Description

Challenge
In the current California fiscal crisis, all UC campuses are facing a multi-million dollar budget cut. One of the biggest operational costs for each campus is for utilities. UCI has a $16M annual utilities budget. Lab buildings consume at least 2/3 of campus energy. Potential cost savings and a reduction of the campus' carbon footprint can be achieved by creating more sustainable laboratories (“Smart Labs”). Laboratory air change rates, fume hood types and face velocity rates can be modified to achieve significant energy savings. Risk assessments and or studies of these energy efficiency measures and systems must be done to ensure that employee safety is not compromised as a result of incorporating energy saving equipment. Applicable regulatory codes compliance must also be addressed with alternative means or variance requests to the applicable agencies. These are important, time-intensive activities that cannot be sustained without assistance.

Shared Resources
UCI has been on the leading edge of sustainability and energy saving exploration in its campus laboratory environments. These efforts have spawned an increasing number of complex energy sustainability projects such as the creation of Smart Labs (which may include using Centralized Demand Controlled Ventilation (CDCV) systems, and low-flow (high performance) fume hoods, ductless fume hood systems), and the formation and leadership of the California Inter-University Energy and Safety Coalition. There is a critical need to conduct risk assessment screenings, exposure monitoring, and possibly modeling studies to provide assurance that the safety of the UC community is not compromised with the introduction of these systems in campus laboratories.

Recognizing the budgetary challenges and the need for industrial hygiene related energy/sustainability expertise support at all UC campuses, UC Irvine will share 15% professional support of our subject matter expert with all UC campuses. Support will include time devoted to procedures and tools development applicable to the UCI campus.
but shared with all UC campuses, and development and presentation of webinars and/or other means to share lessons learned.

The use of a shared subject matter expert for the UC system can provide an effective and efficient use of resources. Modifying laboratory ventilation without adequate risk assessment can increase the risk of employee injury and illness or property damage. UC and its faculty and staff will be at less risk of violations, fines, lawsuits, and negative publicity.

**Current Projects**

Many of the processes and lessons learned that are being developed at UC Irvine can be modified for application at other campuses. Procedures including risk assessment criteria and methods and other one-of-a-kind guidance will be established. UCI’s efforts including use of studies and other data to obtain alternative means with the State Fire Marshal for use of CDCV and a permanent variance from Cal-OSHA for use of low-flow (high performance) hoods will be directly applicable and a great time and cost savings for the other UC campuses.

*Smart Lab Best practices/lessons learned that will be addressed and shared include:*

**Laboratory Ventilation**

- Centralized Demand Controlled Ventilation (CDCV)
  - EH&S Implementation Criteria
  - Laboratory Bench Top Screening Process and Risk Reduction Metrics
  - Occupant Training
- Fire Code Change/Lab Ventilation Rates Document

**Fume Hoods**

- Low Flow Fume Hood Studies & Cal-OSHA Variance Process
  - If granted, this process will serve as a model for other campus to use along with UCI’s data to apply for their own variance.
- Ductless Fume Hood Position Statement
- Fume Hood Management Practices
- ANSI Z9.5, Minimum Fumehood Exhaust Rates Study, share study data through a webinar

**Communication methods include:**

- UC Lab Safety and UC Fire Marshal workgroup networks
- UC EH&S Design Guide and Lab Design Guide workgroups
- Webinars

**Contact Information**

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