

# Shut your hood!

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

Ashlyn Norberg

University of Colorado Boulder

CU Green Labs Lead Assistant

# Learning Objectives

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

# Hoods at CU

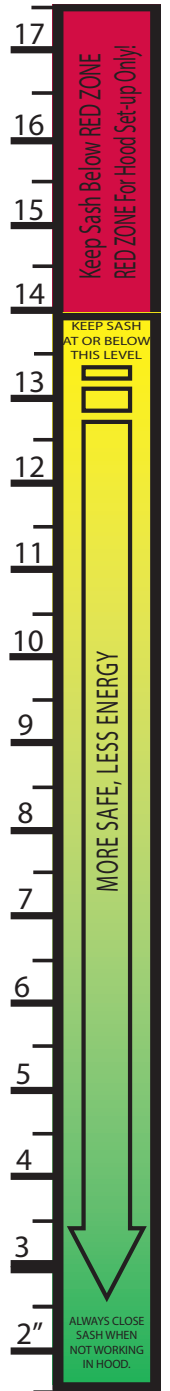
- 300 Constant Air Volume (CAV)
- 200 Variable Air Volume (VAV)
- CU Green Labs only monitoring VAV



# 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”

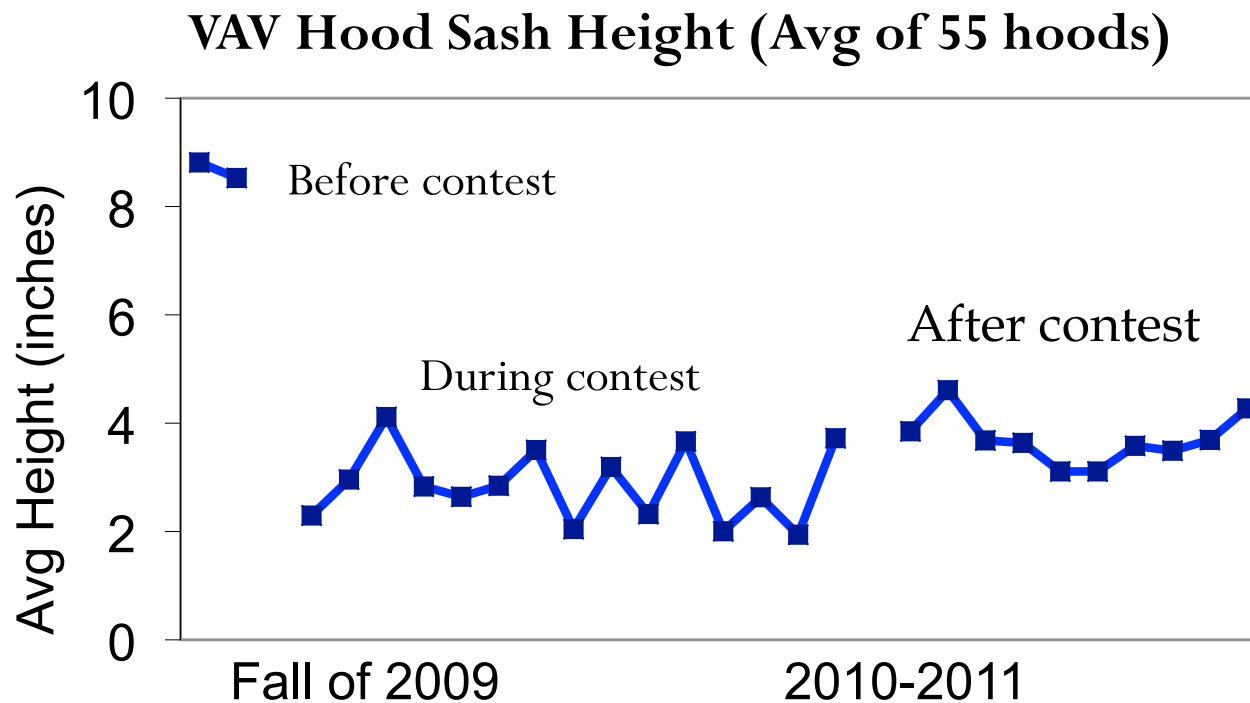
\*Modified ruler from Allen Doyle, UC-Davis





