

Ventilation Control Program



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PURPOSE

The health and safety of all Texas A&M University-Texarkana employees, students, and visitors is of paramount importance. Poor ventilation is a major source of harmful air contaminants. An effective ventilation control program will significantly reduce or prevent indoor air quality (IAQ) problems.

INTRODUCTION

The IAQ in any building is a result of the interaction between the site, climate, building ventilation system (which would include the original design and any later modifications in the structure and mechanical systems), construction techniques, contaminant sources (building materials and furnishings, moisture and activities within the building), and building occupants. Indoor air contaminants can originate within the building or can be drawn in from outdoors. If contaminant sources are not controlled, IAQ problems will arise. A properly designed, installed, and maintained heating, ventilation, and air conditioning system (HVAC) is the key to maintaining good IAQ.

PROGRAM GOALS AND OBJECTIVES

Pollutants can be generated by outdoor or indoor sources, including building maintenance activities, pest control, housekeeping, renovation or remodeling, new furnishings, and building occupant activities. The key goal of this program is to minimize A&M-Texarkana staff, faculty, students, and visitors' exposure to pollutants from these sources. While proper ventilation practices cannot control pollutants one hundred percent of the time, A&M-Texarkana will maintain its HVAC systems in a manner that promotes good IAQ for all building occupants.

MANAGEMENT OF POLLUTANT SOURCES

Many different factors influence how indoor air pollutants affect occupants. Some pollutants, like radon, are of concern because exposure to high levels of the pollutant over long periods of time increases the risk of serious, life-threatening illnesses, such as lung cancer. Other contaminants, such as carbon monoxide at very high levels, can cause death within minutes. Some pollutants can cause both short- and long-term health problems.

People can react very differently when exposed to the same contaminants at similar concentrations. Some people can develop severe allergic reactions to biological contaminants to which other people may not react at all. Exposure to very low levels of chemicals may be irritating to some people, but not for others. People with pre-existing respiratory problems may react seriously to some indoor contaminants while others may not react at all. Controlling the source of certain pollutants can be a critical factor in maintaining good IAQ.

Moisture and humidity - It is very important to control moisture and relative humidity in occupied spaces. The presence of dirt and moisture can cause molds and other biological contaminants to thrive. Humidity levels that are too high can contribute to the growth and spread of unhealthy biological pollutants, as can failure to dry water-damaged materials promptly or to properly maintain equipment with water reservoirs or drain pans. Humidity levels that are too low can contribute to irritated mucus membranes, dry eyes, and sinus discomfort. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) standards recommend humidity levels be maintained between 30-60% in an attempt to control bacterial growth.

Renovations - Renovating and remodeling of existing structures should be planned and carried out in a manner that does not adversely affect indoor air quality. The protection of employees from dirt, dust, and fumes should be given high priority during this process. Any activity that could result in the excessive release of airborne contaminants should be scheduled for after hours or when the building is unoccupied if at all possible. Care must be given during any construction to prevent any contaminants from being recirculated into the building. If possible, the area being renovated should be blocked off from other areas.

Laboratory fume hoods - Every laboratory fume hood used for the control of air contaminants shall be tested at least once per year to assure adequate airflow is being maintained to provide continued protection against employee/student over-exposure. The recommended average face velocity of the fume hood will be between 75-125 fpm (feet per minute) dependent on the toxicity or hazard of the materials used on a regular basis. Results of laboratory ventilation tests shall be recorded on a signed and dated label and attached to the front of the fume hood. Should the hood fail the ventilation test, the Laboratory Coordinators shall affix a label on the front of the hood prohibiting the use of the hood until appropriate adjustments or repairs can be made.

DESIGN, MAINTENANCE AND OPERATION OF BUILDING VENTILATION SYSTEMS

Maintaining good IAQ requires attention to the building's HVAC system, the design and layout of the space, and pollutant source management. HVAC systems include all of the equipment used to ventilate, heat and cool the building, move the air around the building, and to filter and clean the air. These systems can have a significant impact on how pollutants are distributed and removed. HVAC systems can even act as sources of pollutants in some cases. Because of the HVAC systems' importance, good IAQ management includes attention to:

- Ventilation systems design - the air delivery capacity of an HVAC system is based in part on the projected number of people and amount of equipment in a building. When areas of a building are used differently than what the original design called for, the HVAC system may require modification to accommodate the changes.
- Outside air supply- adequate supply of outside air is necessary in any office environment to dilute pollutants that are released by equipment, building materials, furnishings, products, and people. Room airflow rates should meet the recommended OSHA standards.
- Outside air quality - outside air pollutants, when present, may affect IAQ when outside air is taken into the building ventilation system. Air filters shall be properly installed and maintained. A well-maintained air filter could trap many of the outdoor air pollutants before they enter building spaces.
- Space planning - the use and placement of furniture and equipment may affect the delivery of air to an occupied space. Heat generating equipment, like a computer, should never be placed directly under an HVAC control device (thermostat). Doing so may cause the HVAC system to deliver too much cool air because the thermostat senses the area is too warm. Furniture or partitions that block supply or return air registers can affect IAQ as well and need to be positioned with attention to air flow.
- Relative humidity control - building humidity levels should be maintained between the recommended levels of 30-60%.
- Ducts - ducts should be inspected periodically for mold, dirt, and deterioration. When necessary, ducts should be cleaned in a manner that is safe to the occupants and causes no damage to the internal makeup of the duct.
- Drain pans - drain pans should not hold standing water, but should drain completely to reduce the possibility of bacteria growth.
- Controlling other pollutant pathways - pollutants can spread throughout a building by moving through stairwells, elevator shafts, wall spaces, and utility chases. Special ventilation or other control measures may be needed for some sources.

RESPONSIBILITIES

Building occupants - Building occupants can have a big influence on indoor air quality. Routine activities like heating food in a microwave or using a photocopier can generate odors and pollutants. Building occupants can help prevent IAQ problems by:

- Keeping supply vents or return air vents unblocked.
- Complying with building no smoking policy.
- Cleaning up water spills and reporting water leaks promptly.
- Disposing of garbage as soon as possible to prevent odors and biological contamination.
- Storing food properly to prevent spoiling, odors, and insect contamination. This includes cleaning out refrigerators on a regular basis and keeping kitchen and snack areas clean.
- Notifying your supervisor immediately if you suspect an IAQ problem. This assists in locating the problem and correcting it in a timely manner.

Central Plant - the Director of Facilities shall be responsible for ensuring compliance with the Ventilation Control Program. The Environmental, Health & Safety Manager (EHS) shall assist the Director of Facilities as needed in making recommendations in the design, installation, and operation of existing or new HVAC systems.

- The Director of Facilities, along with the EHS shall be responsible for:
 - Investigating all IAQ complaints and sending a written response to the complainant, documenting what was learned in the investigation and the procedures taken to correct any actual problem.
- Maintaining a written or computerized copy of all pertinent maintenance activities.
- Developing a periodic maintenance program for all HVAC systems. This should include preventive maintenance schedules for:
 - Laboratory fume hoods, which would include testing on annual basis.
- Cleaning of HVAC systems.
- Inspecting HVAC system for water and moisture accumulations.
- Cleaning or replacing air filters as well as upgrading filters to meet the latest recommended efficiency.
- Regularly scheduled maintenance of HVAC systems, as recommended by the system manufacturer.
- Providing maintenance/housekeeping staff with the least hazardous chemical necessary for all cleaning chores and grounds maintenance activities, including pest control.
- Advising staff/faculty of their responsibilities in controlling pollutant sources.