



## Q&A ON ASBESTOS

### WHAT IS ASBESTOS?

"Asbestos" is the name given to a group of minerals that occur naturally as masses of strong, flexible fibers that can be separated into thin threads and woven. These fibers are not affected by heat or chemicals and do not conduct electricity. For these reasons, asbestos has been widely used in many industries. Four types of asbestos have been commonly used:

- Chrysotile, or white asbestos (curly, flexible white fibers), which accounts for about 90% of the asbestos currently used in industry;
- Amosite (straight, brittle fibers that are light gray to pale brown in color);
- Crocidolite, or blue asbestos (straight blue fibers); and
- Anthophyllite (brittle white fibers).

Asbestos fiber masses tend to break easily into a dust composed of tiny particles that can float in the air and stick to clothes. The fibers may be easily inhaled or swallowed and can cause serious health problems.

Please note that naturally-occurring asbestos is found in the air and water due to the erosion of rock formations throughout the United States. Therefore, we are all regularly exposed to asbestos.

### WHAT IS THE DEFINITION OF ASBESTOS-CONTAINING MATERIAL (ACM)?

ACM means any material containing more than 1% asbestos.

### WHAT IS THE DEFINITION OF PRESUMED ASBESTOS CONTAINING MATERIAL (PACM)?

PACM means presumed asbestos containing material that is thermal system insulation (ACM applied to pipes, fittings, etc. to prevent heat loss or gain) and surfacing material (sprayed or troweled-on to acoustical plaster on ceilings, etc.) found in buildings constructed no later than 1980. Unless analysis is done on a material to prove it is not asbestos, it should be considered presumed asbestos-containing material.

### HOW WAS ASBESTOS USED?

Asbestos has been mined and used commercially in North America since the late 1800's, but its

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use increased greatly during World War II. Since then, it has been used in many industries. For example, the building and construction industry used it for strengthening cement and plastics as well as for insulation, fireproofing, and sound absorption. The shipbuilding industry has used asbestos to insulate boilers, steampipes, hot water pipes, and nuclear reactors in ships. The automotive industry still uses asbestos in vehicle brakeshoes and clutch pads. Asbestos is also still used in the space shuttle program, submarines, the manufacturing of chlorine, the production of some floor tile, and is found in asbestos-cement pipe sheet and shingles. More than 5,000 products contain or have contained asbestos, some of which are listed at the end of this document.

In the mid-1970's, several major kinds of asbestos materials, such as spray-applied (troweled-on) insulation, fire proofing, and acoustical surfacing material, were banned by EPA. In the late 1970's, the U. S. Consumer Product Safety Commission banned the use of asbestos in wallboard patching compounds and gas fireplaces because these products released excessive amounts of asbestos fibers into the environment. In addition, asbestos was voluntarily withdrawn by manufacturers of electric hair dryers. These and other regulatory actions, coupled with wide spread public concern about the hazards of asbestos, have resulted in a significant annual decline in the use of asbestos in the United States. In July 1989, EPA promulgated the Asbestos Ban and Phasedown Rule. The rule applies to new product manufacture, importation, and processing, and essentially bans almost all asbestos-containing products in the U. S. This rule does not require removal of asbestos containing material currently in place in buildings.

## **WHAT ARE THE HEALTH HAZARDS FROM EXPOSURE TO ASBESTOS?**

Chronic exposure (frequent recurrence or long duration) to asbestos may increase the risk of several serious diseases:

- Asbestosis - a chronic lung ailment that can produce shortness of breath and permanent lung damage and increase the risk of dangerous lung infections;
- Lung cancer;
- Mesothelioma - a relatively rare cancer of the thin membranes that line the chest and abdomen; and
- Other cancers, such as those of the larynx and of the gastrointestinal tract.

