

# Successful Execution of Top-down Safety Culture at UNC-Chapel Hill

By Jim Potts  
Associate Chemical  
Hygiene Officer  
UNC- Chapel Hill  
[jdpotts@ehs.unc.edu](mailto:jdpotts@ehs.unc.edu)  
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# Today's Topics

- Safety Culture Review
- Overview of Fume Hood Program at UNC
- Issues
- Successes
- Questions

# Safety Culture

- Affirming a constant, institution-wide commitment to safety and integrating safety as an essential element in the daily work of researchers
- Top-down approach is necessary
- At a minimum, lab safety includes:
  - HAZCOM
  - Availability of proper equipment
  - Utilization of risk reduction practices
  - PPE
  - Well organized, clean lab space
  - Familiarity with emergency procedures

# Safety Culture at UNC

- “Safety Culture” website
  - <https://ehs.unc.edu/lab/safescience/>
- Administrative Endorsements
  - Previous Chancellor
  - Interim Chancellor
    - (within 2 weeks of taking the position)
- University safety committees
- Accident investigations
  - Require all lab personnel and professors to review the National Research Council’s [\*Safe Science: Promoting a Culture of Safety in Academic Chemical Research\*](#)
- Discuss safety culture during lab inspections

# Overview of Fume Hood Program

- Over 1,300 fume hoods including off-campus UNC laboratories
- Specific Policies
  - UNC Laboratory Ventilation Policy
  - Facilities Laboratory Design Guidelines
  - EHS Chemical Safety Manual
- ASHRAE-110 tested at installation and flow is verified annually by EHS laboratory inspection team
- Facilities leads work-order requests for fume hoods
- Fume hood flow consistently good

# Campus Fume Hood Issues

- Hood sashes in disrepair
- Magic Hoods
- Out-dated online EHS fume hood training
- Improper use of fume hoods by lab workers
- Undergraduate chemistry building has dated HVAC system

# Hood Sashes in Disrepair

- **Issues:**
  - Broken glass edges
    - Cut hazards
    - Debris falling into sliding railways
  - Sash sliding hangers falling off
  - Funding for repairs
- **Our approach to change:**
  - Trained new in-house facilities group
  - Working with building maintenance teams to identify damaged hoods
  - Met with Facilities Director to identify local repair contractor
  - Chemistry department working with hood manufacturer
- **Improvements to safety culture:**
  - Maintenance crews call EHS prior to working inside of a fume hood
  - Manufacture of hoods is working out a deal with the Chemistry department

# Magic Hoods

- **Issues:**

- Fume hoods move/appear/disappear/reappear all over campus

- **Our approach to change:**

- Provided in-person training to construction managers on hood requirements during lab construction
- Audited our fume hood database

- **Improvements to safety culture:**

- EHS receives more calls about fume hood construction events
- Construction managers call more frequently about checking hoods prior to removal
- Most accurate database in years- checked hoods that were found to be active

# Online Fume Hood Training

- **Issues:**
  - Last update: ~2009
  - Focused on hood mechanisms and how it works
- **Our approach to change:**
  - Emphasized proper use of chemicals inside of hood
  - Created interactive online training module
    - Movies
    - Quizzes
    - Informative pop-up windows
- **Improvements to safety culture:**
  - 170 lab workers have completed the new training

# Improper Use of Fume Hoods

- **Issues:**

- Overcrowding, storage, improper equipment placement, covering opening

- **Our approach to change:**

- Trained lab inspection team about hood situations
  - Overcrowding
  - Procedures to correct issues
  - Ways to discuss importance with lab workers

- **Improvements to safety culture:**

- Less citations
- More discussions from inspectors about overcrowded hoods
- Improved airflow in campus labs

# Undergraduate Chemistry Building

- **Issues:**

- HVAC issues: temperature/humidity/pressurization
- 4,500-5,000 undergraduates take classes in this building each year (19,000; >25%)
- Safety issues: televisions/water leaks

- **Our approach to change:**

- Great Director of Undergraduate Chemistry Labs and managers
- Started small during EHS lab safety inspections
- Designing new efficient labs
- Chancellor and Provost involvement
- Removing auxiliary-air hood supply

- **Improvements to safety culture:**

- Emergency declaration for HVAC work- funding received
- Severe temperature/humidity/pressurization issues resolved

# Lessons Learned

- It Takes a Village
  - Not a task for one person or one department
  - Departments that EHS collaborated with:
    - Office of the Chancellor
    - Office of the Provost
    - Facilities
      - Construction/Engineering
      - Building Maintenance
    - Chemistry
    - Intra-EHS groups/lab inspectors
- Need upper administration support for large scale change
- Not all changes require funding

# Future Plans

- Continue to negotiate with facilities to identify outside contractor to repair fume hoods
- Complete repairs on chemistry building and find funding for finalizing
- Continued support for in-house facilities crew
- Continue emphasizing fume hood safety during lab inspections
- New fume hood safety videos for EHS website
- Obtain access for EHS to hood monitors/alarm for in-house calibrations

**Questions? Comments? Ideas?**