

# Environmental Health and Safety

## Asbestos Management Program

October 2020

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## 1.0 Emergency contact information

The following is the proper calling order regarding questions or concerns, or to report an asbestos disturbance or spill that may lead to potential exposure. **During normal operating hours (8:00 a.m.-5:00 p.m.):**

**Capital Programs Management Group..... 480-965-7505**

1) Asbestos Program Manager

**Environmental Health and Safety..... 480-965-1823**

1) Asbestos and Environmental Safety Specialist

**After hours:**

**Facilities Management Service Center..... 480-965-3633**

**Emergency (ASU Police Dispatch)..... 480-965-3456**

### 1.1 Asbestos emergencies

An asbestos related emergency may include minor or major releases of asbestos fibers from water damaged ceilings, accidental disruption of ACM by maintenance or trades personnel, or a steam pipe rupture.

A minor release of asbestos fibers is defined as the falling or dislodging of 3 square or linear feet or less of friable asbestos containing material.

A major release of asbestos fibers is defined as the falling or dislodging of greater than 3 square or linear feet of friable asbestos containing material.

The following steps should be taken immediately:

1. Stop work immediately and leave the area.
2. Secure the area by closing and locking the doors.
3. Contact **Capital Programs Management Group at 480-965-7739 or Environmental Health and Safety at 480-965-1823** immediately. If the emergency occurs outside the normal working hours, contact **Facilities Service Center at 480-965-3633**.
4. Do not reenter the area until notice from Environmental Health and Safety has occurred.

## 2.0 Introduction

The term asbestos describes naturally occurring fibrous minerals found in certain types of rock or strata formations. Asbestos is mined in similar ways to that of other raw materials. There are many varieties of asbestos: the three most common are chrysotile, amosite and crocidolite.

Asbestos is contained in over 3,000 different building products. These include thermal systems (piping) insulation, fireproofing, floor coverings, ceiling tile, cement pipe, and acoustical and decorative treatment for ceilings and walls.

Asbestos fibers are mixed during processing with material which binds them together so they can be used in various applications. Asbestos became a very popular commercial product because it is a relatively inexpensive, virtually indestructible with desirable physical properties including chemical resistance, incombustibility, thermal insulating ability, electrical insulating ability, mechanical strength, flexibility and good friction and wear characteristics.

The amount of asbestos in these products varies widely from less than 1 percent to nearly 100 percent. Materials with 1 percent or greater, asbestos content are considered to be an asbestos-containing material, or ACM. While it is often possible to “suspect” that a product or material is/contains asbestos by visual determination, actual determinations can only be made by microscopy. Until a product is tested, it is best to assume that the product contains asbestos.

### **3.0 Scope and application**

The purpose of this program is to prevent/ minimize exposure of all occupants, personnel, students and public to asbestos fibers. This will be accomplished by implementing an Asbestos Management Program which includes work practices to maintain asbestos-containing material in good condition, to ensure proper cleanup of asbestos spills, prevent further release of asbestos fibers, and monitor the condition of asbestos-containing material. Intact and undisturbed asbestos materials do not pose a health risk.

Due to the potential for health and safety risks, regulatory non-compliance, and liability issues, no University employee or non authorized contracted representative shall impact or cause the disturbance of any building material, structure, or other suspect asbestos-containing material (ACM) prior to consulting with ASU Environmental Health Service’s asbestos management program personnel to determine asbestos content, regulatory, and program requirements.

### **4.0 Responsibilities**

For a full break-down of partnered compliance duties, see Appendix A

#### **4.1 Capital Projects Management Group, or CPMG**

CPMG will provide project managers for projects which may include asbestos abatement. CPMG project managers will conduct or arrange for asbestos inspections, coordinate with the abatement contractor, Third-Party Environmental Consultants, EHS and the building occupants.

CPMG will also conduct bulk sampling for renovations utilizing accredited personnel and will maintain records of all sampling data and all abatement projects conducted.

Any changes, updates or alterations to the CPMG asbestos policy (CPM 301-05) will be forwarded to EHS in order for this program to be updated.

CPMG will make every effort to ensure that an EHS representative be invited to preconstruction meetings where asbestos issues will be discussed or if the project will involve any work being conducted within the ASU Utility Tunnel System.

## **4.2 Environmental Health and Safety**

EHS will oversee and manage regulatory compliance elements as the ASU responsible party. EHS may also serve as a consultant for varying in-house and contracted abatement projects.

EHS will maintain and update all elements of the asbestos program described within this document.

EHS will provide or coordinate necessary initial and refresher training for all ASU personnel requiring asbestos training. Training records will be audited annually and refresher training reminders provided to personnel requiring training.

EHS may conduct or contract NEA's (negative exposure assessments) for O&M activities and maintain the appropriate documentation.

EHS will conduct periodic systems audits of the overall Asbestos Management Program. Results of the audits will be shared with university stakeholders.

During abatement projects, EHS will periodically audit and score the performance of vendor consultants who are responsible for designing and conducting asbestos abatement projects in University buildings. See Appendix G for the audit scoring and checklist. Results of audits will be shared with CPMG.

## **4.3 Risk Management and Insurance Services, or RMIS**

### **4.3.1 Service Provider Acknowledgement**

RMIS will provide training and advice to ASU Purchasing and Business Services regarding the Service Provider Acknowledgement form and which RFP's are appropriate for the inclusion of the form as part of the RFP document.

RMIS will maintain a database which records and stores signed and returned Service Provider Acknowledgement forms which have been distributed to various university vendors via ASU Purchasing.

RMIS will verify that each contracted vendor providing service on the ASU campus has signed the acknowledgement form and may distribute requests for asbestos training verification letters to each such relevant vendor.

### **4.3.2 Emergency services**

RMIS will administer the emergency services contract and provide contractor selection for any emergency services which may be required due to unforeseen conditions, water releases or catastrophic incidents which require emergency response funded through insurance.

