the property damage.

Apparent soot deposition on walls, plastics, and electronics and other items, not in the general vicinity of the candle, typically indicates that the hvac system and ducts have been contaminated.

Enquiry No 250



VOKES and BTR are providing air filtration for the Ministry of Defence's Abbey Wood office campus. Enquiry No 219