

Environmental Health &  
Safety  
Muncie, IN 47306

## **Indoor Air Quality Program**



**BALL STATE  
UNIVERSITY**

**WE FLY**

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## **A. Purpose and Policy**

The purpose of this program is to provide information about indoor air quality and provide relevant information to help reduce indoor air pollutants to promote a comfortable, healthy learning and working environment.

Ball State University is committed to the responsibility of providing a work environment that is free from recognized hazards for its employees. Consistent with this duty is the Indoor Air Quality (IAQ) Program, which has been drafted by the Environmental Health and Safety (EHS) Office. The IAQ Program will be evaluated and updated on an as needed basis. This program will be made readily available to employees, union representatives, and any individual representing the Occupational Safety and Health Administration (OSHA).

## **B. Introduction and Scope**

Indoor air quality is important to the health and productivity of students and employees at Ball State University. Indoor air can be affected in many different ways by very simple and common items. Some of the items that can affect indoor air quality are furnishings, carpet, and paint. Other factors potentially affecting indoor air are student and employee activities, housekeeping practices, pesticide management, ventilation design, operation, maintenance, and fungal growth. Although, these sources are the common factors, they are not always to blame for poor indoor air quality.

The scope of this program is to help reduce and identify indoor air problems to help promote the well-being of all students and employees at Ball State University. It is also intended to inform and explain factors that affect indoor air environments and how to correct problematic situations. Questions regarding this plan can be directed to the EHS Office at 285-2832.

## **C. Environmental Health and Safety (EHS) Office**

The IAQ Program will be administered through the EHS Office with the Industrial Hygienist being responsible for investigating IAQ concerns of employees and building occupants. The work area and/or building will be evaluated for probable sources of containments, such as chemical use/storage, renovations, HVAC systems, housekeeping issues, furnishings, and other activities that could contribute to an IAQ issue. The Industrial Hygienist will have the responsibility of recommending corrective action to remediate the IAQ issue.

## **D. Employee Responsibilities**

By following these guidelines, which are listed below will reduce the number of IAQ issues for University employees and students.

1. Keep all HVAC supply and return grills/vents open. Ventilation is compromised when these openings are obstructed.

2. Inform your supervisor and/or call Work Control at (765) 285-5081 of any troublesome odors or air quality concerns.
3. Check with supervisor and/or EHS Office before using air purifying units and other air scrubbing units. These types of units can add chemicals to the air such as ozone.
4. Avoid using candles and air fresheners especially in small office areas.
5. Avoid over use of colognes and perfumes as they may be irritating to some individuals.
6. Avoid the application of pesticides; the use of such chemicals should only be handled by the University Pest Control employees who have the proper training to use such chemicals.

### **E. IAQ Complaints**

All IAQ complaints will be investigated within a reasonable amount of time typically within 24 to 48 hours of the complaint being filed. The EHS Office will use the Indoor Air Standard Interview Guide to investigate all indoor air complaints and capture all necessary information with this document. If necessary, an official report will be created.

Complaints should be directed to the Facilities Work Control either by phone at (765) 285-5081 or by using the electronic submission located on the University Facilities web page. All temperature and humidity issues dealing with HVAC units will be handled by the Environmental Controls Department.

All indoor air complaints that are handled by the EHS Office and that have a written report will be maintained by the EHS Office for reference and tracking purposes for three (3) years. Any confirmed exposure will be maintained for the duration of employment plus thirty (30) years.

### **F. Preventative Maintenance**

HVAC maintenance and repairs are handled on a regular schedule by the Facilities Environmental Control Department. Regular maintenance includes changing filters, cleaning coils, and any other necessary maintenance activities that the unit would require. All documentation and maintenance records are maintained with this Department.

Custodians perform regular cleaning of facility buildings to prevent the accumulation of dust and dirt within them. This helps prevent dust and other substances from becoming airborne and contributing to poor indoor air quality.

### **G. Walk Through Inspections**

The EHS Office will perform periodic IAQ inspections of University buildings that will involve observations that assess factors that affect indoor air quality. The use of an Indoor Air Quality (IAQ) Walkthrough Inspection checklist will be used to help gather data. All checklists will be signed and data by the EHS staff. All problems noted on the inspection checklist will be forwarded to appropriate facilities and/or Housing Departments for correction. Notes and work-orders will be attached to reports when issues are discovered.

The IAQ Walkthrough Inspection checklists forms will be maintained by the EHS Office for reference and tracking purposes for three (3) years.

## **H. Building Systems Inspections**

The Environmental Controls and/or the HVAC Department have the responsibility of inspecting and maintaining HVAC units and equipment. The Department(s) routinely performs maintenance inspections on all University HVAC units.

## **I. Smoking**

Smoking is prohibited in all and around University buildings. Please refer to the University Smoking Ban Policy.

