Smart Lab Building Occupant Fact Sheet/FAQ's

What are the red emergency buttons for?

This button should **not** be pressed in the event of a fire! Pressing this button will increase air change rates to maximum while maintaining negative lab pressurization. The intent is to provide maximum air flow quickly (the general exhaust, not the fume hood exhaust), after a spill or other significant release of airborne contamination. Anyone can push the red button to call for the maximum air flow available for that room. Pushing the button does set off a local alarm, very noticeable, but not as loud as the fire alarm. Pulling out the red button turns off the alarm and restores the ventilation to normal.

What is Aircuity?

The Aircuity system monitors environmental parameters and adjusts air supply and exhaust delivery based upon indoor contaminant levels and thermal load. The automated system samples and analyzes packets of air which are routed to a centralized suite of sensors. The system provides input to the building ventilation systems to optimize indoor environmental quality and energy efficiency.

What do the sensors monitor for?

Total Volatile Organic Compounds, Carbon Dioxide, Particulates, and Carbon Monoxide. The automated system samples and analyzes packets of air to determine air change rates required. The sensors are calibrated or replaced every six months.

What is the Lab Ventilation Display Unit (LDU)?

Some building installations include a display panel located on the wall of each lab allowing occupants to check the status of the room's air change rate, as well as ensure that the occupancy sensors are working properly. Please, note that the panels are labeled Phoenix Controls Corporation and have a 3" x 3" LCD screen. For most labs, air change rates should remain at approximately 4 air changes per hour (ACH) or higher when the lab is occupied and 2 ACH when unoccupied.

Does opening the windows affect the room ventilation?

Some buildings have been equipped with operable windows in offices and conference rooms. The heating and air-conditioning system is interlocked with the operation of the windows. Therefore, opening a window will turn off mechanical ventilation to that zone.

How does the occupancy sensor controlled ventilations system work?

The Smart Lab design of the ventilation system includes occupancy based air change rate controls. Occupancy sensors will allow for air change rate reductions during unoccupied periods. If the air is clean and the room has no thermal load, the room will stay at the reduced air change ventilation rates. When *Aircuity* sensors detect contaminants or the temperature is rising above the set point the ventilation will increase, even in unoccupied mode. The system does not affect fume hood ventilation.

If a room has occupancy sensors and the ventilation is reduced when the room is unoccupied, how long does the ventilation system take to return to the higher occupied ventilation rates?

The system will go to a full flow immediately after person is detected. Upon initial entry after a long period of inactivity, the lab may feel stuffy-please allow a few minutes for the room to normalize. As much as 15 minutes may be needed to exchange the air in the room.

Do the fume hoods shut off / go negative / leak chemical vapors when the lab is unoccupied?

No, the design calls for air to be drawn into the fume hood at all times. The fume hood zone presence sensors (ZPS) monitor movement close to and front of the fume hood. If no movement is detected for a minute or longer, the air flow in that hood will reduce as much as 40%. When no one is nearby, the reduced flow rate actually helps reduce turbulence, which reduces vapor leakage

Does the fume hood sash height / sash opening matter?

Yes, the legacy fume hood air exhaust controls were often in a condition where the sash opening only affected performance, but not energy consumption. The enhanced controls and sensors allow for beneficial energy savings, whenever the sash opening is reduced. Good fume hood practices including closing the sash when the hood is not in use, keeping your work at least 6” behind the sash opening, minimizing storage within the hood, avoiding obstructions of the lower baffles, and using a sash opening of 18 inches or less when working at the hood facilitates proper air flow and capture of contaminants within the hood.

If a fume hood sash is fully closed, does the zone presence sensors (ZPS) do anything or is the ZPS only a factor if the fume hood is open?

When the fume hood sash is closed the exhaust flow goes to a minimum and ZPS is not active. All air is drawn into the hood through the airfoil below the sash. This is the most energy efficient mode for the fume hood when not being used. The fume hood sash should always be fully closed when not it use.