Department for Education

Air cleaning unit (ACU) specification

This document sets out the recommended minimum specification for high efficiency particulate air (HEPA) air cleaning units (ACUs) to be used in education and childcare settings. These requirements should be compared against the specifications of any ACUs you are considering for your setting to ensure they are suitable and fit for purpose.

Design parameters

Number of occupants per space	Up to 8	Up to 16	Up to 32
Ventilation Rate (l/s/person)	6.25	6.25	6.25
Clean Air Delivery Rates*1 (l/s)	50	100	200
Clean Air Delivery Rates*1 (m^3/hr)	180	360	720
Sound power level limit, L_{WA}, of a single unit at set point to achieve required flow rate / [dBA]*2	≤ 43 dB L_{WA}	≤ 46 dB L_{WA}	≤ 49 dB L_{WA}

For *1 and *2, please refer to the notes section at the end of this document

Filtration

The main filter must be a HEPA filter that meets or exceeds the filter class H13 (in accordance with BS EN 1822-1) or the equivalent ISO35H (in accordance with ISO 29463-1) and must filter 100% of the airflow.

Units must also include a pre-filter that meets or exceeds the requirements of an ISO Coarse 60% filter in accordance with ISO 16890:2016.

Certification

Units should have the following certification:

- Third-party certification of pre-filter performance to ISO 16890:2016, or an equivalent and approved standard
- Third-party certification of the HEPA filter classification to BS EN 1822:2019 / ISO 29463, or an equivalent and approved standard
- UKAS-accredited (or equivalent and approved) acoustic laboratory test evidence demonstrating that the combined sound power level of all units, measured with at least Engineering level accuracy in accordance with BS EN ISO 3740:2019 and its associated standards, meets the required limits. This evidence should include the airflow rates and corresponding sound power levels for different operating conditions
- UKCA or CE marking and associated UK/EU Declaration of Conformity.

UV Technology

If UV technology is used, it must be fully enclosed within the air cleaning unit and supported by third-party certification from an independent laboratory demonstrating safety (non-ozone producing with minimal or no UV leakage) and efficacy (sufficient UV dose and confirmed inactivation performance).

The unit specification should include details of UV dose and dwell time, and whether the UVGI is applied to the air stream or to the filter.

Features

Units should be:

- free-standing or floor-mounted and must include a power lead with a minimum length of 4 metres
- mains-powered and suitable for a 13A, 240V power supply
- supplied with the necessary tools for replacing filters.

Sensors and controls

Units should have automatic filter sensors that provide a warning when the filter needs to be replaced.

Users should be able to easily turn the units on and off, and should also be able to set the device to automatically switch off in hourly increments, up to a maximum of 8 hours.

Miscellaneous

A warranty of at least one year should be included.

All solutions should avoid any of the following:

- Ozone production or other harmful chemical by-products
- UV-C leakage and any associated direct exposure to skin and eyes
- Damage to the surrounding environment
- Electrical risk or inefficient electricity consumption
- Fire risk.

Notes

*1 The clean air delivery rate (CADR) is a commonly used metric that can be useful for comparing devices. In the absence of this test-derived data, the CADR can be estimated from the product data sheet:

$$\text{CADR} = \eta_f \times \dot{Q}$$

where η_f is the fractional removal efficiency of particles that pass through the device and $\dot{Q}$ is the volumetric flow rate of air through the device (e.g., m3/hr).

*2 The intentions of the performance requirement is that the sound pressure level, L_{Aeq}, in any space (from all units combined) does not exceed 40 dB L_{Aeq}. If N units are required, the limit for each is reduced by 10*Log(N) dB. E.g., if two units are required (N = 2) the limit for each is 3 dB less than the values indicated in the table.