## **AM I AT RISK IF THERE IS ASBESTOS IN MY BUILDING?**

Intact and undisturbed asbestos materials do not pose a health risk. The mere presence of asbestos in a building does not mean that the health of building occupants is endangered. Asbestos-containing material which is in good condition and is **not** damaged or disturbed, **will not** release asbestos fibers into the air. Scientists say that managing asbestos in-place, rather than removing it, is a prudent approach to minimizing hazards posed by asbestos. This is because an improper asbestos removal can create a dangerous situation where none previously existed. However, if done correctly, sometimes it is a good idea to remove asbestos rather than encapsulate, to prevent additional problems in the future. EPA requires asbestos removal in order to prevent exposure to airborne asbestos fibers during building renovation or demolition projects.

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It is the current policy of USP to ensure that a renovation project will not disturb or damage asbestos prior to the project commencing.

### **WHAT ARE THE SIGNS OF DAMAGE TO ASBESTOS CONTAINING MATERIALS?**

If the insulation coverings around a horizontal or vertical pipe or fitting is damaged, torn, peeling, missing, or water-stained and it contains a fibrous substance, it may be asbestos. This fibrous substance may also have fallen below the damaged area, but not always. Look for materials that are in deteriorating condition. Evidence of debris on horizontal surfaces, hanging material, dislodged chunks, scraping, indentations and cracking are indicators of poor material condition. Also, if you see troweled-on (sprayed-applied) plaster on a wall or ceiling, for example, that is cracked, peeling, or crumbling, it could be damaged asbestos. Those with experience working with or evaluating asbestos-containing material may be able to “suspect” that a material or product contains asbestos by visual inspection. However, the only definitive way to be sure a material contains asbestos is to have a core sample analyzed by a competent laboratory.

Never drill, hammer, cut, saw, break, damage, move, poke, or disturb any asbestos-containing materials or suspected materials.

### **WHAT DO I DO IF I SEE DAMAGED ASBESTOS?**

If you see what you think might be damaged asbestos, do not disturb the material in any way or repair or clean the area yourself. Take measures to prevent others from disturbing the area. Also, avoid cleaning or maintenance activities that may disturb the material. Then, tell your supervisor, Facilities Services, or call the EHRS Department (X8925). It will then be determined whether a suspect material contains asbestos and the necessary repairs can be performed.

All sudden releases and spills of asbestos containing materials must be cleaned up immediately and only by certified and trained individuals. Again, take measures to prevent others from disturbing the spill. Some of our Facilities Services personnel are certified asbestos abatement workers, but should only handle minor patching, repair, and clean-up work.

Anyone working with asbestos (repairing, removing, encapsulating, cleaning spills from damaged materials, etc.) must be trained and certified in proper asbestos abatement work practices. Only wet-cleaning methods and HEPA vacuum cleaners are used to clean up asbestos fibers. Asbestos workers must participate in a medical surveillance program and must be qualified and approved to use respiratory protection.

### **WHAT DO I NEED TO KNOW ABOUT FLOOR TILES THAT CONTAIN ASBESTOS?**

Floor tile installed after 1980 probably does **not** contain asbestos. However, some of our older buildings have asbestos vinyl floor tile. The asbestos fibers are bound in a matrix which prevents their release to the air. Therefore, these materials present even less of an exposure hazard, unless the material is sanded, cut or abraded. That is why the sanding of these tiles is prohibited. **Only low abrasion pads and wet methods may be used when buffing these floors.** Never perform dry stripping. Also, speeds must be lower than 300 rpm. There is direct correlation between machine speeds and the release of asbestos fibers from asbestos-containing floor coverings. The higher the machine speed, the greater the probability of asbestos fiber release. However, if the

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floor has sufficient finish, brushing or dry buffing is permissible. But, be sure to run the machine at the lowest rate of speed as possible.

Consult with your floor tile and floor finish product manufacturer for recommendations on which pad to use on a particular floor covering.