## **J. Asbestos**

The word asbestos is derived from a Greek word that means inextinguishable or indestructible. Asbestos is a naturally occurring mineral that is found throughout the United States and world. Major deposits; however, are found primarily in the U.S., Canada, Russia, and South Africa. Asbestos has several characteristics that make it desirable for many commercial uses. The fibers are extremely strong, flexible, and very resistant to heat, chemicals, and corrosion. Asbestos is also an excellent insulator, and the fibers can be spun, woven, bonded into other materials, or pressed to form paper products. For these reasons and because it is relatively inexpensive, asbestos has been widely used for many years and now is found in over three thousand (3,000) different commercial products.

Exposure to asbestos fibers can cause serious health risks. The major risks from asbestos come from inhaling the fibers. Asbestos is composed of long silky fibers that contain hundreds of thousands of smaller fibers. These fibers can be subdivided further into microscopic filaments that will float in the air for hours or even several days. Asbestos fibers can easily penetrate body tissues by inhalation most common and by ingestion through the mouth. Once inside the body, the fibers can cause disabling and fatal diseases after prolonged exposure.

Although exposure to asbestos is potentially hazardous, health risks can be minimized by understanding and taking simple but effective precautions. In most cases the fibers are released only if the asbestos containing materials (ACM) is disturbed. Intact and undisturbed asbestos materials do not pose a health risk and should be left alone by un-trained employees. The mere presence of asbestos does not mean that the health of occupants is endangered.

When ACM is properly managed, release of fibers into the air is prevented or greatly minimized, and the risk of asbestos related disease can be reduced to a negligible level. However, asbestos materials can become hazardous when they release fibers into the air due to damage, disturbance, or deterioration over long periods of time.

The ability for employees to recognize the kinds of materials that contain asbestos is very important to minimizing exposure incidents. Additionally, knowing under what conditions they

are dangerous, and understanding basic safety precautions are all important in keeping exposures to a minimum.

### **a. Safety Procedures**

When dealing with asbestos containing materials, proper care and handling procedures should always be followed. It is important to understand the difference between friable and non-friable materials and know what condition the materials are in before disturbing. Remember that health risks associated with asbestos are directly related to the amount and frequency of exposure. By decreasing an exposure to asbestos will decrease the health risks associated with it. The health risks associated with exposure to asbestos occur when it is disturbed and releases fibers into the air. The goal of this program is to make individuals aware of asbestos and provide a better understanding of it.

The following general precautions will reduce exposure and lower the risk of asbestos related health problems:

1. Drilling, sawing, or using nails on asbestos materials can release asbestos fibers and should be avoided. If the above cannot be avoided, then contact the EHS Office for assistance.
2. Floor tiles and adhesives that contain asbestos should never be sanded dry.
3. Use care not to damage asbestos when moving furniture, ladders, or any other objects on campus or within your work areas.
4. Know where asbestos is located in your work area. Use common sense when working around products that contain asbestos. Avoid touching or disturbing friable asbestos containing materials.
5. Report any damaged or loose asbestos containing material to a supervisor.
6. All removal or repair work involving asbestos must be done by Indiana licensed asbestos contractor and personnel. OSHA and EPA regulations are very specific about work practices and equipment required to safely remove asbestos. These requirements may include proper respirators, special enclosures, training, exposure monitoring, long term record keeping, and medical surveillance.
7. Asbestos should always be handled wet to help prevent fibers from being released. This will help reduce the potential for exposure.
8. A dust mask is not acceptable because asbestos fibers will pass through it. The use of respirators must be approved by the EHS Office.

9. Dusting, sweeping, or vacuuming dry asbestos with a standard vacuum cleaner is prohibited. A vacuum cleaner with a special high efficiency filter (HEPA) must be used to vacuum asbestos dust. Contact the EHS Office for assistance.

10. If a HEPA vacuum is not used, cleanups must be done with a wet cloth or mop. The only exception to this would be if the moisture presents an additional hazard such as around electricity. For further information contact the EHS Office.

11. Contact the EHS Office for proper disposal of asbestos waste.

Workers involved in cleaning up small quantities of asbestos dust must receive training in asbestos awareness before performing the task. You are encouraged to contact the EHS Office for clean-up jobs that may contain asbestos dust. Never dry sweep the suspected asbestos dust.

The following practices should be used:

1. Always use wet methods when cleaning up asbestos fibers. Dry sweeping or dusting can result in asbestos fibers being released.
2. Wet cloths, rags, or mops used to pick up asbestos fibers, should be properly disposed of as asbestos waste while still wet.

The following procedures should be used when dealing with asbestos containing floor tiles.

