

Shut your hood!

Monitoring Fume Hood Sashes and Providing Feedback on Behavior to Benefit Energy Conservation

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Learning Objectives

- Monitoring VAV methods and signage
- Methods of providing feedback to labs
- Current data, challenges faced, and successes achieved

Hoods at CU

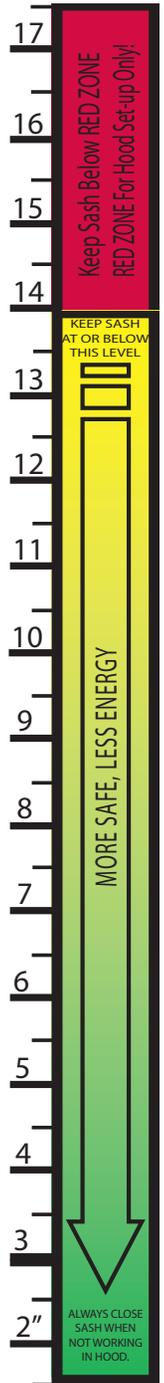
- 300 Constant Air Volume (CAV)
- 200 Variable Air Volume (VAV)
- CU Green Labs only monitoring VAV



Monitoring VAV hoods

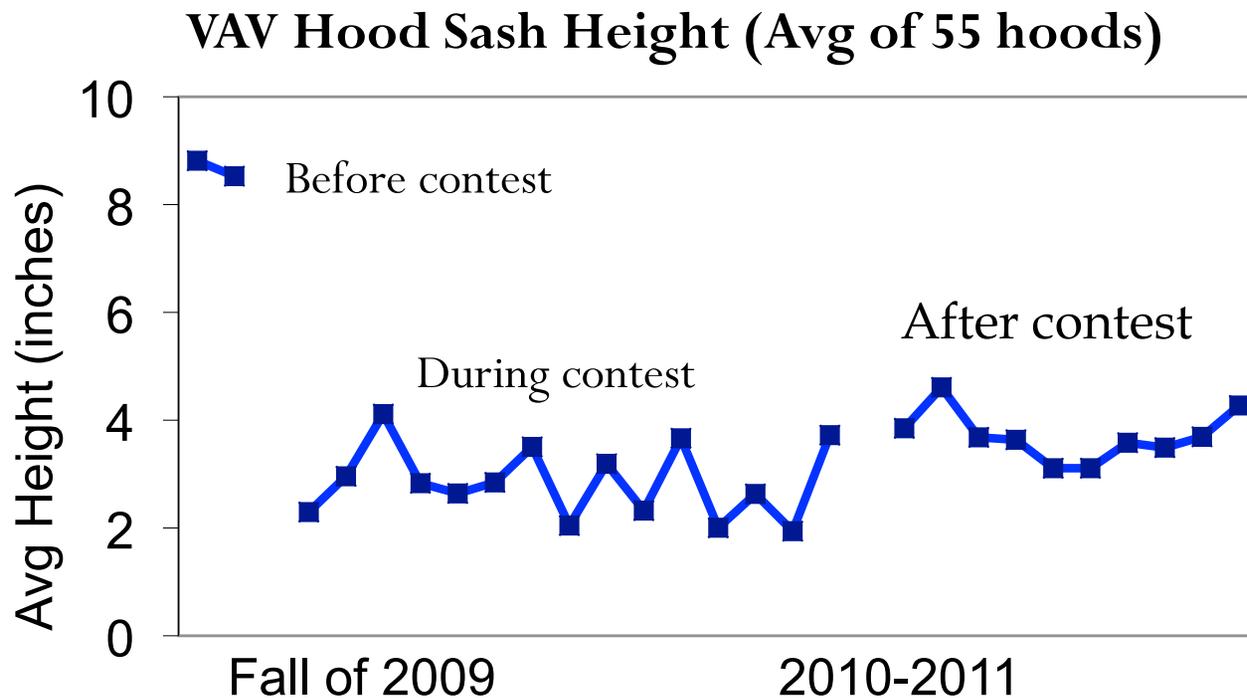
- Ruler stickers attached to all fume hoods
- The sash height is tracked in a spreadsheet
- CU Boulder uses a working height of 14”
 - Most campuses use 18”

*Modified ruler from Allen Doyle, UC-Davis



MCDB, JILA, and Biochemistry

- First data point taken Fall 2009
- Periodic hood checks thereafter
- Current 2014 behavior is great



