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Building engineers will save more lives than doctors

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A leading respiratory illness expert has claimed that facilities management and building services engineering will have a greater influence on worldwide human health and wellbeing than the medical and social care professions.

Dr Philip Webb, chief executive of Respiratory Innovation Wales (RIW), told a technical briefing hosted in London by the CIBSE Patrons that the huge scale of the indoor environmental quality (IEQ) crisis meant that greater investment in building and facilities management would be more effective than medical treatment in reducing excess deaths related to respiratory, cardiovascular and mental health conditions.

He called for a fundamental reassessment of the way public money and resources were allocated to address the areas of greatest need, pointing out that air quality was responsible for higher numbers of excess deaths than the Covid-19 pandemic, cancer, heart disease and mental health combined. However, it receives a tiny fraction of the public money and resources allocated to health and wellbeing services.

According to data from Public Health Wales, Covid-19 was responsible for 38 deaths per 100,000 of the global population, smoking annually accounts for 180, and cancer 278, but air quality is responsible for up to 1,400 excess deaths per 100,000 every year.

Webb also pointed out that there were 3,000 new occupational asthma cases reported in the UK every year linked to the air quality in workplaces.

Legacy

“We are suffering from a legacy of poor building design dating back to the 1960s and 70s,” he said. “With people spending, on average, up to 90% of their time indoors, it is indoor air quality (IAQ) that is the most

serious issue.

“However, what small amount of government money is spent on environmental quality is aimed at addressing outdoor pollution, so it is increasingly important that we change the whole narrative around this issue. If properly supported, facilities and building management systems could have a far bigger impact on health and wellbeing than the whole of the health and social care system globally.”

RIW, which is part of the Raven Delta Group, calculated that in Wales alone £2.4 billion (£763 million on direct health costs) had been spent on mitigating the impact of the Covid-19 outbreak. The country also spends £409m a year on cancer care, £446m on cardiovascular disease, and £750m on mental health, but less than £20m on air quality measures largely focused on outdoor air quality.

“It can’t be right that the biggest killer gets the smallest fraction of the money…and, in effect, relatively little is being spent on IEQ,” Webb told the CIBSE Patrons meeting. “However, the insurance industry is starting to make its presence felt because more claims are being made for workplace ill health.”

He added the launch later this year of a new British Standard for health and wellbeing in buildings British Standard 40102 (Part One) would provide benchmarks against which buildings could be measured. It is the first standard of its type in the world and was unveiled at the recent COP28 climate conference in Dubai.

The standard, which will be formally launched in the UK later this year, provides recommendations for measuring, monitoring, and reporting IEQ in all types of non-domestic buildings. It includes an evaluation and rating system for air quality, lighting, thermal comfort, and acoustics.

Webb explained that those developing the standard were inspired to reduce the costs associated with ill-health and the pressures exerted on public services by poor IEQ in new and existing buildings.

The meeting then discussed the need to improve the quality of metering and monitoring devices for airborne contaminants so the ventilation industry, in particular, could more accurately assess the measures it needed to take.

Webb also urged building engineers to adopt “whole building solutions” based around filtration, purification and air flow technologies supported by greater use of digital monitoring and control powered by AI.

Helen Yeulet, director of competence and compliance at the Building Engineering Services Association, told the CIBSE Patrons event that addressing this issue was one of the challenges faced by an industry trying to cope with a sizeable skills gap.

Competence

The Association is currently mapping the sector to identify specific areas of technical weakness and Yeulet said the Building Safety Act would also play an important role in addressing the lack of competence that has compromised project quality over the years.

“BESA is 120 years old this year and our members have been talking about the skills gap and the importance of ensuring only competent people carry out building services work since the very first meeting in 1904. This is just the latest iteration of a perennial problem,” she said.

“However, the stakes are higher than ever now as the new Building Safety Regulator has the legal power to look back 30 years and it will become increasingly important to have evidence that people are being properly trained to be compliant with legislation.”

She also highlighted the need for the industry to improve its diversity and attract new talent from a wider cross-section of the population to tackle its skills shortages.

CIBSE President Adrian Catchpole added that this would also be vital in meeting the UK’s climate change targets with an estimated 100,000 new professionals needed to deliver renewable and low carbon projects.