Indoor Air Quality and You: Perfect Together?

Perhaps more than anything else, air interacts directly and constantly with us. Both outdoor and indoor air are affected by many human and natural activities. In the Washington metropolitan area, the high volume of vehicular and air traffic only serves to increase the amount and types of airborne contaminants. This same outdoor air is drawn into the building as "fresh air" from the outside. Of course, we do filter the outdoor air as it is drawn into the building.

Indoor air quality (IAQ) is deemed "good" when:

- The indoor environment is free of odors, dust, and other contaminants that are potentially unhealthy or may cause an adverse physical reaction to occupants;
- There is good air circulation; and
- When the indoor environment is maintained at a temperature and humidity that, generally, are accepted as "comfortable" to most people.

Some of the factors that affect indoor air quality include the condition and status of the heating, ventilation, and air-conditioning (HVAC) system; the nature and scope of occupant activities; and the type, volume, and basic composition of any contaminants emanating from within the building or which are part of the fresh air being introduced into the building.

Without taking the extreme measures found in certain, highly-specialized settings such as a hospital operating room or an electronics manufacturer's "clean" room, there is no reasonable way to eliminate all contaminants circulating in a typical office environment. As we introduce fresh air into our buildings, we also are bringing in certain amounts of airborne contaminants; some of these pass through intake filters and make their way into occupied spaces. We strive to keep airborne contaminants at levels that do not produce occupational health problems.

How does the HVAC system work? Fresh air is drawn from the outside, mixed with indoor air, filtered, tempered (during a heating or cooling season), and distributed throughout the building. Direct-exhaust systems in the Interior Complex remove air that may contain unwanted compounds and/or odors and protect occupants from contaminants generated in areas like the garages, rest rooms, cafeteria, and mechanical spaces.

How can occupant activities affect IAQ? Blocking supply- or return-air vents, induction or fan-coil units, and the installation of systems furniture or room partition that is unsuitable for its application can change the balance of the HVAC system and, thereby, have an adverse affect on air flow and personal comfort. Additionally, the use of some program-support equipment, supplies, cleaning materials, and many personal-grooming products may emit vapors, particulates, and/or gases. Examples include copy machines, laser printers, microwave or toaster ovens, paints, adhesives, caulk, deodorizers, hair spray, fragrances, and new carpet and padding. The preparation and eating of food in your office can cause odors and attract pests.

How do contaminants originating from inside and outside the building affect IAQ? Everyday office activities generate contaminants. Equipment, supplies, and new materials and furnishings may emit chemicals into the air. Renovation, repair, and maintenance activities within the building may generate particulates. Vehicle exhaust emissions, building exhaust-system discharges, pollen, and dust can be brought in from outside make-up air. Outdoors, damp areas and standing water provide an excellent environment for microbial growth.

What have we done? Our custodial contractor uses environmentally-preferable cleaning supplies which are less hazardous to both the persons performing the cleaning and building occupants, and vacuum cleaners with high-efficiency particulate air (HEPA) filtration to prevent matter removed from the carpeting from entering the air. HEPA filters trap and retain 99.97 percent of all matter that pass through them. The dry dusting of furniture, office equipment, walls, partitions, etc., is prohibited, and has been replaced by using a damp cloth or duster. The use of aerosol cans has been virtually eliminated which has reduced the amount of contaminants becoming airborne. We have installed filters in some induction units in the MIB to reduce the quantity of particulates becoming airborne. The HVAC system filters are changed periodically. We have instituted a program of cleaning the induction units during the performance of annual maintenance to reduce particulates and the potential for microbial growth. We treat the water in our cooling towers in the Interior Complex and the open chilled-water system in the MIB to control microbial growth. We monitor the indoor environment for compliance with standards established by the Occupational Safety and Health Administration; Environmental Protection Agency; and American Society of Heating, Refrigerating and Air-Conditioning Engineers.

What you can do?

- Do not block supply- or return- air vents on induction units or fan-coil units.
- Do not remove the filters in the induction units. Contact the Building Manager's Office if replacement or removal is needed.
- If you have plants in your office, change the soil periodically and do not water excessively. Do not let leaves and water fall into the induction or fan coil units as this promotes microbial growth. Remember that your coworkers and other building occupants may have allergies to the plants you have.
- Report signs of poor air quality (i.e., unusual odors, soot) to the Building Manager's Office.
- Coordinate the purchase and installation of office equipment and furniture with the Building Manager's Office. The installation of carpet and the removal and mandatory recycling of the old carpet and padding and, if applicable, the painting of walls and ceilings need to be coordinated with the NBC DFMS-Alterations Team. The purpose of the coordination is to reduce any adverse effects on the HVAC system and room occupants.
- Whenever possible, use environmentally-preferable supplies and materials inside the Interior Complex. As with all products, use only according to manufacturer's instructions.
- Report any spills or water leaks to the Building Manager's Office as soon as possible. Prompt action is needed to dry the affected area in order to preclude microbial growth.
- Do not use aerosol cans in the building.
- If there is a functioning sink in the sink closet in your office, run water in it for one minute weekly to flush the drain line and to prevent the trap from drying out.
- Store food and drinks in containers designed to keep out pests and to prevent spills.
- Whenever possible, refrain from opening windows
- If you are experiencing symptoms that you believe can be attributed to IAQ, notify your administrative contact and/or safety officer and, to document the problem, report to the Health Clinic in room 7045-MIB. Except for medical emergencies, you should contact Health Services at 208-7057 to make an appointment in advance of your visit.

We want to make the Interior Complex a safer and healthier place to work. Please forward any comments or suggestions you may have to Ian Rosenblum (208-5795) or to the Building Manager's Office (208-7560).