

Caltech
green
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FUMIE HOOD SLIDES

Visit this website for more information: <https://www.nature.com/articles/s41598-021-00772-y>

Any questions please email: greenlabsinfo@caltech.edu

For more information visit <https://greenlabs.caltech.edu>

Did you know?

An open fume hood can use the same amount of energy in a year as 3.5 homes!

Fume hoods and other ventilation consume 40-70% of the total energy used by laboratories.





Why shut your sash?

It will help keep you and your lab members safe, avoid chemical exposure, and help reduce campus energy use and emissions by shutting your sash!

Stickers like this one can remind users that the sash should only be open when setting up and modifying experiments. Get yours today by emailing greenlabsinfo@caltech.edu!





Some fume hood best practices

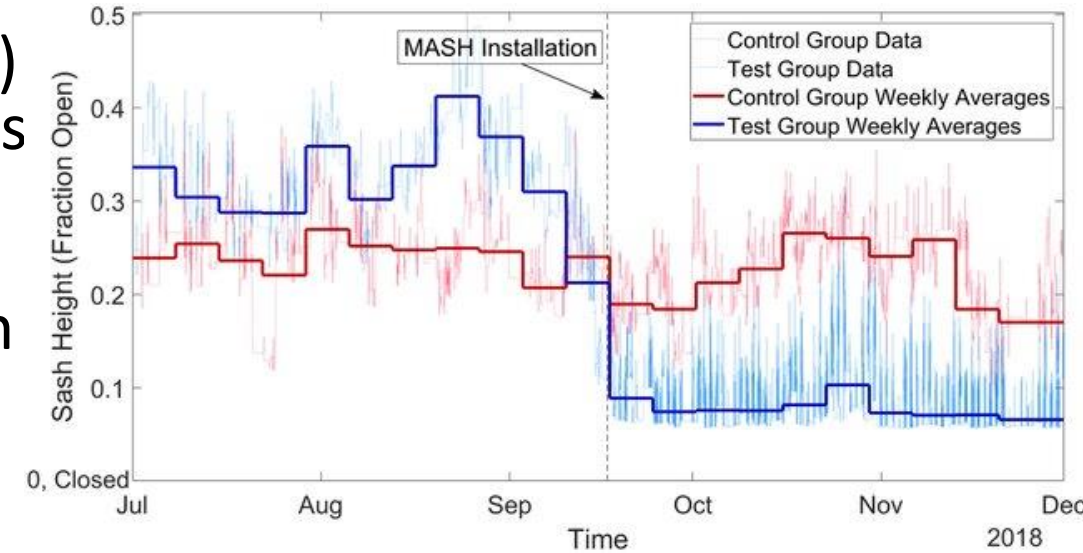
- Sashes should be closed at all times when not in use.
- Never put your head inside the hood during operations!
- Minimize foot traffic by the face of the hood and don't make fast movements when taking things in and out of the hood, as this can cause contaminants to flow out.
- Keep your fume hood clean and tidy, and do not use them for permanent chemical storage. Chemicals should be stored in approved safety cabinets.
- Each waste container must be changed 9 months after being first used (even if it is not full!) and should be capped when not in use.
- Minimize obstructions to the rear baffles to maintain proper airflow inside the hood.
- Keep all chemicals and equipment at least 6 inches behind the face of the hood (you can mark this by a taped line inside the fume hood).
- Fume hood sashes should not be raised above the indicated safety line on the bench surface or sidewall.
- Never place sparking or ignition sources inside the hood when flammable liquids or gases are present.

Here is a GREAT video on how to safely operate a fume hood from USC:

- <https://www.youtube.com/watch?v=d6l-6rPtWMk>

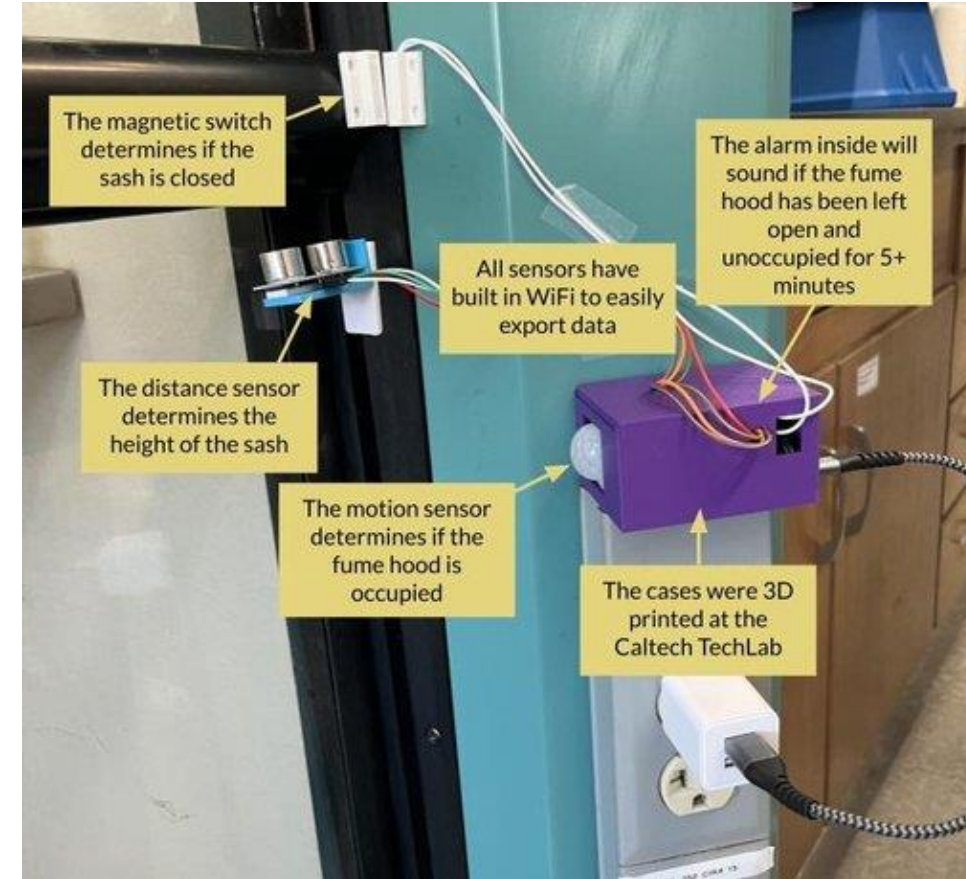
Shut the Sash Campaign

- In a [study published by MIT](#), the addition of homemade Motion and Sash Height (MASH) sensors, which alarm when the fume hood is open and unoccupied by a user for a set amount of time, encouraged users to close the sash and resulted in a 75.6% decrease in average sash height as compared to control groups that did not have a MASH sensor installed. As a result, the energy costs of running each of the fume hoods was reduced by \$1,159 per year. We hope to see similar results if such a campaign was implemented at Caltech!



Shut the Sash Campaign

- In summer 2024, Green Labs ran an internship program focused on a Shut the Sash Campaign, working to change behaviours surrounding fume hood sash closure to make labs not only more energy efficient, but also safer.
- Installed 24 fume hood sensors across multiple labs and buildings, results will be shared at the end of 2024 on our [Pilot Programs website!](#)



What can you do in the lab?

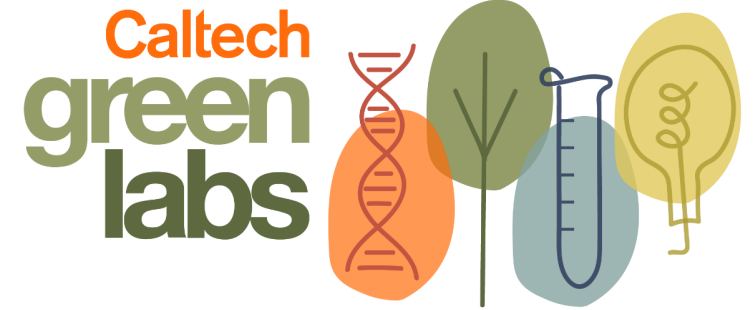
Make shutting your sash the norm in your spaces to keep lab members safe, avoid chemical exposure, and help reduce campus energy use and emissions by shutting your sash!

SHUT YOUR SASH!!



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Any questions please email: greenlabsinfo@caltech.edu

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For more slide decks visit our [Fact Sheets website](#)

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References and Additional Resources

[Visit our fact sheets website for more information!](https://greenlabs.caltech.edu/resources/fact-sheets) (<https://greenlabs.caltech.edu/resources/fact-sheets>)

- **Fume hoods account for [40-70% of the total energy used by laboratories](https://www.nature.com/articles/s41598-021-00772-y)** (<https://www.nature.com/articles/s41598-021-00772-y>). As such, campaigns working to change behaviours surrounding fume hood sash closure make labs not only more energy efficient, but also safer.
- **How to use a fume hood videos:**
- [USC: How to properly use and operate a fume hood](https://www.youtube.com/watch?v=d6l-6rPtWMk) (<https://www.youtube.com/watch?v=d6l-6rPtWMk>)
- [UCB: How to properly use a fume hood](https://www.youtube.com/watch?v=A4AHxLnByts) (<https://www.youtube.com/watch?v=A4AHxLnByts>)
- [Dartmouth: Chemical Fume Hood](https://www.youtube.com/watch?v=nIAaEpWQdwA) (<https://www.youtube.com/watch?v=nIAaEpWQdwA>)
- **Visit our website to see other information about Shut the Sash Campaigns** (under the fume hood fact sheet references)(<https://greenlabs.caltech.edu/resources/fact-sheets>)
- **Other Information About Fume Hoods**
- [10 Fume Hood Myths](https://greenlabs.caltech.edu/documents/29171/10_Fume_Hood_Myths.pdf) (https://greenlabs.caltech.edu/documents/29171/10_Fume_Hood_Myths.pdf)
- [Caltech Chemical Hygiene Plan](https://greenlabs.caltech.edu/documents/29172/Chemical_Hygiene_Plan.pdf) (https://greenlabs.caltech.edu/documents/29172/Chemical_Hygiene_Plan.pdf)
- [Laboratory Guidelines and Standards](https://greenlabs.caltech.edu/documents/29173/LC-125_Lab-Guidelines-and-Standards_RevC_US.pdf) (https://greenlabs.caltech.edu/documents/29173/LC-125_Lab-Guidelines-and-Standards_RevC_US.pdf)