



Reducing Fume Cupboard Running Costs

Annual VAV Fume Cupboard (1.2m sash width) running costs are >£1000*.

Loading your fume cupboard increases this cost, as it requires airflow recalibration to ensure that face velocity is maintained.

This results in higher volumes of expensive conditioned air, being removed from your building.

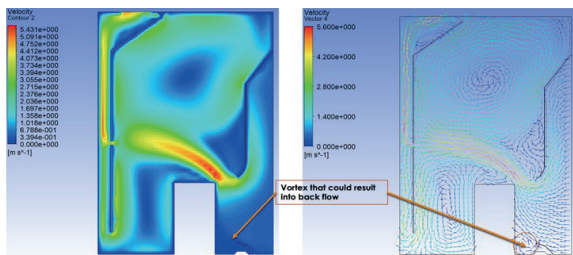


Figure 1. Computational fluid dynamics (CFD) modelling of impact of loading on a fume cupboard.

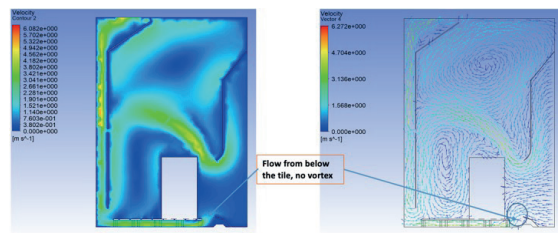


Figure 2. Computational fluid dynamics (CFD) modelling of impact of loading on a fume cupboard with Flowtilz.

Flowtilz are plastic tiles that clip together to provide a solid worksurface that allows air to pass through underneath.



This improves the safety of the cupboard as well as making them more energy efficient by reducing those low spots caused by equipment loading.



Savings based on a 1.2m sash width VAV fume cupboard running at 0.40 m/s face velocity with Flowtilz

| Worksurface Loading | Face Velocity m/s | Annual Cost of Heating/Cooling* | Annual Running Costs increased by loading* | Volume (and cost) saving with Flowtilz |
|------------------------|-------------------|---------------------------------|--------------------------------------------|----------------------------------------|
| Empty | 0.40 | £955 | | 0% |
| Normal cal error empty | 0.40 (-5% +15%) | £1,027 | £72 | 0% |
| 35% loading | 0.40 (-5% +15%) | £1,150 | £123 | 12% |
| 60% loading | 0.40 (-5% +15%) | £1,212 | £185 | 18% |
| 80% loading | 0.40 (-5% +15%) | £1,437 | £410 | 40% |

Based on trials at University of Oxford

Flowtilz also work with constant volume (CAV) fume cupboards.

Many CAV fume cupboards run at 0.50m/s face velocity. Our studies showed same robustness of containment values at 0.40m/s face velocity when combined with Flowtilz.

Savings based CAV fume cupboards fume cupboard running at 0.40 m/s face velocity with Flowtilz

| Fume Cupboard Width | Face Velocity m/s | Annual Cost of Heating/Cooling* | Face Velocity m/s | Annual Cost of Heating/Cooling* | Volume Saving | Annual Cost Saving |
|---------------------|-------------------|---------------------------------|-------------------|---------------------------------|---------------|--------------------|
| 0.9m | 0.50 | £3,398 | 0.40 | £2,842 | 20% | £556 |
| 1.2m | 0.50 | £4,324 | 0.40 | £3,583 | 20% | £741 |
| 1.5m | 0.50 | £5,251 | 0.40 | £4,324 | 20% | £927 |
| 1.7m | 0.50 | £5,869 | 0.40 | £4,818 | 20% | £1,051 |
| 2.1m | 0.50 | £7,104 | 0.40 | £5,807 | 20% | £1,297 |

Flowtilz

- ◆ Improves the safety of the cupboard as well as making them more energy efficient by reducing low spots caused by equipment loading.
- ◆ Made of chemically resistant poly propylene and can easily be cleaned after spills.
- ◆ Can be used in conjunction with BenchGuard or spill trays and can take over 100kg in weight evenly distributed or 25kg point load such as small equipment feet.
- ◆ Manufactured and distributed in the UK and recyclable.

Notes: * Based on University of Oxford utility prices.
Electricity: £0.20 kWh, Gas: £0.08 kWh



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