# 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

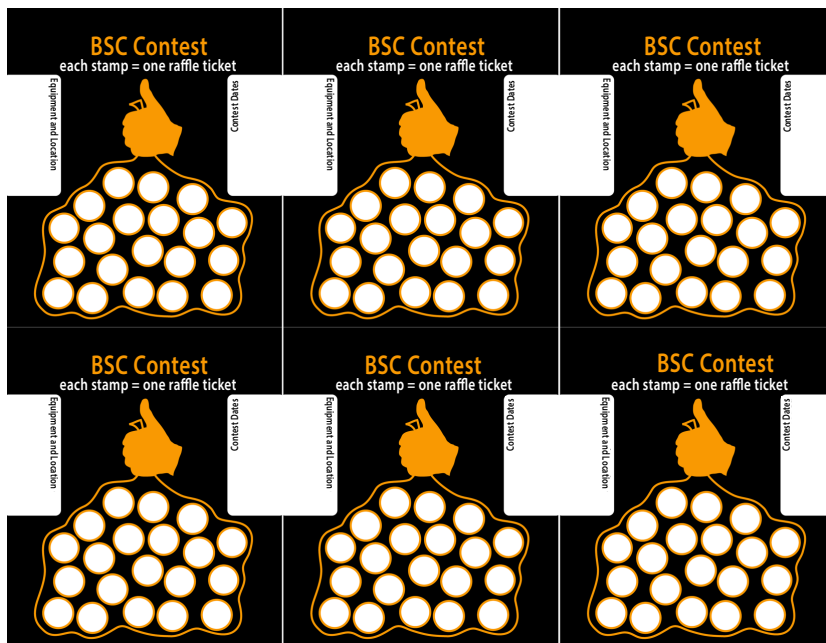
- Contest in Summer 2011
- Signage added to all fume hoods
  - Rulers
  - Stickers
  - Contest cards



\* 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!

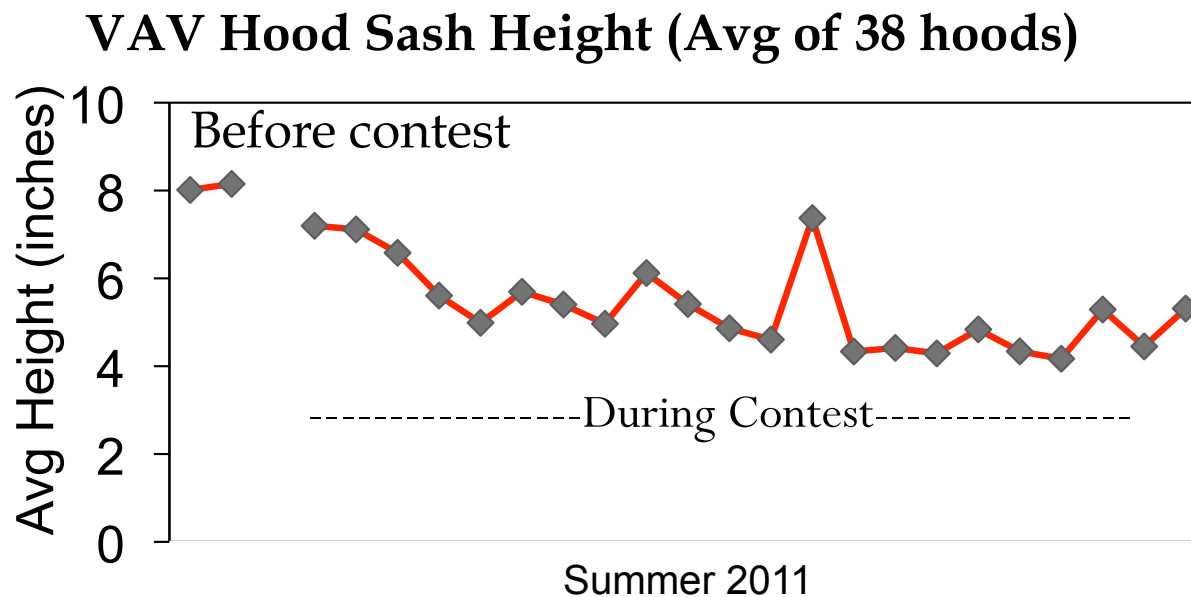
**YOUR SASH WAS FOUND OPEN WHEN NOT IN USE**



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
  - 1<sup>st</sup> place: \$125 gift card to a restaurant of choice
  - 2<sup>nd</sup> place: \$75 gift card to a restaurant of choice



Sash Height  
Reduction:  
35%

Hoods with  
problems:  
~10%

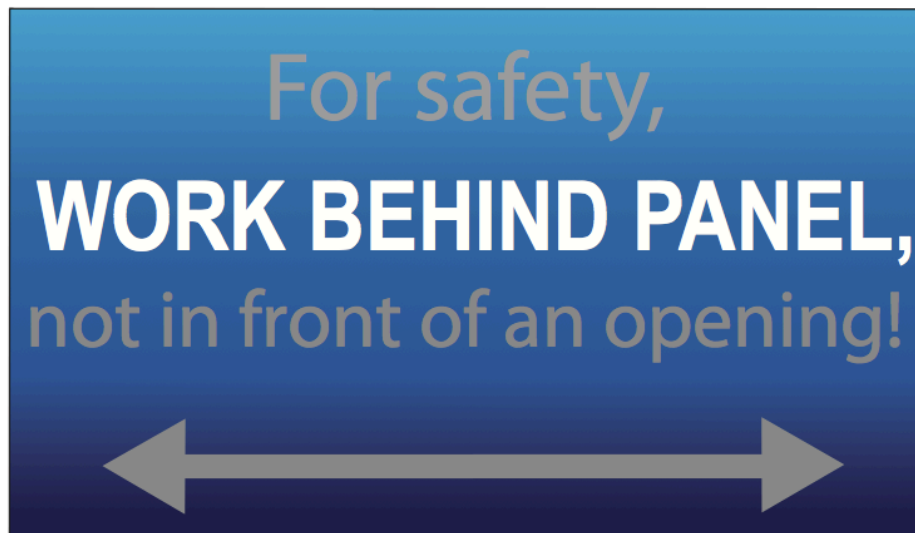
# Fume Hood Contest for JSCBB

- 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



# 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) % Reduction	1.8 41%	2.7 46%
Last Contest Data Point % Reduction	1.4 53%	1.5 69%