At the time of an incident requiring an emergency services contractor, RMIS will coordinate the effort with Facilities Management, CPMG and EHS.

Should emergency service contractors be required to impact suspect asbestos-containing materials, RMIS will coordinate the activity, retain any necessary third party air monitoring firms, and inform the CPMG Asbestos Group of the activity and provide copies of all bulk/air sampling data, project logs, reports and waste manifest to the CPMG Asbestos Group at the conclusion of the project.

## **4.4 Facilities Management, or FM**

FM will provide appropriate Personal Protective Equipment, or PPE, and other equipment for OSHA Class III activities. FM will coordinate the scheduling of any approved O&M activities with affected departments and EHS.

In addition, FM will conduct O&M activities in accordance with applicable policies and regulations and assure that suspect material is not damaged in routine activities. FM will also ensure that any damaged suspect material is reported immediately to EHS. Attend asbestos and other pertinent safety training sessions provided by EHS and training consultants.

Provide any employee who has been trained to perform OSHA Class III asbestos work with an annual medical physical which incorporates a complete medical history, a complete physical examination with emphasis on the respiratory system, the cardiovascular system, and the digestive tract, a chest x-ray with B-reading and pulmonary function tests before any training occurs with any person involved in the operation and maintenance activities of asbestos on campus. ASU will provide medical surveillance at no cost to employees annually or as specified by 29 CFR 1910.1001. ASU will also maintain medical records the duration of employment plus 30 years. All records will be made available to the numerous authorized entities.

### **4.4.1 Flooring and window covering replacement**

All orders for carpet, flooring, and window covering are to be submitted to Facilities Development and Management, or FDM for processing and shall be submitted for review by the CPMG Asbestos Group. Orders are to be submitted **online** or contact FDM by **email** for assistance.

#### **4.4.2 Emergency services**

**In the event of an emergency which disturbs suspect building materials, FDM will coordinate with RMIS and the CPMG Asbestos Group. FDM will assess the scope of the damage, assign emergency response contractors and determine the scope of work per the RMIS Emergency Services contract. Any and all asbestos documentation which is generated by contractors or consultants during the emergency response efforts shall be copied to the CPMG Asbestos Group.**

#### **4.4.3 Facilities Management Human Resources**

All newly hired Facilities Management personnel, who can be expected to disturb building materials or enter the ASU Utility Tunnel System, are to be provided with a pre-employment medical physical which incorporates a complete medical history, a complete physical examination with emphasis on the respiratory system, the cardiovascular system, and the digestive tract, a chest x-ray with B-reading and pulmonary function tests before any training occurs with any person involved in the operation and maintenance activities of asbestos on campus. ASU will provide medical surveillance at no cost to employees annually or as specified by 29 CFR 1910.1001. ASU will also maintain medical records the duration of employment plus 30 years. All records will be made available to the numerous authorized entities.

#### **4.5 Purchasing and Business Services**

It is Purchasing and Business Services responsibility to include the Service Provider Acknowledgement Form with any contract, which requires Service Providers to access ASU buildings or infrastructure facilities or components, initiated between a Service Provider and Arizona State University. Signed copies of the form are to be provided to the Risk Management Group.

It is also Purchasing and Business Services responsibility to ensure that all CPMG permitting reviews have been completed and any asbestos abatement actions have been completed prior to the ordering of, or contracting for, new flooring materials or new window covering materials.

#### **4.6 Real estate**

Should ASU lease out any ASU-owned building or portion of any ASU-owned building that was constructed in 1980 or earlier, ASU Real Estate must notify lessees, in writing, of the presence, location and quantities of ACM or PACM which exist in the spaces they will occupy.

Conversely, should ASU lease any building or portion of any building that was constructed in 1980 or earlier, ASU Real Estate shall request that the asbestos information listed above is provided by the building owner to ASU by the time of the lease signing. This information should be shared with CPMG and EHS.



## 4.7 Departments and individuals

ASU departments and individuals in all areas, both academic and administrative are expected to comply with all applicable university policies and procedures regarding asbestos. This includes, but is not limited to, all construction, permitting, purchasing, including all P-Card limitations, and EHS policies.

## 5.0 Rules and regulations

The program is operated in accordance with applicable laws and regulations including:

- EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61 Subpart M,
- Maricopa County Rule 370, section 301.8 – subpart M.
- OSHA Construction Industry Standard for Asbestos 29 CFR 1926.1101,
- OSHA General Industry Standard 29 CFR 1910.1001
- OSHA Respiratory Protection Standard 29 CFR 1910.34

The program also references components of the EPA Asbestos Hazard Emergency Act (AHERA) 40 CFR 763 Subpart E, although they are not binding to the University.

### 5.1 Definitions

**Asbestos** includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated or altered.

**Asbestos-containing material, or ACM,** means any material containing more than one percent asbestos.

**Authorized person** means any person authorized by the employer and required by work duties to be present in regulated areas.

**Category I non-friable asbestos-containing material** means asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than one percent asbestos.

**Category II non-friable asbestos-containing material** means any material excluding Category I non-friable ACM, containing more than one percent asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

**Certified Industrial Hygienist, or CIH**, means an individual certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

**Class I asbestos work** - activities involving the removal of thermal system insulation and surfacing asbestos-containing material.

**Class II asbestos work** - activities involving the removal of asbestos-containing material which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles and construction mastics.

**Class III asbestos work** - repair and maintenance operations, where asbestos-containing material, including thermal insulation and surfacing asbestos-containing material, is likely to be disturbed.

**Class IV asbestos work** - maintenance and custodial activities during which employees contact but do not disturb asbestos-containing material and activities to clean up dust, waste and debris resulting from Class I, II and III activities.

**Exposure** is exposure to airborne asbestos that would occur if the person were not using respiratory protective equipment.