1. Sanding of asbestos containing floor tiles is prohibited.
2. Stripping of finishes shall be conducted using wet methods and low abrasion pads at speeds lower than 300 rpm.
3. When high speed buffing is done, ensure that there is adequate sealer and finish on the floor. Always keep the machines moving.
4. Do not remove or attempt to repair loose floor tiles. Improperly removed asbestos containing floor tiles could result in the release of asbestos fibers.
5. Report loose floor tiles to your supervisor. Avoid running the machine over loose tiles. Contact the EHS Office for further assistance.

Special procedures are needed to reduce the spread of asbestos fibers after a release has occurred. Contact the EHS Office of any potential fiber release. The EHS Office will assess the situation and determine if an Indiana licensed asbestos contractor is needed for the clean-up. If fibers are released through an incident, personnel should take the following steps to reduce asbestos exposure to occupants until trained asbestos personnel arrive:

1. Prevent access to the contaminated area if possible.

2. Shut and lock doors.
3. Report the damaged ACM to supervision and to the EHS Office.
4. Do not attempt to clean-up a release.

In the event of a large asbestos fiber release contact your supervisor and the EHS Office. A large asbestos fiber release is anything over three (3) linear feet, three (3) square feet, or seventy-five hundredths (0.75) cubic feet of asbestos. The EHS Office will contact an Indiana licensed asbestos contractor to secure and clean-up the asbestos. The following should be done immediately after the fiber release is reported on campus.

1. Secure the area and post signs to prevent unauthorized personnel from entering the area.
2. HVAC system should be shut down and sealed.
3. If authorized use respiratory protection.
4. Leave area.

#### **b. Asbestos Hazard Emergency Response Act (AHERA)**

An AHERA Management Plan have been developed for each site or building, which AHERA applies. Each Management Plan reduces the chance of exposure to asbestos during general operations in the building and during maintenance operations performed either by in-house employees or outside contractors. Each Management Plan identifies locations of asbestos containing materials and their current condition. Management Plans can be obtained for the following buildings:

1. Wagoner Hall
2. Elliott-Wagoner Dining Hall
3. Elliott Hall Basement
4. Indiana Academy House
5. Ball Gym
6. Burris School

All the current Management Plans can be obtained at the front offices of Wagoner Hall and Burris.

#### **K. Hazardous Materials**

Anyone handling hazardous materials should follow the manufacturer's guidelines and refer to the written Hazardous Communication and Chemical Hygiene Programs. Hazardous materials should also be stored separately from regular waste and placed in appropriate containers. Compliance with these programs is essential to preventing serious injury and/or costly repairs.

For further information on the Hazardous Communication and Chemical Hygiene Programs please call the EHS Office at (765) 285-2807.

#### **a. Hazardous Dust**

Wood dust is defined by small particles of wood by varying size and shape that are created by sawing wood. Wood dust is common in the general industry and construction fields as a by-product of building and constructing things from wood. However, wood dust is a complex biological and chemical material, which can create many hazards in the workplace. Wood dust can cause and create many problems including health hazards to individuals working with or being around wood.

Combustible dust is defined as a combustible particulate solid that presents a fire or deflagration hazard when suspended in air or some other oxidizing medium over a range of concentrations, regardless of particle size or shape. Although dust can be found in every environment on earth, there are certain dusts that can cause potential harm when there is enough accumulation and an ignition source. Materials that have the potential to form combustible dust include metals, wood, coal, plastic, biosolids, sugar, paper, soap, dried blood, and certain textiles. Combustible metals include but not limited to aluminum, chromium, iron, magnesium, and zinc.

Good housekeeping standards should extend to individuals who come into contact with wood dust and other excessive dust. Excessive dust can cause numerous health problems for individuals that include asthma, bronchitis, and other general respiratory problems. Specifically, wood dust can also cause skin dermatitis and hives. Please report excessive dust areas to the EHS office for further evaluations of the areas. Also, please refer to the Hazardous Dust Control Program for details on the potentially harmful dust.

#### **L. Heating, Ventilating & Air Conditioning (HVAC) System**

HVAC systems should be designed to meet the needs of a specific building based on its design, use, and occupant load. The HVAC system should filter the air, heat and cool, and control relative humidity during the heating and cooling seasons. Poorly maintained HVAC systems can allow water to build-up in the HVAC unit, creating environments for biological contaminants. Poorly maintained and inadequate HVAC systems can also allow high moisture levels that can lead to fungal issues within the space. It is very important that HVAC systems are inspected on a regular basis to ensure the systems are clean and operating properly. Inspections and maintenance is performed by the Facilities Environmental Control and HVAC Departments.

#### **M. Campus Laboratories**

Laboratories are present in many of the buildings on the University. Indoor air can be affected by the use of chemicals and other biological agents. Proper ventilation to the space and the use of a laboratory fume hood are major protective applications to help manage IAQ issues in laboratories. Fume hoods help capture chemical fumes that escape from containers or working

areas and remove them before they can be inhaled. Fume hoods should be used if a chemical exhibits any one of the listed characteristics listed below:

- a. Airborne concentrations might approach the action level (permissible exposure limit).
- b. Flammable vapors might approach one tenth of the lower explosion limit.
- c. Materials of unknown toxicity are used or generated.
- d. The odor produced is annoying to you or other laboratory occupants or other building occupants.