Sash Height
Reduction:
50%

Hoods with
problems:
~20%

Fume Hood Contest for Chem Eng

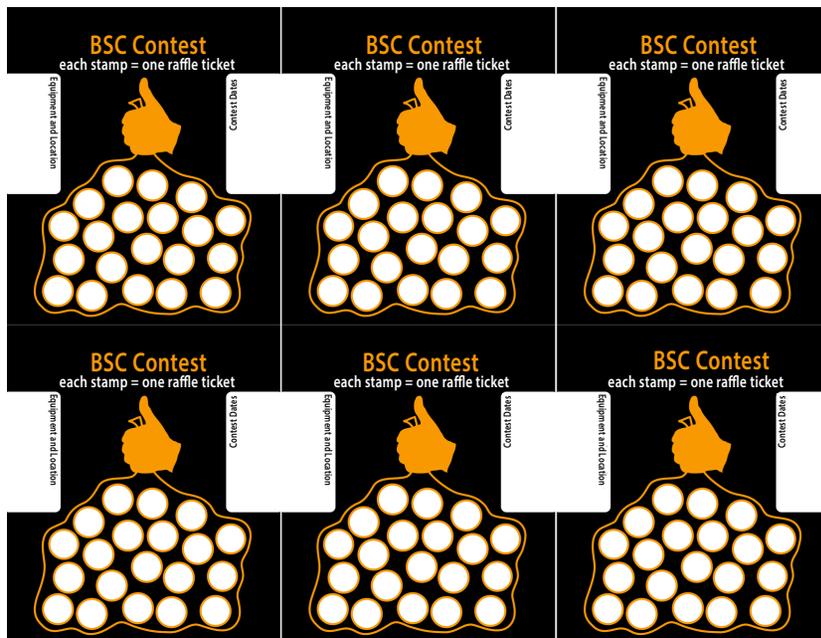
- Contest in Summer 2011
- Signage added to all fume hoods
 - Rulers
 - Stickers
 - Contest cards



* Modified from University of Toronto

Fume Hood Contest for Chem Eng

- 3 week long contest with random checks throughout
- Sticker added to contest card for good behavior



* Modified from University of Toronto

Fume Hood Contest for Chem Eng

- Hung notices that notified lab that we were there
- GL staff tracked behavior on a spreadsheet

CU Green Labs was here!



**You did it!
Thanks for closing the sash!**

CU Green Labs was here!
Your sash is almost closed.



**Please close it just a little more
for maximum energy savings.**

CU GREEN LABS was here!

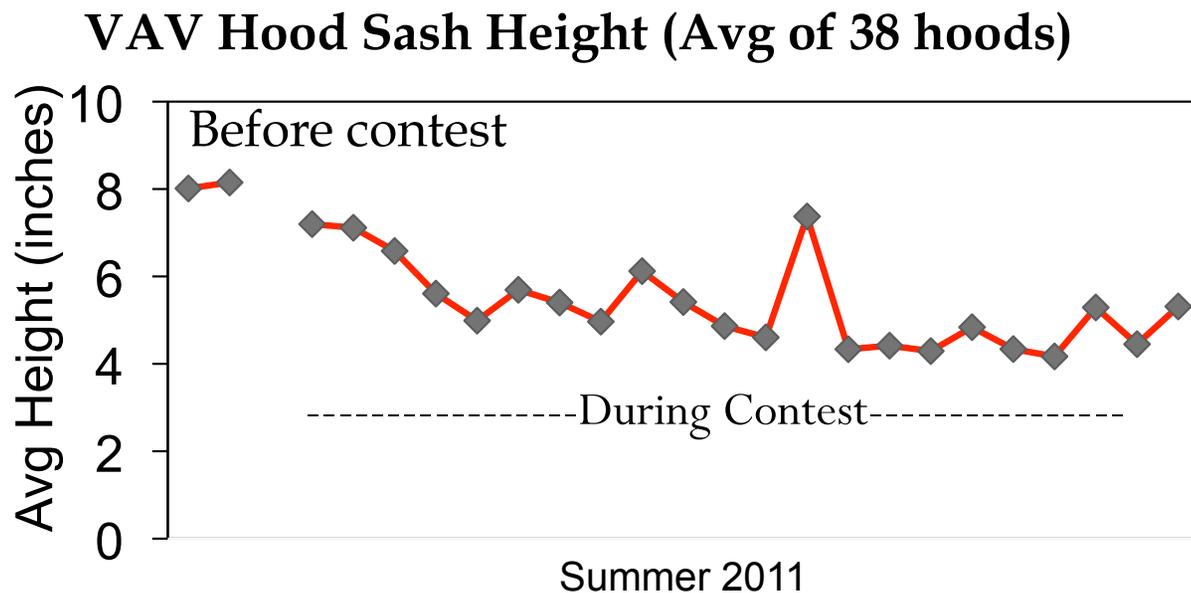
YOUR SASH WAS FOUND OPEN WHEN NOT IN USE



When you are not standing directly in front of the hood, CLOSE THE SASH PLEASE! It is not only better for energy savings, it is also better for your safety.