**Excursion limit** means the employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of 30 minutes as determined by the method prescribed by OSHA and/or NIOSH, or by an equivalent method.

**Fiber** means a particulate form of asbestos five micrometers or longer, with a length-to-width ratio of at least three to one.

**Friable** means that the material can be crumbled by hand pressure when dry, potentially releasing fibers or dust.

**High-Efficiency Particulate Air, or HEPA filter** means a filter capable of trapping and retaining at least 99.97 percent of 0.3 micrometer diameter mono-disperse particles.

**Homogeneous area** means an area of surfacing material, thermal system insulation or other suspect ACM that is uniform in color and texture and/ or age.

**Hygienist** means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

**Negative exposure assessment** means a demonstration by the employer, which complies with 29 CFR 1926.1101(f)(2)(iii), that employee exposure during an operation is expected to be consistently below the PELs.

**NESHAP** means National Emission Standard for Hazardous Air Pollutants per 40 CFR 61 Subpart M.

**Non-friable** means any material containing more than one percent asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

**PACM** means Presumed Asbestos Containing Material – thermal system insulation and surfacing material found in buildings constructed no later than 1980. Presumed Asbestos Containing Material means all suspect material that has not been officially tested to prove otherwise.

**PEL** means Permissible Exposure Limit.

**Regulated area** means an area established to demarcate areas where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limits.

**Regulated Asbestos-Containing Materials** means friable ACMs, non-friable ACMs that have become friable; non-friable ACMs that will be or has been subjected to sanding, grinding, cutting or abrading; non-friable ACM that has a high probability of becoming, or has become, crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

**Service Provider** refers to any individual, company, or corporation who is hired by ASU or an ASU employee to provide construction, repair or maintenance related services on ASU property or facilities.

**Space** means areas within buildings which may be occupied by personnel such as rooms, classrooms, offices, closets, hallways, stairwells or restrooms and includes unoccupied areas which support the continual occupation of those areas such as sub-ceilings, plenums, pipe and chases.

**Surfacing ACM** means surfacing material which contains more than one percent asbestos.

**Surfacing material** means material that is sprayed, troweled on or otherwise applied to surfaces such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing and other purposes.

**Suspect material** means any building material, which is not wood, metal or glass, and which has not been proven to be asbestos-free by laboratory analysis.

**Thermal System Insulation, or TSI**, means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other mechanical components to prevent heat loss or gain.

**Time-Weighted Average Limit, or TWA** means the employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight hour time-weighted average as determined by the methods prescribed by OSHA and/or NIOSH, or by an equivalent method.

## **6.0 Health effects**

Although asbestos is an excellent building material, it can also cause serious health problems if it is inhaled and fibers become lodged in lung tissues. The three illnesses most commonly associated with asbestos exposure include asbestosis, non-cancerous fibrous scarring of the lung, lung cancer and mesothelioma, a rare cancer of the lining of the chest or abdominal cavity. These diseases do not develop soon after inhalation exposure, but may take 20-40 years or more before symptoms appear. Most cases of severe health problems resulting from asbestos exposure have been experienced by workers who held jobs in industries such as shipbuilding, mining, milling and fabricating, where they were repeatedly exposed to high levels of asbestos. Regardless, appropriate measures must be taken to minimize exposure.

The body has natural defense mechanisms to eliminate asbestos fibers and other particles before they become lodged in the lung tissue where the contaminants remain. Many particles are entrapped by the nose and mouth. The breathing passages are lined with a sticky mucous layer that traps small particles. Lining the bronchial tubes are hair-like projections (cilia) that continuously move the mucous layer towards the mouth for expectoration. Cigarette smoke impairs the human body's defense mechanism by paralyzing the cilia.

Documentation shows that smokers who are also exposed to asbestos have an increased risk of lung cancer which is 50-55 times that of a non-exposed non-smoker. Non-smokers who are exposed to asbestos have a risk of five times that of non-exposed non-smokers.

### **6.1 Permissible Exposure Limits- employee exposure monitoring**

No employee shall be exposed to an airborne concentration of asbestos in excess of 0.1 fibers per cubic centimeter of air as an eight hour time-weighted average. Also, no employee shall be exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air as averaged over a sampling period of thirty minutes. The 30-minute period shall be referred to as the Excursion Limit, or EL. Determination of employee exposures shall be made from breathing zone air samples that are representative of the eight hour TWA and 30-minute short-term exposures of each employee.

## **6.2 Medical surveillance**

ASU will provide medical examinations, including a complete medical history, a complete physical examination with emphasis on the respiratory system, the cardiovascular system, and the digestive tract, a chest x-ray with B-reading and pulmonary function tests before any training occurs with any employee involved in the operation and maintenance activities of asbestos on campus. ASU will provide medical surveillance at no cost to employees annually or as specified by 29 CFR 1910.1001. ASU will also maintain medical records the duration of employment plus 30 years. All records will be made available to the numerous authorized entities.

## **6.3 Respiratory protection**

Respirators must be selected and approved according to NIOSH under the provisions of Title 30, CFR Part 11. Respirators must also be provided and used by authorized personnel in the following circumstances:

- During any access to the ASU Tempe Campus Utility Tunnel system.
- During maintenance and repair involving personnel trained for performing OSHA Class III Asbestos Work unless a Negative Exposure Assessment has determined the particular activity to be below the OSHA PEL.
- Emergency situations.

Environmental Health and Safety will recommend respirators that will provide adequate protection. When respiratory protection is required, the employee must follow the respiratory program guidelines established by Environmental Health and Safety and in accordance with 29 CFR 1910.134.

An employee will not be assigned to tasks requiring the use of respirators if a physician determines that the employee is unable to function normally wearing a respirator or that the employee's safety and health, or that of others, would be affected by the employee's use of a respirator, for example, if a person is claustrophobic.