## **N. Paint**

The exposure to paint fumes and vapors should be minimized by ventilating the space where the painting activities are taking place. The use of engineering controls and respirators are strongly encouraged in these types of projects. Another step to reduce exposure to paint vapors is by using low-emitting VOC paints and scheduling work during periods of minimum occupancy.

## **O. Lead Paint**

The University makes every effort to protect employees by performing lead paint testing when paint conditions become loose and flaky. The EHS office will also sample and test paint when an employee submits a request. Additionally, when buildings are renovated by the University, lead paint surveys are performed to determine lead content. All OSHA and EPA regulations are incorporated into site specific renovation plans to address lead paint.

## **P. Microbial Management**

Molds are organisms that can be found in both indoor and outdoor environments and in most known ecological habitats. There are more than 100,000 species of molds and at least 1,000 species of molds are common to the U.S. The most common mold species are Cladosporium, Penicillium, and Aspergillus. Molds play an important role in the environment by breaking down and digesting organic material, such as dead leaves, plants, wood material, and animals. There are several names associated with mold that include: fungi, fungal, and mildew. Molds are part of the kingdom Fungi and are not considered plants or animals.

Fungi or molds are very adaptable microorganisms that make-up approximately 25% of the earth's biomass. Molds can multiply by producing microscopic spores (2 - 100 microns [ $\mu\text{m}$ ] in diameter), which resemble seed pods of plants, which is called hyphal fragmentation. Once these seed pods release the spores, they can be carried great distances by the natural or artificial air currents in the environment. It is important to remember that mold spore counts can vary greater depending on time of the year and day. Mold spores cannot be totally eliminated from indoor environments.

Once a mold spore has found a suitable location, they begin to grow and digest whatever they are growing on. Unchecked mold growth can cause wood rot, damaged drywall, damaged

furnishings and even cause structural damage to building foundations leading to the decay of a structure. It is essential to inspect, investigate, and report any mold growth that is observed at the University to the EHS Office.

When mold is discovered, first try to inspect the area to determine the amount of mold in the area. EPA recommends that areas of ten (10) square feet or less can usually be cleaned by the individual using water and detergent solution. Once you know the amount of mold in the area try to determine why the mold started growing. Check for signs of high humidity or pooling water or damp, saturated materials within the area of the mold growth. If you can locate the moisture source then fix the problem immediately. If the moisture source is not corrected and the mold is cleaned-up, it is likely the mold will grow back. Please refer to the Mold Awareness Program for further information.

### **Q. Pest Management**

Proper pest management is necessary to help maintain good indoor air quality by removing and preventing pests from causing or contributing to respiratory issues. Reducing or eliminating clutter, not storing food in desks, and inspecting interior plants all contribute to reducing the need for pesticide applications. Reducing the need to use pesticides will help maintain quality indoor air.

### **R. Radon**

Radon is an odorless, tasteless, and invisible gas that occurs naturally in the environment. Radon is produced by the decay of uranium in soil and water. Radon exposure has been linked to lung cancer, and it is estimated that 20,000 people die of lung cancer due to being exposed to radon.

According to EPA's Map of Radon Zones, Muncie, Indiana is located in Zone 1 of the highest potential to have an average indoor radon screening level greater than 4 picocuries per liter (pCi/L). Random sampling will be done in University buildings to assure levels are below 4 pCi/L.

### **S. Renovation/Construction Activities**

Renovation and construction activities are closely monitored by University representatives for safety and potential indoor air issues. Construction Management of the Facilities Planning and Management Department is responsible for overseeing all new construction and major renovations that are completed by outside contractors. Whenever feasible, engineering controls are used to ensure emissions to the indoor air are restricted. If there is a question or problem concerning a construction or renovation project, please contact the Facilities Planning and Management Office at 285-5082.

## **T. Volatile Organic Compounds (VOCs)**

Volatile organic compounds (VOCs) are organic and have a high vapor pressure at room temperature conditions. Their high vapor pressure results from a low boiling point causing the molecules to evaporate from the material and thus entering the atmosphere. Products that have VOCs in them should be used in well ventilated areas that preferably have a fresh air supply. There are a number of products that contain VOCs, which include: paints, lacquers, paint strippers, cleaning supplies, pesticides, building materials, office furniture, glues, adhesives, inks, and many other products. Certain VOCs can cause eye, nose, throat irritation, headaches, loss of coordination, nausea, damage to the liver, kidney, and central nervous system. Avoid the use of these products whenever possible.