**Floor tile that contains asbestos should only be removed by certified and trained employees.** Specific approved procedures from the City of Philadelphia need to be followed to remove asbestos vinyl floor tiles. These procedures assure that the tile remains intact during removal. (i.e., flooding, dry ice or heat guns) If a chipping procedure needs to be done to remove the tile, or the tiles are breaking up, all work must stop because the asbestos is now friable. More stringent regulations kick-in at this point to protect employees performing the work and to protect the occupants in the building. (i.e., permits, work area preparation standards, air monitoring) Remember that the mastic (glue) under the floor tile may also contain asbestos. If it needs to be removed, it must also be done according to the City's recommended procedures.

It is strongly recommended by the City of Philadelphia that no matter what method of floor tile removal is used that clearance air sampling be conducted and critical barriers be used. It is the current policy of USP to hire licensed and qualified contractors to perform this work and to perform other abatement work on campus.

#### **WHERE ARE THE OSHA REGULATIONS REGARDING ASBESTOS FOUND?**

29 Code of Federal Regulations at <http://www.osha.gov> and click on standards. However, **copies are available upon request** from the EHRS Department.

#### **WHERE ARE THE LOCATIONS OF OUR ASBESTOS CONTAINING MATERIALS?**

The University has documents which contain information on the materials, or areas in buildings, that contain asbestos or are presumed to contain asbestos. This information is kept on file in the Facilities Services Department and in the Environmental Health and Radiation Safety (EHRS) Department. This must be updated as new information becomes available. In the older buildings (pre-1980), there may be pipes and fittings insulated with asbestos. There may also be asbestos vinyl floor tiles and asbestos mastic (glue) under the tiles, some fume hood panels, and the lining of the cabinets underneath the hoods, that may contain asbestos. Older laboratory benches should be presumed to have asbestos in them until they are tested. If you are a Facilities Services' employee, talk to your supervisor regarding specific areas. If you are unsure, always consider it to be presumed asbestos containing material until it is tested, or confirmed to be non-asbestos through documented records on file.

**In addition to what is mentioned above, the following provides uncommon locations of asbestos-containing materials that you may not be aware of:**

**Kline Hall** – a ceiling application (textured paint) over the hard plaster in the 1<sup>st</sup> and 2<sup>nd</sup> floor lobby areas, and 2<sup>nd</sup> floor, room #24 contains asbestos.

**Alumni Hall** – some of the rooms have a troweled-on (spray applied) ceiling material containing asbestos. (e.g., laundry room #8 and presumed in other areas)

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**East Building** – some of the rooms have ceiling sheetrock containing asbestos. (room #210 and presumed in other areas)

Remember: **Do Not** drill into or damage these materials during maintenance work conducted by USP employees or outside contractors.

**The following is a list of products, developed by the EPA, that may contain asbestos.**

- Cement Pipes
- Cement Wallboard
- Cement Siding
- Asphalt Floor Tile
- Vinyl Floor Tile
- Vinyl Sheet Flooring
- Flooring Backing
- Construction Mastics (floor tile, carpet, ceiling tile, etc.)
- Acoustical Plaster
- Decorative Plaster
- Textured Paints/Coatings
- Ceiling Tiles and Lay-in Panels
- Spray-Applied Insulation
- Blown-In Insulation
- Fireproofing Materials
- Taping Compounds (thermal)
- Packing Materials (for wall/floor penetrations)
- High Temperature Gaskets
- Laboratory Hoods/Table Tops
- Laboratory Gloves
- Fire Blankets
- Fire Curtains
- Elevator Equipment Panels
- Elevator Brake Shoes
- HVAC Duct Insulation
- Boiler Insulation
- Breeching Insulation
- Ductwork Flexible Fabric Connections
- Cooling Towers
- Pipe Insulation (corrugated air-cell, block, etc.)
- Heating and Electrical Ducts
- Electrical Panel Partitions
- Electrical Cloth
- Electric Wiring Insulation
- Chalkboards
- Roofing Shingles
- Roofing Felt
- Base Flashing
- Thermal Paper Products
- Fire Doors
- Caulking/Putties
- Adhesives
- Wallboard
- Joint Compounds
- Vinyl Wall Coverings
- Spackling Compounds