Environmental Health and Safety will ensure that the respirator selected or recommended fits properly and exhibits minimum face-piece leakage by means of quantitative fit testing at the time of initial fitting and at least every year for each employee wearing negative-pressure respirators. Respirators must be used along with other PPE.

## **7.0 Building occupant notifications**

Prior to any asbestos abatement project, building occupants in adjacent areas of the building must be notified of the presence, location and quantity of ACM at the work sites in their buildings. Notifications shall be in the form of a written, easily read, posted sign located at each entrance to the affected building. Signage will include information regarding the dates the project will occur, and the locations, types and quantities of ACM to be affected.

Postings are to be made by CPMG at least two business days prior to the abatement project and must remain in place until successful conclusion of the project.

Employees of ASU who work in or adjacent to areas containing ACMs or PACMs must also be notified of the presence of these materials. The notification shall be in writing or consist of a personal communication between ASU and the person(s) or their authorized representative.

EHS will include this information, or will direct ASU employees to this information, during those training classes which are mandatory for all ASU employees.

Should ASU lease out any ASU-owned building or portion of any ASU-owned building, tenants must be notified, in writing, of the presence, location and quantities of ACM or PACM which exist in the spaces they will occupy.

Conversely, should ASU lease any building or portion of any building, efforts should be made to ensure that the asbestos information listed above is provided by the building owner to ASU by the time of the lease signing. This information should be shared with CPMG and EHS.

## **8.0 Asbestos response actions - abatement**

Asbestos response actions include repair, operations and maintenance, and abatement. Abatement prescribes a removal or encapsulation or treatment of asbestos-containing materials with a material that embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, of asbestos-containing material. All response actions or abatement activities must be performed in accordance with all applicable federal, state and university rules, laws and

regulations. The asbestos abatement design, if applicable, must be provided by an EPA Certified Project Designer.

If RACMs are going to be disturbed during any response action in quantities greater than 160 square feet or 260 linear feet, or, if Category I or II non-friable ACMs can be expected to be crumbled or pulverized by response action operations, a NESHAP notification must be made to Maricopa County Air Quality must be made 10 days prior to the beginning of the abatement project (Maricopa County Rule 370).

## **8.1 Construction and renovation projects**

Prior to initiation of any renovation project, the area to be renovated must be inspected to determine if there are any asbestos-containing materials that may be disturbed in the course of the project. Inspection must be conducted by an accredited inspector. CPMG has accredited inspectors on staff available for small-scale inspections. CPMG must be given as much advance notice as possible and the online request for abatement must be utilized by the university project manager as soon as the project scope is identified and funded.

All pertinent information and documentation regarding the project such as demolition/renovation drawings, specifications and survey information is to be provided to the firm selected to provide asbestos abatement plans and specifications.

Prior to purchase of any property by university administration or other representatives, EHS recommends that a Phase I Environmental Site Survey be conducted. This process looks at the environmental liabilities and history of the site before entering any contracts to purchase or lease. This Phase I is invaluable as it defines property history, reveals regulated materials including asbestos, lead, chemicals, storage tanks etc. This information is crucial to proper price negotiation and future fiscal commitments to the subject property.

### **8.1.1 Renovation inspections**

Following completion of the conceptual design of the renovation project the project area must be inspected for the presence of ACMs. Inspections must generally comply with inspection requirements set in 40 CFR 763.85 and encompass the full scope of the renovation project to identify all ACMs located within the affected spaces. Renovation inspections may be performed by ASU personnel or by appropriately certified third party vendors. Regardless, the inspection, at a minimum shall include but not be limited to, the following:

- Bulk samples of friable material, or material which will become friable, with a laboratory result of " $\leq 1\%$ " or "trace" amounts of asbestos are to be point-counted by the laboratory or assumed to be an asbestos-containing material.

- Collect and submit for analysis bulk samples in accordance with 40 CFR 763.86 or assume suspect materials to contain asbestos.
- Identify all homogeneous areas of suspect ACMs.
- Visually inspect all areas of the affected spaces to identify locations of suspect ACMs.

Generate inspection reports which contain the following:

- A list of whether the homogeneous areas identified are surfacing material, thermal system insulation or miscellaneous material.
- A list of whether the identified ACMs will be RACM, Cat I or Cat II waste materials and quantities of these materials located within area inspected.
- Date of inspection and signature of accredited inspector.
- Description of spaces included in area inspected.
- Inventory of the locations of the homogeneous areas, exact locations where bulk samples are collected and homogeneous materials assumed to contain asbestos.

In addition, a separate report should be generated which include a full list of other ACMs known to exist within the affected building. This list is to be provided to General Trade contractors or ASU personnel performing the renovation work.

Should historical asbestos inspection data exist, the inspector may incorporate past sampling data into the inspection process, provided that homogeneous materials identified in that data are consistent with materials observed in the area being inspected. The area being inspected will require review for any alterations and additions of suspect building materials added since any previous inspection work.

If no renovation activity takes place in the affected area, renovation inspections are to be considered valid for a period of 12 months.

### **8.1.2 Demolition inspections**

For buildings scheduled for demolition, asbestos inspections should be performed by appropriately certified third party vendors. Inspections must generally comply with inspection requirements set in 40 CFR 763.85 and meet the requirements of asbestos inspections as intended in Maricopa County Rule 370 to identify all ACMs associated with the affected building.

Demolition inspections may be performed by ASU personnel or by appropriately certified third party vendors. Regardless, the inspection, at a minimum shall include but not be limited to, the following:



- Bulk samples of friable material, or material which will become friable, with a laboratory result of " $\leq 1\%$ " or "trace" amounts of asbestos are to be point-counted by the laboratory or assumed to be an asbestos-containing material.
- Collect and submit for analysis bulk samples in accordance with 40 CFR 763.86 or assume suspect materials to contain asbestos.
- Destructive or invasive investigative techniques to access normally inaccessible areas.
- Identify all homogeneous areas of suspect ACMs.
- Visually inspect all areas and spaces of the building, interior and exterior to identify locations of suspect ACMs.