Fume Hood Contest for Chem Eng

- Contest concluded with a raffle drawing (1 ticket per sticker) and pizza party
- 2 winners of drawing
 - 1st place: \$125 gift card to a restaurant of choice
 - 2nd place: \$75 gift card to a restaurant of choice



Sash Height
Reduction:
35%

Hoods with
problems:
~10%

Fume Hood Contest for JSCBB

- Biotech building built
 - Put up signage before labs moved
 - Hoods have panels in addition to sashes
 - Correct use of panels increases user safety



Fume Hood Contest for JSCBB

- Many of the labs from Biochem and Engineering moved to JSCBB
 - Majority of labs were familiar with closing VAV sashes
- Hypothesized better initial results

For safety,
WORK BEHIND PANEL,
not in front of an opening!



For safety and
energy savings,
SHUT THE PANELS!



Fume Hood Contest for JSCBB

- Hosted another raffle drawing luncheon with same gift card prizes

	Sash Height (in)	Panel Position (in)
Before Contest	3.0	4.9
During Contest (10 pt avg)	1.8	2.7
% Reduction	41%	46%
Last Contest Data Point	1.4	1.5
% Reduction	53%	69%

In 2009:

~9.0

66%

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Last Contest Data Point % Reduction	1.4	1.5 69%

In 2009:

~9.0

	Sash (in)	Panel Position (in)
Before Contest		4.9
During Contest (10 pt avg) % Reduction	84%	2.7 46%
Last Contest Data Point % Reduction	1.4	1.5 69%

Hoods in JSCBB

- CU GL continued to monitor hoods monthly after the contest
- Hang small notices on the hood to let labs know we were there
- Behavior worsened after contest

CU Green Labs was here!



**You did it!
Thanks for closing the sash!**

CU Green Labs was here!
Your sash is almost closed.



**Please close it just a little more
for maximum energy savings.**

CU GREEN LABS was here!

YOUR SASH WAS FOUND OPEN WHEN NOT IN USE



When you are not standing directly in front of the hood, CLOSE THE SASH PLEASE! It is not only better for energy savings, it is also better for your safety.

Hoods in JSCBB

- Held a meeting with JSCBB to encourage better behavior
- Meeting was in conjunction with BSC contest, so positive atmosphere to address issues
- Meeting did not have much impact over the course of the month
- May
 - Sashes: 3.1
 - Panels: 6.6



Hoods in JSCBB

- Made a poster to encourage better behavior with closing sashes and panels
- Moved posters to more visible area (Kitchenettes)



- Sash behavior increased while panel behavior decreased
- Poster only addressed sashes, not panels

Friends don't let friends leave sashes open!



Shut your sash to...

**SAVE ENERGY
& BE SAFE!!!**

Join these JSCBB labs with good sash etiquette:

- | | | | |
|---------|----------|-----------------|----------|
| • Gill | • Hough | • Bryant | • Wuttke |
| • Pardi | • Sousa | • Leinward | • Garcea |
| • Yin | • Anseth | • Randolph | • Falke |
| • David | • Weiner | • Knight/Dowell | • Parker |

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Facilities Management
Office of Sustainability
Environmental Health and Safety
Environmental Center
UNIVERSITY OF COLORADO BOULDER



Hoods in JSCBB

- Added signs to posters that were already up
- Made a slide to go up on TV screens in JSCBB



Good for safety and energy savings

Panel behavior worsened in May and June.

Friends don't let friends
leave sashes and panels open!



CU Green Labs is presenting on JSCBB hood behavior in September at I2SL

Hoods in JSCBB

	Sash Height	Panel Position
Before Contest	3.0	4.9
After Contest	1.4	1.5
May Data	3.1	6.6
August Data	2.4	3.5

EVEN

- Environmental Engineering moved into old Chemical Engineering labs
- GL began monitoring their sash behavior
- Avg Sash Height: 6.53”
- Many labs still unoccupied
- Will run contest when everyone moves in



Moving Forward

- Continue to monitor fume hood sashes and panels
- Behavior is great compared to initial data in 2009



Acknowledgements

- I2SL
- CU Boulder Facilities Management
- CU Boulder Environmental Health & Safety
- CU Boulder Environmental Center
- CU Green Labs Program & Kathy Ramirez-Aguilar

Questions

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