

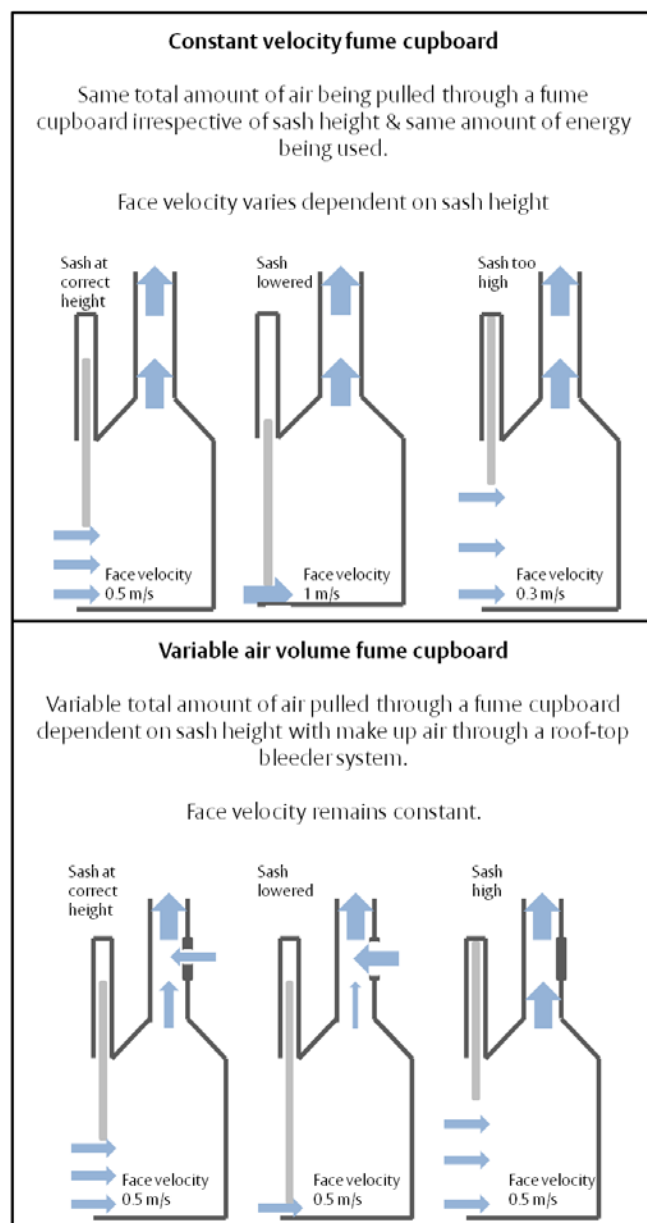
Improvements in Fume Cupboard Energy Efficiency in Chemistry Undergraduate Teaching Laboratories

The fume cupboard ventilation system for the two large Chemistry teaching laboratories has been overhauled over the last 6 weeks in order to reduce energy consumption, carbon emissions and improve working conditions in the laboratories.

The £250,000 project was funded from the University's utilities budget, supported by a £187,000 loan from Salix Finance, a Government funded organisation providing 0% loans to public sector organisations for energy efficiency improvements.

The work involved:

- Modifications to the ventilation system to allow 36 fume cupboards to be switched off when not in use (for example weekends and student vacation periods). This also required the provision of a separate ventilation system for under-cupboard ventilated chemical storage cabinets.
- Conversion of the fume cupboards to Variable Air Volume systems, which maintain a constant face velocity of 0.52 m/s irrespective of sash height. This saves significant amounts of energy in two ways; the ventilation and extract fans run at reduced speeds, and less heated air is drawn out from the laboratories.



- Installation of air-tight dampers in the fume cupboard ductwork, preventing reverse air flow when the fume cupboards are switched off.
- Replacement of the old extract fans with new more energy efficient fans and motors.



Replacement centrifugal fan systems with energy efficient motors installed on the roof.

- Installation of infrared sensors at the front of each fume cupboard. These are linked to a warning system to remind users to close sashes when away from the cupboard, including a central system to indicate when all sashes are shut.



The work is part of the University's on-going drive to reduce its energy consumption and carbon emissions and was planned in close consultation with the School and with Health & Safety Services. Significant savings of around £116,000 and 580 tCO₂ annually are anticipated, which should also help improve some of the low temperatures and significant negative air pressures in the building.

Green Week – energy efficiency design competition

Win a £100 Oracle Gift Card and help Chemistry go green!

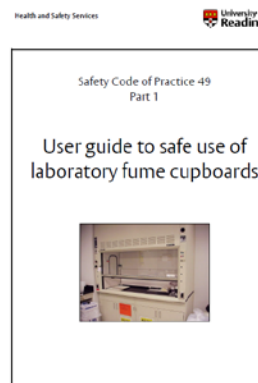
The Sustainability team are running a competition as part of Green Week (10th to 14th February) to design an interactive display to highlight to users how these cupboards can be used most efficiently. More information is available on <http://www.reading.ac.uk/cleanandgreen/Whatcanyou do/GreenWeek/competition>

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Safe Use of Fume Cupboards

In order to provide adequate protection for you and your colleagues when using a fume cupboard, always:

- Position the sash lower than the “maximum sash height marker”
- Check the airflow gauge is reading 0.5 m/s or above
- Work 6 inches from the front of the fume cupboard, this helps make sure that all vapours or dusts are captured
- Do not obstruct the rear baffle of the fume cupboard – this will interfere with the airflow
- When not in use, lower the sash
- In some laboratories it may be possible to switch off the fume cupboard – check your lab local rules or speak your safety coordinator
- For more information see Safety Code of Practice 49 part 1



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