In 2009:

~9.0

66%

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

In 2009:

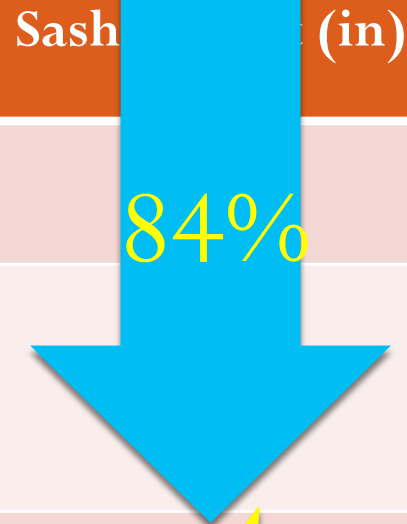
~9.0

66%

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

In 2009:

~9.0



84%

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

1.4

# 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 |

CU Green Labs Contact:  
Kathy Ramirez  
greenlabs@colorado.edu  
ecenter.colorado.edu/greenlabs  
303-492-8308



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

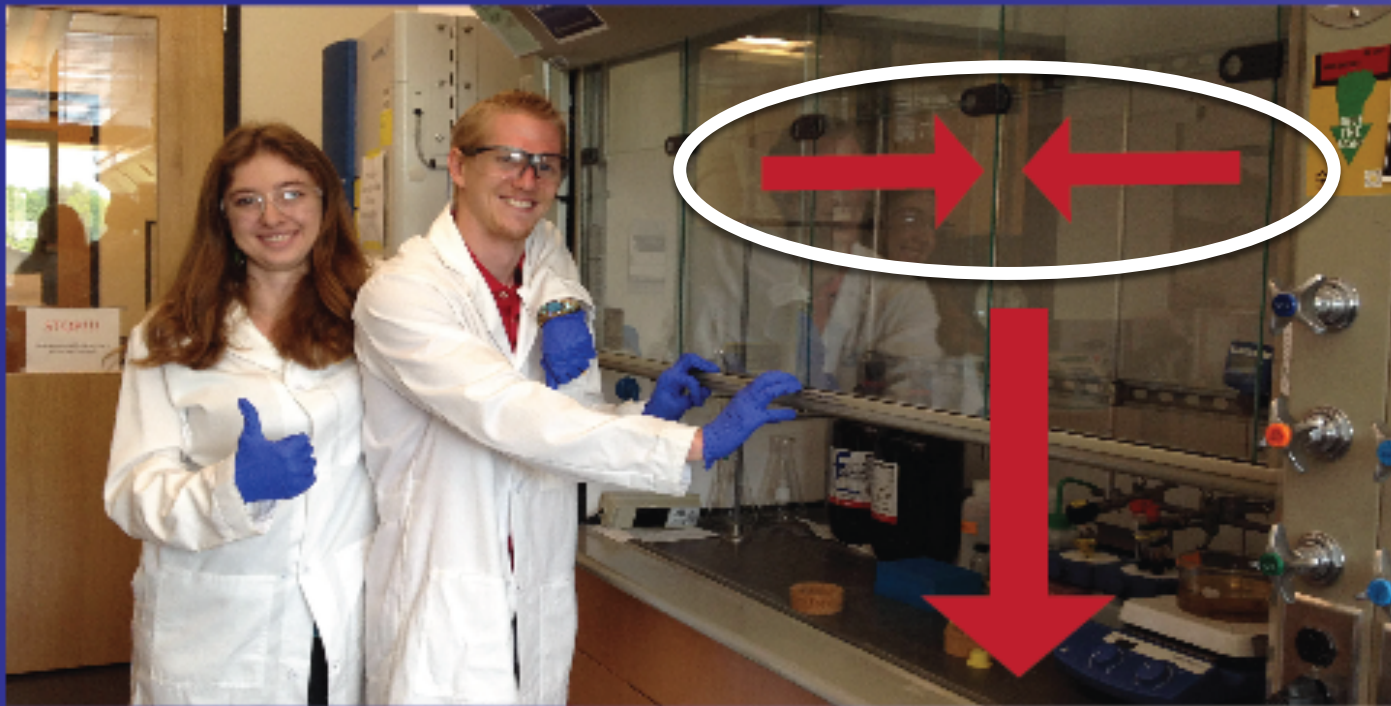




# Good for safety and energy savings

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

## Contact Information:

Ashlyn Norberg

CU Green Labs Lead Assistant

University of Colorado Boulder

Ashlyn.Norberg@colorado.edu