Generate inspection reports which contain the following:

- A list of whether the homogeneous areas identified are surfacing material, thermal system insulation or miscellaneous material.
- A list of whether the identified ACMs will be RACM, Cat I or Cat II waste materials and quantities of these materials located within area inspected.
- Date of inspection and signature of accredited inspector.
- General description of the building and associated spaces (interior and exterior) included in area inspected.
- Inventory of the locations of the homogeneous areas, exact locations where bulk samples are collected and homogeneous materials assumed to contain asbestos.

Should historical asbestos inspection data exist, the inspector may incorporate past sampling data into the inspection process, provided that homogeneous materials identified in that data are consistent with materials observed in the area being inspected.

Inspections will be valid for a period of 12 months.

## **8.2 Location of asbestos-containing material**

All thermal system insulation, sprayed on and trowel applied surfacing materials, and asphalt and vinyl flooring installed prior to 1985 must be treated as asbestos-containing material. In fact, all "suspect" material is presumed to be asbestos-containing until it is sampled by an accredited inspector and analyzed by an accredited laboratory. CPMG and EHS have many inspection records in both hard copy and database formats. Contact CPMG for specific building or project area data.

## **8.3 Periodic inspection of asbestos-containing material**

After asbestos containing material is identified, the material will be periodically inspected by an accredited inspector to monitor the condition of the material to help ensure that the non-damaged condition of the material is maintained. The degree of friability and accessibility of the material will determine the frequency of this inspection. Friable means that the material can be crumbled, pulverized, or reduced to powder by hand pressure when dry. Thus, the more friable or delicate a material is, the more likely it is to release fibers that can become airborne.

## 9.0 Operations and maintenance

To ensure the proper management of asbestos-containing material, the university has implemented operations and maintenance procedures. These procedures agree with the philosophy of in-place management of asbestos-containing materials. The presence of asbestos in a building does not normally constitute a health and safety issue or concern. Intact asbestos containing materials in good condition or that are undamaged do not pose a health risk. When asbestos-containing material is properly managed, release of asbestos into the air is prevented or minimized, and the risk of asbestos-related disease can be reduced to a negligible level.

### 9.1 Class III operations and maintenance activities

When the condition of ACM or renovation/demolition activities specifies remedial action, CPMG will contact the university contracted abatement services providers. Only extremely small-scale, short-duration Operations and Maintenance type of activities (Class III - only under trigger levels and by the approval of the Asbestos Competent Person; and Class IV asbestos work) may be performed by predetermined and qualified university personnel and only by employees who have received the appropriate training.

In addition, Class III-trained workers may only perform tasks for which they have received specific training.

The amount of asbestos-containing material cannot exceed 10 square feet or four linear feet for "in-house" activities. Class III and Class IV asbestos work is defined as small-scale, short duration projects where **maintenance or repair of the equipment or surface behind the asbestos-containing material is the prime objective - not the full removal of the material for other purposes (i.e., for renovations/remodels)**. Any activity which does not meet this criteria must be performed by the university contracted abatement services provider or contractor.

### 9.2 Work practices

Any qualifying Class III and Class IV asbestos work outlined above shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and bystander employees. The work must be performed using wet methods and HEPA exhaust ventilation.

Where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation, impermeable drop-cloths must be used, and the operation must be isolated by utilizing a glove bag system. Regardless of exposure assessments, employees are required to wear properly selected and fitted respirators and other PPE when performing these activities.

## **9.3 Training**

### **9.3.1 Awareness training**

All Facilities personnel whose work can be expected to disturb building materials must receive awareness training. New employees of this nature shall be trained within 30 days of starting employment. This training shall be at least two hours in length and include, but not be limited to, information regarding:

- Asbestos and its various uses and forms.
- Health effects associated with asbestos exposure.
- Location of asbestos containing materials and recognition of damage.
- Name and telephone number of the person designated as the University Asbestos Coordinator.
- The nature of operations that could result in exposure to asbestos, the importance of engineering controls to minimize exposure, work practices, respirators, housekeeping procedures and emergency procedures.

### **9.3.2 Class III training**

All employees who conduct any activities that will result in the disturbance of asbestos containing material shall receive the "OSHA Class III" additional training. Attendees will be required to obtain an ASU-provided physicians written opinion that attendee is medically fit to wear respiratory protection and be issued with a respirator and pass an ASU EHS respirator fit test before taking the class.

The additional training shall include, but not be limited to:

- Air monitoring requirements. Demonstration of personal air sampling.
- Asbestos Awareness.
- Equipment training: HEPA vacuums. Usage and replacement/disposal of cartridges.
- Hands-on training for work procedures. Trainees to wear respirators, gloves and personal sampling pump during hands-on training exercises.
- OSHA Regulations and Requirements
- Personal decontamination procedures: Hands/face, respirator and tools, disposal bags.
- PPE training: Respirator usage, care and maintenance. Disposable clothing usage.
- Waste disposal: Explanation of waste storage procedures.

## **9.4 Mechanical rooms**

Mechanical equipment rooms/areas in which authorized employees can be expected to enter that contain asbestos-containing material must be posted with signs identifying the material present and on its location(s).

## **9.5 Utility tunnel system**

Asbestos exists within the underground utility tunnel system located on the Tempe campus of Arizona State University. The gravel or earthen flooring material throughout the tunnel system has become contaminated with asbestos-containing material. The contamination has been caused by historical damage and repair to pipe insulation. Walking on, or other disturbance to, the flooring material may cause entrained asbestos fibers to become airborne.

Asbestos fibers are also assumed present in the form of settled dusts on most horizontal surfaces in the tunnels, including pipes, valves, conduit, cables and electrical boxes.

