

Local Exhaust ventilation systems in Technology Education – Coronavirus Pandemic

Local exhaust ventilation (LEV) systems are used within Technology workshops/rooms to remove or reduce airborne contaminants and therefore reduce the risk of ill health. Employers have a legal responsibility under the Health & Safety at Work Act 1974, the Control of Substances Hazardous to Health Regulations (COSHH) 2002 and the Management of Health and Safety at Work Regulations 1999 to ensure that appropriate measures have been implemented to protect employees (teachers, technicians, etc.) at work as well as non-employees such as visitors and pupils to the school.

In the current circumstances of the coronavirus pandemic, concerns have been raised about the safety of using some types of LEV systems.

The current guidance from the Health and Safety Executive with regards to ventilation and air conditioning is clear. In a situation where the air is being taken from one room and discharged into another is a risk. (<https://www.hse.gov.uk/coronavirus/equipment-and-machinery/air-conditioning-and-ventilation.htm>),

“You can continue using most types of air conditioning system as normal. But, if you use a centralised ventilation system that removes and circulates air to different rooms, it is recommended that you turn off recirculation and use a fresh air supply.”

There are a number of types of LEV systems generally found within technology workshops.

- General fume extraction whereby contaminated air is removed from source via a fan and ducting system, such as a welding booth or forge extractor to outside the building where the contamination is diluted in the atmosphere.
- Dust extraction systems (for wood dust etc.) standalone units or units link to a few machines in the same room whereby the system captures the dust within a series of filters (usually F7 classed filters) and then the air being vented back into the same room or vented to outside.
- Centralised Dust extraction systems that service multiple machines across two or more workshops. These systems again operate on the same principal – dust captured via filters, and then the air exhausted back into the same room where the extraction unit is situated or outside.

Based on the current HSE guidance, any extraction system that services more than one workshop and discharges the air into another room will fall foul of this.

In these circumstances, the following advice would be;

1. Any shared aspects of the extraction system should be turned off. If extraction to multiple rooms can be turned off leaving one workshop functional, as long as the main extractor unit is located in that room, this would be acceptable—for example, a typical technicians preparation room.
2. Independent, standalone units attached to machines would be acceptable as long as the air was extracted outside via ducting that was appropriately positioned above the roofline or only vented back into the same room after appropriate filtration to remove any hazardous airborne contaminants.
3. High-Efficiency Particulate Air filters (HEPA) can be fitted to most types of systems. However, these should be of an H13 classification which has the ability to filter from 0.12 to 0.25 microns. Covid-19 is estimated to be between 0.12 and 0.16 microns, and due to the virus generally binding to other types of particles such as respiratory droplets, this would bring the particle size to larger than 5 microns, well within the filters capability.

If these circumstances cannot be effectively and practically met, then these LEV systems should be turned off, and any activities that have been risk assessed as requiring LEVs should not be performed.

If there is any doubt as to the type of extractor system and filters individual schools have installed, they should consult the manufacturer, installer and or service company.