

## **Written evidence submitted by Coltraco Ultrasonic (PHS0286)**

### **PREVENTION OF ILL HEALTH-AIR LEAKAGE TESTING IN INDOOR SPACES**

#### **1. Why the Health and Social Care Committee should consider this issue as part of its Prevention Inquiry.**

Assured and continuous access to pure fresh air is a human right. Biologically contaminated air is a primary source of infection, and if polluted air is inhaled it can cause long term ill health. Poisonous toxic air can be lethal. Two recent events, the Covid-19 pandemic, and the Grenfell tragedy, have focused our efforts on the issue of Indoor Air Quality (IAQ), our health and our well-being.

#### **2. Why the Committee should look at this now: and whether there is an opportunity for it to add value to existing research and evidence.**

Seventy per cent of the world's population spends an estimated 90% of its time indoors, and the World Health Organisation estimates that in 2020 there were more than 6 million premature deaths due to air pollution, much of it attributed to poor IAQ. Air filtration has never been considered a hot topic, but reflecting on what we know now, perhaps it should have been. Air quality plays an important role in our physical and mental health, and with COVID-19 good air filtration meant the difference between sick and healthy, and in some cases, life, or death. The lethal toxic products of combustion killed victims of the Grenfell Fire.

In June 2020, the UK Government, put out a COVID-19 emergency response grant through InnovateUK for technology to help the NHS. Coltraco Ultrasonics was one of the winners, and in just under 8 months Coltraco Ultrasonics had successfully designed and manufactured 2 innovative solutions to help the NHS, and all healthcare settings with airborne infection control, by eliminating the unwanted infiltration of air, through gaps and cracks in a room or building.

Following from this need to contain the spread of airborne diseases, Coltraco Ultrasonics swiftly saw the demand for this leak detection technology to be re-designed for the built environment. Portascanner® AIRTIGHT is an invention to ensure that rooms and buildings are airtight so that people can be confident that they are entering "safe buildings" and occupy "safe living and working spaces." A high level of airtightness ensures that ventilation and filtration systems are operating efficiently and effectively, and enhancing IAQ, which is now a poignant issue.

No alternative air leak measuring technologies measure the leak size directly, but instead infer it from pressure differences of airflow measurements, which are assumed to be taken at constant temperature and pressure, something that in reality, is never the case. This means that the alternative technologies have inaccuracies that may be minimised, but not eliminated entirely. There is an opportunity to add value to existing research and evidence on the Door Fan Blower Test and The Pulse Test and comparing these technologies with the Portascanner™ AIRTIGHT.

#### **3. Why this area would benefit from scrutiny.**

COVID-19 will not be the last pandemic disease we will suffer. Our indoor spaces must be better prepared for when the next pandemic, or fire, strikes.

Air leakage testing is primarily focused on the building envelope. There is no practical method of air leakage testing for compartmentation integrity, whilst the building and spaces remain occupied,

other than the safe and non-invasive Portascanner™ AIRTIGHT, which uses an ultrasound signal only, requires no pressurisation, and causes minimum disruption.

CIBSE recommends that Isolation Suites in Hospitals are tested for air leaks at intervals of not less than 14 months, and after the completion of any works.

Positive and negative pressure ventilation techniques fail in many healthcare settings. There is a need to scrutinise the accuracy of the air pressure monitors used, and to check these areas for air leaks.

#### **4. Why the Government must act.**

IAQ is a key issue in building design for homes, offices, hospitals, schools, and factories. Our living and workplaces, be they at our homes or elsewhere, are where we need to be safe and productive. This pandemic has shown the true value of good ventilation systems in buildings. There is a respect for a hitherto poorly understood and neglected area of building engineering services.

As we move on from a Government rescue plan to a Government recovery plan, an essential component of “Build back better,” must include frequent, regular, and periodic, mandatory testing for building and room airtightness, to include fire door integrity so that all fire doors act as an airtight barrier to the lethal toxic products of combustion, by closing to form an airtight seal.

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