Asbestos is present in most thermal system insulation applied to steam, steam condensate, and hot water piping. Most insulation that contains asbestos is painted with the word "asbestos." The disturbance of insulation materials identified as "asbestos" or suspected of containing asbestos is strictly prohibited.

Unprotected persons working in the underground utility tunnel system could potentially be exposed to airborne asbestos fibers at or above the OSHA permissible exposure limit of 0.1 fibers per cubic centimeter (f/cc).

Airborne fibers which exist in the tunnel areas may be below the minimum length of five microns to be detected by analysis using Phase Contrast Microscopy, or PCM, analytical techniques. Airborne fibers within the tunnels are detectable using Transmission Electron Microscopy, or TEM methods. Use of PPE is required regardless of personal air monitoring results.

## **10.0 Disposal**

All asbestos waste must be disposed of in accordance with applicable federal (40 CFR Part 61, Subpart M, and Section 152), state, and local regulations. All materials must be disposed of in an approved landfill. Asbestos-contaminated work suits must be removed properly and placed in closed, labeled containers that prevent dispersion of the asbestos into the ambient environment. The waste must be double bagged (approved labeled asbestos disposal bags) and securely sealed with appropriate tape. A chain-of-custody form must accompany each shipment with a copy maintained in permanent files. An official county/ landfill waste manifest must accompany all generated non-friable asbestos waste to participating public landfills. This manifest can be obtained from the University Asbestos Coordinator at EHS.

### **10.1 Storage and transport**

Authorized and trained university personnel, and contracted abatement providers must follow all applicable EPA, DOT, state, municipal and private landfill laws and regulations regarding the proper and legal methods and periods related to the storing and transporting of asbestos containing materials.

## **11.0 Real estate leasing and notification procedures**

It should be noted that EPA requirements discussed below do not allow exemption for any buildings based on date of construction.

### **11.1 Lessee notification for buildings constructed in 1980 or earlier**

Should ASU lease out any ASU-owned building or portion of any ASU-owned building that was constructed in 1980 or earlier, ASU Real Estate must disclose to tenants or lessee, in writing, of the presence, location and quantities of ACM or PACM which exist in the spaces they will occupy.

Information or data conveyed in such a disclosure notification should be based on reliable data which ASU has generated or which has been developed by a third-party vendor on behalf of ASU and which ASU owns.

Written notification may consist of: a cover letter disclosing the presence of asbestos-containing materials, drawings, if available, illustrating the locations of asbestos-containing materials or a written list of asbestos-containing materials known to exist within or on the building or affected occupied spaces. Copies of any available comprehensive (full building) asbestos inspections may also be provided.

Lessees should also be advised in the disclosure letter that, in order to perform tenant improvements or renovations, a thorough asbestos inspection, by an EPA-certified Asbestos Building Inspector, must be conducted of the affected area within a period of 12 months prior to any renovation taking place.

Informational data provided by ASU, in order to meet regulatory communication requirements, to the Tenants may not suffice to be in compliance with this requirement and the intent of providing such data should not be construed to meet regulatory compliance regarding the 12 month validity of asbestos inspections for renovation purposes.

Asbestos inspection reports, which are limited in scope and which do not encompass the entire building or affected building spaces, should not be provided to prospective lessees.

In cases where the only available asbestos information is in the form of a limited inspection, or, where no asbestos information or data exists, all building materials within the building should be assumed or presumed to contain asbestos. Notification letters should include language to the effect of: "all building materials on the interior and exterior of the building are assumed to contain asbestos unless properly sampled and proven otherwise."

## **11.2 Lease Language for Any Building ASU Leases to Lessees**

The lease for any building regardless of construction date should include language to the effect of: "No Tenant Improvement or Renovation Work is to be conducted until affected building materials have been proven, per EPA regulations, not to contain asbestos."

## **11.3 Leasing buildings constructed in 1980 or earlier for ASU use**

Should ASU lease any building or portion of any building that was constructed in 1980 or earlier, for usage or function by ASU, ASU Real Estate shall request, in writing, that the asbestos information listed in Section 11.1 be provided by the Building Owner/Lessor by the time of the lease signing. All asbestos information received should be shared with CPMG and EHS.

If no asbestos information regarding the building or affected spaces is available, it will be necessary for ASU to presume/assume building materials to contain asbestos.

All asbestos information, including any assumptions/presumptions will need to be shared with ASU employees who will occupy the leased buildings or spaces.

## **11.4 ASU-initiated tenant improvement work in leased buildings**

If ASU intends to perform any tenant improvements or renovations in any leased building regardless of construction date, ASU will need to perform all necessary asbestos inspections and bulk sampling of building materials a minimum of 12 months prior to any planned tenant improvement work or renovation activities taking place.

## **11.5 Applicable regulations**

- EPA regulation 40 CFR 61, Subpart M "National Emission Standard for Hazardous Air Pollutants" Section 61.145(a)
- If within Maricopa County: Maricopa County Rule 370
- If within Pima County: Title 17 of the Pima County Code. The Federal Asbestos NESHAP has been adopted by reference in Section 17.16.530.
- If within Pinal County: Chapter 7 of the Pinal County Air Quality Control District (PCAQCD) Code of Regulations. The Federal Asbestos NESHAP has been adopted by reference in Chapter 7.1.030
- OSHA Regulation 29 CFR 1926.1101(k)
- OSHA Regulation 29 CFR 1910.1001(j)

## **Appendix A**

### **Asbestos Partnered Compliance Duties**

## Asbestos Partnered Compliance Duties Between Capital Programs Management Group and Environmental Health and Safety

### Asbestos Program Manager Capital Programs Management Group

### Asbestos & Environmental Safety Specialist EHS

- Ascertain ACM to be abated for renovation/demolition projects. □
- Operation and maintenance activities, i.e., material sampling and testing for general □
- Oversight of ASU OSHA Class III Workers the ASU Responsibility Party.
- Assure testing laboratories meet AIHA certification and quality control/assurance □
- Compile/disseminate the location, extent □ and type of ACMs in building information asbestos abatement contractors including: data.
  - 1. Verifying Maricopa County NESHAP requirements are met □
  - 2. Communicating the schedule of abatement projects to pertinent parties □
  - 3. Notifying building occupants of projects, community right-to-know □
  - 4. Provide ACM information for inclusion in building information data □
  - 5. Qualify and review abatement contractor qualifications and bid process □
  - 6. Communicate with EH&S regarding schedules, activities and reference by ASU employees/contractors.
- Provide appropriate OSHA-required asbestos disclosure information to contract vendors in University Buildings. □
- Maintain exposure and medical monitoring database for affected employees.
- Monitor and evaluate asbestos training program effectiveness for ASU employees.



