Publication	Indoor Environment and Air Quality	Ventilation Hygiene or Cleanliness Assessment
Legal Requirement: Workplace (Health, Safety & Welfare) Regulations 1992	*Regulation 6. Ventilation* Regulation (1) *Effective and suitable provision shall be made to ensure that every enclosed workplace is ventilated by a sufficient quantity of fresh or purified air.* *Regulation 7. Temperature in indoor workplaces* Regulation (1) *During working hours, the temperature in all workplaces inside the buildings shall be reasonable.*	*Regulation 5. Maintenance of workplace, and of equipment, devices and systems.* (1) *The workplace and the equipment, devices and systems to which this regulation applies shall be maintained (including cleaned as appropriate) in an efficient state, in efficient working order and in good repair. (2) Where appropriate, the equipment, devices and systems to which this regulation applies shall be subject to a suitable system of maintenance.*
ACOP	*ACOP 28; Enclosed workplaces should be sufficiently well ventilated so that stale air, and air which is hot or humid because of processes or equipment in the workplace, is replaced at a reasonable rate.* *ACOP 29; The air which is introduced should, as far as possible, be free of any impurity which is likely to be offensive or cause ill health. Air which is taken from the outside can normally be considered to be "fresh", but air inlets for ventilation systems should not be sited where they may draw in excessively contaminated air (for example close to a flue, an exhaust ventilation system outlet, or an area in which vehicles manoeuvre). Where necessary the inlet air should be filtered to remove particulates.* *ACOP 32; In the case of mechanical ventilation systems which recirculate air, including air conditioning systems, recirculated air should be adequately filtered to remove impurities. To avoid air becoming unhealthy, purified air should have some fresh air added to it before being recirculated. Systems should therefore be designed with fresh air inlets which should be kept open.*	*ACOP 22; Regulation 5(2) requires a system of maintenance where appropriate, for certain equipment and devices and for ventilation systems. A suitable system of maintenance involves ensuring that;* *a) regular maintenance (including, as necessary, inspection, testing, adjustment, lubrication and cleaning) is carried out at suitable intervals.* *d) a suitable record is kept to ensure that the system is properly implemented and to assist in validating maintenance programmes.* *ACOP 33; Mechanical ventilation systems (including air conditioning systems) should be regularly and properly cleaned, tested and maintained to ensure that they are kept clean and free from anything which may contaminate the air.*
HSE EH40 Workplace Exposure Limits	Published by the Health and Safety Executive, this document lists out WELs (Workplace Exposure Limits) for hazardous substances at work as set by the Health and Safety Commission (HSC). Workplace exposure limits as set out in regulation 7 of COSHH, are intended to be used for normal working conditions in factories or other workplaces.	
WHO AQG 2021 "Global air quality guidelines"	The objective of the WHO AQG is to offer quantitative health-based recommendations for air quality management. Defined as pollutants, parameters are chosen for their worldwide importance and are not specifically targeted at workplace or 'indoor' environments. Pollutants covered in the 2021 document are Particulate matter ($PM_{2.5}$ and PM_{10}), O_3, NO_2, SO_2 and CO. Many of the limits etc detailed in other publications are based on the WHO AQG 2021 levels, or the earlier 2005 version.	No reference to ventilation systems cleanliness.
BS40102-1:2023 "Health and well-being and indoor environmental quality in buildings"	Coming into effect on 30 April 2023, this document takes the form of recommendations and guidance covering a number of parameters including thermal comfort, background gases and airborne particulate cleanliness.	No reference to ventilation systems cleanliness.

Legal Requirements, Guidelines, Standard Specification & Green Air Monitoring Services

Publication	Indoor Environment and Air Quality	Ventilation Hygiene or Cleanliness Assessment
BS EN 15780:2011 "Ventilation for buildings – Ductwork – Cleanliness of ventilation systems"	No reference to measure or record indoor air quality	Specifies the assessment criteria of cleanliness of ventilation systems, cleaning procedures and subsequent validation.
BESA H&W002 "Indoor Air Quality for Health and Well-being" July 2021	Sets out parameters to measure in terms of contaminants – CO_2, TVOC, Formaldehyde, Particulate matter ($PM_{2.5}$ and PM_{10}), CO, NO_2, O_3 and radon. Classifications based on other publications i.e WHO Air Quality Guidelines (2005); ASHRAE; Building Rags Approved Document F.	No reference to ventilation systems cleanliness.
BSRIA TG 12/2021 "Indoor Air Quality"	A brief introduction to indoor air quality aimed at anyone with the responsibility for buildings. The publication highlights twenty contaminants that it describes as the most common including specific VOCs and others such as asbestos, bacteria, mould, viruses etc.	No reference to ventilation systems cleanliness.
BESA SFG20 (Was HVCA) "Standard Maintenance Specification for Mechanical Services in Buildings"	Task Schedule: None – indoor air quality issues are not addressed by the SFG20 Standard Maintenance Specification.	Applicable Task Schedule:16-01 and 17-01 Measurement of deposits only using the B&ES TR/19. No reference made to thermal comfort, background gases or microbiological activity.
BESA TR/19 (Was HVCA) "Internal Cleanliness of Ventilation Systems"	No reference to measure or record indoor air quality notwithstanding reference to CIBSE TM26:2000.	A measurement of dust deposits for general systems and grease deposits for kitchen extract systems. Revised in line with BS EN 15780:2011
CIBSE TM26:2000 "Hygienic maintenance of office ventilation ductwork"	Sample and test for levels of airborne microbiological activity from within the office areas.	Sample and test for levels of microbiological activity from the surfaces of the ventilation systems.
	The TM26:2000 document has been archived by CIBSE. Reference is made to its being superseded by the CIBSE Guide M. See also TM64: Operational performance: Indoor air quality – emissions sources and mitigation measures.	
BRE Global Ltd BREEAM New Build or Refurbishment and Fit-out versions	Measure formaldehyde (CH_20) and total volatile organic compounds (TVOCs)	No reference to ventilation systems cleanliness.
International Well Building Institute (IWBI) WELL Building Standard WELL v1 or WELL v2	The air analysis to achieve their WELL Building standard covers formaldehyde levels, volatile organic compounds, carbon monoxide, ozone, $PM_{2.5}$ and PM_{10}, Radon (WELL v1), NO_2 – (WELL v2)	No reference to ventilation systems cleanliness.
Fitwel Certification System and the Fitwel Standard	Implement an Indoor Air quality (IAQ) Policy to achieve an improved indoor environment including volatile organic compounds, carbon dioxide and $PM_{2.5}$, plus any other parameters that may be relevant to the building, its fabric, configuration, services and infrastructure.	No reference to ventilation systems cleanliness.
Green Air Monitoring Ltd Services	**Indoor Air Quality Survey** **Test and record as a minimum, temperature levels; humidity levels; CO_2 and CO or VOC concentrations. Include where appropriate ozone, nitrogen dioxide, airborne particles, or microbiological activity levels. Available through standard snapshot surveys or Basic5 / Standard6 all day surveys.**	**Ventilation Hygiene or Cleanliness Assessment** Sampling surveys based on either: • BESA TR/19 or • CIBSE TM26:2000 (now withdrawn) Continual monitoring to assess if/when and extent of any cleaning requirements, subject to process limitations.

Note: The above is not intended to be either definitive or exhaustive. Many more publications exist that are aimed at assisting and defining an acceptable indoor environment.