



FACT SHEET: FUME HOOD ENERGY CONSERVATION



SUSTAINABILITY OPPORTUNITY

Fume hoods are one of the largest energy hogs on campus. When open, a single fume hood can consume as much energy as 3.5 homes. This high energy consumption is due to the fact that fresh, conditioned air is constantly being exhausted through them to the outdoors. An easy way to greatly reduce a fume hood's energy consumption is to close the sash when not in use. This will reduce the airflow being exhausted. Fume hood sashes also provide an important safety barrier between the fume hood interior and the lab. Therefore, to save energy and stay safe, fume hood sashes should only be opened to set up or modify an experiment.

FREQUENTLY ASKED QUESTIONS

Why do fume hoods use so much energy?

It's the air being sucked through the fume hood, not the fume hood itself that consumes so much energy. For health and safety reasons, labs use 100% outside air which must be heated or cooled for comfort before it is brought into the lab. In addition to the energy required to condition the air, a significant amount of additional electricity is required to run large fans to move the air through the building and through the fume hoods.

How does shutting the sash save energy?

Most fume hoods at Stanford are variable air volume (VAV), meaning that the fume hoods are designed to vary the air flow based on how wide open the sash height is. Sash position is connected to the building's ventilation system so that a building's fan speed and the volume of air moved is reduced when the sash is lowered.

Is it safe to shut the sash?

The sash is an important safety barrier between the fume hood interior and the laboratory, protecting the lab user. Sashes should be opened only to set up or modify an

experiment. At all other times, shutting the sash is safest. When the sash is shut there is still some air flow through the hood to remove any fumes.

How do I remind myself and my roommates to close the sash?

You can post a sticker, like the one shown in the picture below, to remind yourself and your lab mates to close the sash when not in use. The sticker also educates new fume hood users that a lower sash is safer, and that the sash should only be open when setting up and modifying experiments. The Cardinal Green Lab Program provides free fume hood stickers to Stanford labs.

What other fume hood practices can reduce my energy consumption?

- Never use a fume hood just for storing chemicals – they belong in a safety cabinet, which doesn't require huge volumes of air.
- If your fume hood has an occupancy switch, turn it off when not in use.
- If your group is no longer using a specific fume hood, consider having it locked and de-commissioned so air no longer flows through it.



MORE INFORMATION

CARDINAL GREEN LAB PROGRAM

<http://sustainable.stanford.edu/cardinal-green/cardinal-green-labs>

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