## **Appendix B**

### **Request for Asbestos Services Form**

# CPMG - Request for Asbestos Services

University Administration/Business and Finance :: Capital Programs Management

## REQUEST FOR ASBESTOS SERVICES

**THIS ASBESTOS SERVICE REQUEST IS NOT AN APPROVAL TO START CONSTRUCTION**

**ASU Building Permit** - Construction may not begin without a Building Permit Application. If this Asbestos Service Request results in proceeding with your project (estimate, work order, p-card purchase, etc.), an ASU Building Permit Application is required by CPMG Building Construction Support Services for Plan Review. The Building Permit Application is located at [http://uabf.asu.edu/us\\_forms](http://uabf.asu.edu/us_forms). After plan review, subsequent plan review issues addressed and asbestos and/or lead clearance received, Building Construction Support Services will issue and Building Permit.

**Asbestos Review for Flooring/Window Covering/Suspect Paint** - An asbestos review is required before placing an order with ASU Stores.

### Job/Requestor Details

\*Required Fields

<b>Date of Request:</b> Wednesday, April 18, 2012		<b>Work Order #:</b> [ ]	<b>Project #:</b> [ ]
<b>*First Name:</b> [ ]	<b>*Last Name:</b> [ ]	<b>Department:</b> [ ]	
<b>*Phone Number:</b> [ ]		<b>*Email Address:</b> [ ]	
<b>*Service Type:</b>			
<input type="checkbox"/> Removal	<input type="checkbox"/> Repair	<input type="checkbox"/> Encapsulation	<input type="checkbox"/> Testing
<input type="checkbox"/> Evaluation	<input type="checkbox"/> Floor Covering	<input type="checkbox"/> Window Covering	<input type="checkbox"/> Paint Removal
<input type="checkbox"/> Other: [ ]			

### Scope of Work / Details:

### Date by which work must be completed:

### Location of ACM

\*Required Fields

**Select Building Name**

-- Select Building Name --

Search for Building (Optional) [ ] Search [ ]

**\*Building:** (Please submit multiple requests for additional buildings.)

### Tunnel:

### \*Room Number:

### Entrance:

### Specific Location:

### Station Marker:

### Condition of Material:

Good  Damaged  Deteriorated

### Type of Material

<b>Thermal System Insulation (TSI):</b>		<b>Surfacing or Misc. Materials:</b>		
<input type="checkbox"/> L.F. of Pipe	<input type="checkbox"/> L.F. of Joint/Elbow	<input type="checkbox"/> Floor Tile	<input type="checkbox"/> Wall	<input type="checkbox"/> Acoustic Ceiling
<input type="checkbox"/> L.F. of Valve	<input type="checkbox"/> L.F. of _____	<input type="checkbox"/> Sheet Flooring	<input type="checkbox"/> Duct Tape	<input type="checkbox"/> Ceiling Tile
Quantity of Materials: [ ]				

### Line Information

<b>Line Type:</b> <input type="checkbox"/> HW <input type="checkbox"/> CHW <input type="checkbox"/> STEAM <input type="checkbox"/> COND	<b>Line Active:</b> <input type="radio"/> Yes <input type="radio"/> No
<b>Painted Green:</b> <input type="radio"/> Yes <input type="radio"/> No	<b>Line Size:</b> [ ]
<b>Line Pressure:</b> <input type="radio"/> High <input type="radio"/> Low	<b>Line Temperature:</b> [ ]

### File Attachments

You may attach up to five (5) files to aid in this request:  
These files can be pictures of the area in question, scanned hand-drawings, and/or PDF documents of schematics, drawings, etc.  
The size limit of each file is 2 MB - please reduce your file/figure size if necessary.  
The following file types are accepted: .jpg, .jpeg, .gif, .png, .tif, .tiff, .pdf

<b>File #1:</b> [ ]	Browse...
<b>File #2:</b> [ ]	Browse...
<b>File #3:</b> [ ]	Browse...
<b>File #4:</b> [ ]	Browse...
<b>File #5:</b> [ ]	Browse...

Attach [ ] Clear Attachment Fields [ ]

## **Appendix C**

### **Typical Building Notification Posting**

# NOTICE TO OCCUPANTS AND VISITORS

---

**\* Building:**

**\* Room(s) or Area(s):**

An asbestos abatement project will be conducted in Life Science building, in following room(s) or area(s): xxxx from 00/00/00 and continuing to 00/00/00 during the approx. hours of X AM to X PM, Mon - Fri. The project will include the removal of asbestos-containing *floor tile, and mastic*. Be advised that the work areas will be sealed and inaccessible to visitors, students, and all personnel during abatement work.

ASU asbestos abatement and removal projects are conducted with strict adherence to established U.S. Environmental Protection Agency and Occupational Safety and Health Administration mandates. An independent asbestos consulting firm will conduct full-time project oversight and air monitoring during abatement activities to ensure adequate project safety and air quality. Capital Programs Management will oversee the project.

