

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

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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?