**Whenever an asbestos repair, removal, encapsulation, or enclosure job will be performed on campus an "Asbestos Notification Form" must be submitted to the EHRS Department prior to the beginning of the work. Copies of air monitoring clearance samples and bulk samples, City permits and notifications, final reports, asbestos inspection reports, waste manifests, worker certifications and trainings must also be submitted to the EHRS Department. This will assure that records required by the U. S. EPA are available for review. Additionally, when there are asbestos concerns on campus, the EHRS Department can respond accordingly.**

**WHAT ELSE NEEDS TO BE DONE WHEN MANAGING ASBESTOS IN BUILDINGS?**

**A visual inspection of all asbestos containing materials (ACM) should be conducted at regular intervals.** This is a requirement of having an effective Asbestos Operations and Maintenance Program. These inspections should help ensure that any ACM damage or deterioration will be detected so that corrective action can be taken. This is performed by trained Facilities Services staff.

## **WHY DO I NEED ASBESTOS AWARENESS TRAINING?**

Custodial and maintenance workers are required by OSHA and EPA to have asbestos awareness training annually. This is because simple maintenance and cleaning tasks may accidentally disturb asbestos containing materials. (For example, improperly taking care of asbestos floor tiles, putting in a new light fixture that may damage asbestos, a floor buffer hitting an insulated pipe, drilling into a wall, fire door, or ceiling that contains asbestos, etc.) Therefore, custodial and maintenance employees need to be trained on the hazards of asbestos, recognition of the signs of damage and deterioration of asbestos containing materials, locations of asbestos containing materials and presumed asbestos containing materials in the buildings, work practices, and procedures for reporting possible fiber release episodes.

**If anyone has any additional questions, please do not hesitate to contact the  
EHRS Department at X8925.**

**Asbestos Operations and Maintenance Program**

The University has an asbestos operations and maintenance program. The principal objective of the operations and maintenance program is to minimize exposure of all building occupants to asbestos fibers. To accomplish this objective, the operations and maintenance program includes the following:

- Proper asbestos awareness training for custodial and maintenance staff who may come in contact with asbestos containing materials. The training includes; information as to the locations of asbestos containing materials or presumed asbestos containing materials in University buildings, the definition of asbestos, health hazards and risks of exposure to asbestos, procedures on how to report any evidence of disturbance or damage of asbestos containing materials, how to properly care for asbestos vinyl floor tiles, proper work practices to avoid or minimize fiber release during activities affecting asbestos containing materials.
- Asbestos surveys of University buildings have been completed to determine locations of asbestos containing materials or presumed asbestos containing materials.
- University employees and off-campus contractors and their workers must be informed of the presence of asbestos containing materials in buildings or areas of buildings where disturbance of asbestos containing materials may occur. Renovations or projects will not commence until asbestos survey reports or the area is evaluated or tested for asbestos containing materials. If disturbance of asbestos containing materials could occur, the asbestos will be removed, encapsulated or enclosed to prevent the release of asbestos fibers.
- Asbestos containing materials that are damaged or in poor condition are either repaired, encapsulated, enclosed or removed properly.
- Affected building occupants are notified of asbestos projects.
- A visual inspection of all asbestos containing materials is conducted at regular intervals to help ensure that any asbestos containing material damage or deterioration is detected, so that corrective action can be taken. This is performed by trained Facilities Services staff.

All work will be performed in accordance with OSHA standards, and the City of Philadelphia's Department of Public Health, Air Management Services' Asbestos Control Regulations.

**Asbestos Training Information  
Acknowledgement Form**

Department: \_\_\_\_\_

- I acknowledge that I have been informed, and given a copy, of the “Information and Training Document on Asbestos”. I have read and understand the procedures and conditions contained therein, and I accept the information as a working document that I will support and follow in my daily work.

\_\_\_\_\_  
**Print Name**

\_\_\_\_\_  
**Employee Signature**

\_\_\_\_\_  
**Date**

**Please return this form to the Environmental Health and  
Radiation Safety Department, Box #85.**