

Decommissioning and Re-Commissioning of Laboratory Ventilation Equipment at ECU

Fume hoods, snorkels and other ventilation equipment are vitally important to personnel safety while conducting research at East Carolina University. In fact, providing a safe teaching and working environment in labs is Priority One!

Properly operating ventilation equipment requires frequent air changes within the rooms in which research is being conducted. This ensures any hazardous fumes are being vented out of the lab while fresh air is supplied to “make-up” for the conditioned air being exhausted. The energy required to operate one standard fume hood costs ECU an estimated \$7,000 per year! In fact, the energy required to condition and then move the air through the ductwork in one hood can be three- to four- times the amount to operate an entire residence for a year!

The ever-increasing costs of energy make it imperative we operate ventilation equipment in an efficient manner by keeping sashes closed whenever materials are not actively being accessed within the confines of the cabinet. Some tips are included on the reverse side of this sheet.

Heating, Ventilation and Air Conditioning (HVAC) controls in laboratory facilities are programmed to provide a safe number of air changes per hour (ACH) when fume hoods are operated in an area. When ventilation equipment is out of service for maintenance or there is no research planned for the foreseeable future, the ACH must remain the same (Safety First!) until the sashes are securely closed and the equipment is decommissioned. Only when unused ventilation equipment is decommissioned can the number of air changes per hour be reduced.

Whenever a fume hood is not in use for an extended period of time, the university saves the energy normally spent operating the accompanying fans, blowers, etc. but even greater savings can be realized by decommissioning the equipment until it is needed again. Once that is accomplished, HVAC personnel can then reduce the number of air changes per hour in the workspace – greatly reducing the operating costs of the affected portion of the building.

When it is determined a decommissioned hood is needed for upcoming research, Campus Operations will cover the cost for EH&S to retest the equipment and – upon successful test results – will re-commission the equipment for use and Facilities Services HVAC will adjust the Building Automation System accordingly to provide safe ventilation flows throughout the lab.

Please join with us in making East Carolina University’s research facilities safe and sustainable!

Shut the Sash Campaign

It is not surprising that researchers do not habitually close sashes. They are very focused on their research, not laboratory building performance and energy conservation.

A fume hood's primary purpose is to contain hazards, including fumes and eruptive events. It is clear that a closed sash hood is the safest hood, and for these reasons alone sash closure needs to be a professional standard in all laboratories.

Closed hoods being safest has been endorsed by industrial hygienists Tom Smith, Exposure Controls Technologies, national expert in hoods; Ralph Stuart, Cornell, frequent speaker at the American Chemical Society; and Bill Diesslin, Iowa State, who displayed this at a national safety conference where it was enthusiastically received.

When a fume hood's sash, which is the sliding glass door that covers the front of a fume hood, is left open a large volume of air is constantly exhausted from the building, wasting massive amounts of energy.

A single fume hood can use as much energy as three to four residential homes. If the sash is shut when the fume hood is not in use then the volume of air will decrease, resulting in significant energy savings.

On an annual basis, using a 6-foot VAV fume hood at 10% full open for experiment set up, 25% at 18 inch working opening and keeping the sash closed 65% of the time would save approximately \$6,000 every year compared to a constant, fully open hood.

The complexity of CAV versus VAV fume hood system designs need not confuse a hood user. From the worker's perspective, all hoods look the same and need to be treated with the same habit: Close the hood sash unless your arms are working inside the hood. The importance of this simple message cannot be stressed enough.

The trivial cost to install the sash stickers is dwarfed by the operating cost reductions due to the decrease in airflow in VAV fume hood systems. The safety benefits gained by good sash operating procedures are realized in both CAV and VAV laboratories.

