

HVAC Maintenance—A MUST

The proper maintenance of campus heating, ventilation and air conditioning (HVAC) systems can go a long way toward averting deleterious effects of a growing world crisis caused by antibiotic-resistant microbes. An epidemic of microbial resistance coupled with a paucity of research into drug resistance (except for the work on AIDS) may portend difficult times ahead.

One of the prime methods of fighting microbial genetic change and resistance is to use sound sanitary practices. This prevents spread of the pathogens and decreases contact between different species. Contact allows for interchange of genetic materials including genes which influence antibiotic resistance.

It is evident that cleaning and disinfecting ventilation systems is of cardinal importance—more than ever before—because the danger to human health from bioaerosols has increased by several orders of magnitude.

In buildings in which windows are not or cannot be opened, proper ventilation is obtained through an HVAC system. Air is taken in from outside and circulated and recirculated through ductwork into the various units of the building. Each unit should be connected to an exhaust system through which air is removed to continue its flow.

The ventilation system must be maintained on a regular basis. This could be very costly. Many labor hours must be expended. Replacement parts are often very expensive.

Monitoring must be done to insure that a sufficient percentage of circulating air is being taken in from the outside. The connecting ducts are to be decontaminated and cleaned on a regular basis. Appropriate filters must be

changed periodically. Air intake and exhaust in populated areas must be tested.

Air contains water vapor which may condense inside the ductwork and on other HVAC surfaces. Various fungi and other hardy microorganisms begin to grow here.

Microbes are transported along the ventilation system. In this state they are called bioaerosols and are distributed to the breathing zones of people, sometimes causing infection or allergic reaction. Several years ago, tests at one of our colleges revealed the presence of extremely high concentrations of pathogenic microorganisms. Among the most dangerous of these are: *Aeromonas hydrophilia*, several

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species of *Aspergillus*, *Pseudomonas cepacia*, *Pseudomonas fluorescens*, *Staphylococcus aureus*, *Xylophilus* and *haemolyticus* and *Vibrio vulnificus*.

PSC chapter chairpersons and their campus safety liaisons should become familiar with the college's HVAC maintenance system.

Individuals should try to learn more about indoor air quality and the HVAC system that keeps it at an acceptable level so that malfunctions may be reported and corrected.

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