

General Laboratory Ventilation Principles at University of Wisconsin Madison

All rooms on campus must have some type of ventilation in order to be an occupied space on campus. We rely on this ventilation to provide us with a safe work environment – whether it is in an office, lab, or shop area. The ventilation requirements for a room are developed by the State of Wisconsin’s Division of Facilities Development (DFD) and are based on how the rooms are used. An example of this would be office spaces which require a ventilation standard of 1.5 air changes per hour (an air change is the volume of air in the room being removed and replaced completely).

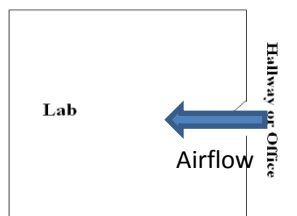
Laboratories with chemical use are generally designed with a minimum of 8-12 air changes per hour. These air changes occur through two types of ventilation systems. The first system-type is the “General Ventilation System” that recycles a percentage of the air back to the building. The second system-type is the “Laboratory Ventilation System” which uses 100% outside air to supply the room with air and evacuates 100% of the air from the lab directly to outside.

Examples of equipment that must be connected to the “Laboratory Ventilation Systems” are fume hoods, vented biosafety cabinets (BSC’s), laminar flow tables, snorkels, canopies and glove boxes. In fact, all new labs are designed with no recirculating air. However, some of the older laboratories on campus use both systems to achieve their required air changes per hour. Labs with the dual system are one of the numerous reasons why all ventilation hook ups need to be performed by Facility Planning and Management (FP&M).

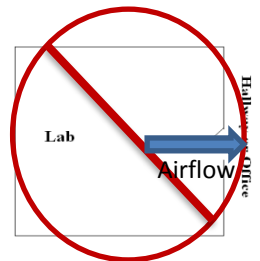
Laboratory ventilation requirements for labs with chemicals:

1. All laboratories must be negative to hallways or offices that are not part of laboratory ventilation system.

Correct Airflow Laboratory is
Pressure Negative



Incorrect Airflow Laboratory is
Pressure Positive



2. All laboratories must have a chemical fume hood (Special dispensation may be given by FP&M and Safety department if work being performed can be done safely).

3. Operable windows are not acceptable in new or existing laboratory facilities if the existing mechanical ventilation system adequately meets the lab ventilation needs. Open windows can cause unsafe ventilation for the laboratory and the building.
4. All exhaust fans for any type of laboratory ventilation equipment must be located outside of the building (normally on the roof).
5. Fume hoods shall not be used for excessive amounts of storage (such as equipment, chemicals, etc.) as this can restrict the air flow and affect the overall room pressure.

In the event that you have problems with your laboratory ventilation, or you feel that your laboratory is not meeting these basic ventilation guidelines, please contact chemical safety at chemsafety@fpm.wisc.edu and we can help evaluate the situation. Once the source of a problem is identified you will need to talk to your building manager and have the building manager put in a work order with FP&M to have it fixed.

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For More Information Contact:

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The Chemical Safety Office