At times floor glue/mastic removers or other chemicals may be used for the proper removal of the asbestos materials. If you are sensitive or allergic to any chemicals, you may want to contact your building manager. Additionally a job site meeting can be arranged for those interested in getting additional information by contacting one of the ASU personnel below. The consultants and removal crews on site are instructed to re direct any question regarding this project to those below as well.

**Please direct inquiries regarding this project to:**

Pamela C. Walrath	Gregory Wnenta	David Perkins
Office: (480) 965-7739	(480) 965-7505	(480) 965-1848
Cell: (480) 433-5810	(480) 229-0181	(520) 861-0912

**OFFICIAL NOTICE - DO NOT REMOVE**  
**AVISO OFICIAL - NO SE QUITE**

## **Appendix D**

### **Signage**



**ASBESTOS**

**CANCER & LUNG  
DISEASE HAZARD**

**AUTHORIZED PERSONNEL ONLY**

**RESPIRATORS & PROTECTIVE  
CLOTHING ARE REQUIRED IN  
THE TUNNELS**

Asbestos-containing pipe insulation and contaminated soil exists in the utility tunnel system. Inhalation of asbestos fibers is hazardous to your health. Avoid creating dust or damaging pipe coverings. Contact your supervisor for proper procedures and protective equipment.

**REPORT DAMAGED OR IMPROPERLY DISPOSED  
INSULATION MATERIALS TO ENVIRONMENTAL HEALTH  
AND SAFETY AT 5-1823 IMMEDIATELY**

DO NOT REMOVE THIS NOTICE



**ASBESTOS-CONTAINING MATERIALS  
ADVISORY**

**WARNING: ASBESTOS-CONTAINING INSULATING MATERIALS  
ARE PRESENT IN THIS AREA.**

**SUSPECT MATERIALS MAY CONSIST OF INSULATION ON PIPE  
STRAIGHTS, ELBOWS AND FITTINGS, TANK/CHILLER JACKETS  
OR TAPE ON AIR HANDLER SEAMS.**

**DO NOT DISTURB THESE MATERIALS.**

**IF WORK WILL CAUSE DISTURBANCE TO OR REMOVAL OF ANY OF THESE  
MATERIALS, CONTACT THE ASU CAPITAL PROGRAMS MANAGEMENT GROUP  
(CPMG) ASBESTOS PROGRAM MANAGER AT 480 965-7739 TO ARRANGE FOR  
REMOVAL**

**IF ANY MATERIALS OTHER THAN FIBERGLASS, STYROFOAM OR FOAM RUBBER  
ARE ENCOUNTERED, STOP WORK IMMEDIATELY. NOTIFY ASU CPMG OR EH&S  
BEFORE TAKING ANY OTHER ACTION.**

**ASBESTOS-CONTAINING INSULATIONS ARE TYPICALLY GRAY OR WHITE  
MATERIALS WHICH MAY HAVE A CHALKY, DUSTY OR FIBROUS CONSISTENCY.  
THEY CAN BE LOCATED BENEATH PIPE/DUCT INSULATION JACKETS AND ALSO  
ON PIPE SUPPORT HANGERS. IF ANY UNIDENTIFIED MATERIAL FITTING THIS  
DESCRIPTION IS DISCOVERED, STOP ALL WORK AND NOTIFY CPMG OR EH&S.**

**ASU Environmental Health & Safety**

**1551 S. Rural Road, Tempe, AZ 85281-6810  
PO Box 876412, Tempe, AZ 85287-6412  
(480) 965-1823 Fax: (480) 965-0736**

## **Appendix E**

### **Service Provider Acknowledgement Form**





## Service Provider Acknowledgement

Arizona State University is committed to protecting the health and welfare of students, faculty, staff, visitors, and to the environment. Accordingly, it is important that all members of the ASU community recognize and share this commitment and comply with the environmental, health and safety policies, rules, procedures and regulations governing ASU campus activities.

ASU is also looking to the community, including service providers, for cooperative and responsible leadership that will help the University implement a safer environment through safer practices and more sustainable solutions.

Towards this end, it is ASU's expectation that all service providers have the responsibility for environmental, health, and safety issues created or otherwise arising from or related to their work under their contract with ASU.

The service provider shall ensure that its employees are properly identified (e.g. officially issued picture ID and/or badge) and have been instructed about the boundaries of their work areas. Service providers will comply with all applicable local, state, and federal rules and regulations, including those related to the Occupational Safety and Health Act of 1970.

For all service providers, ASU is providing a few general guidelines in this document concerning conducting work on ASU Job Sites.

**SERVICE PROVIDER** -- refers to any individual, company, or corporation who is hired by ASU or an ASU employee to provide construction, repair or maintenance related services on ASU property or facilities.

### GENERAL SITE INFORMATION

Failure on the part of the service provider to comply with the following requirements may result in termination of the contract with ASU. Prior to working in areas where site-related hazards might be present, all service providers shall consult with the Project Manager for more information

- Permission must be obtained from the Project Manager whenever it is necessary for personnel to go to the roof of any building.
- Lunch and break areas are to be coordinated through the Project Manager.
- Pedestrians should use walkways where provided. Shortcuts shall not be taken through operating areas.
- Explosives of any type are prohibited on the site with the **exception of Powder Actuated Tools**.
- Barricading of ASU streets (contacting ASU Police at 480-965-3456 is required prior to any barricades being set).

**PARKING** -- Park in specified areas only. The proper parking permit must be secured from ASU Parking and Transit Systems (PTS) and displayed appropriately in vehicles. Contact the Project Manager and/or at PTS at 480-965-9297. Do not block entrance ramps, trash docks, and truck doors, etc.

Web View of [Service Provider Job-Site Safety Information](#)



## Service Provider Acknowledgement

### DISCLOSURE OF ASBESTOS, LEAD AND/OR OTHER HAZARDOUS MATERIALS

Arizona State University is informing all service providers of the potential presence of asbestos, lead and or other hazardous materials at ASU. Depending on the location(s) of your work, there may be one or more of these materials present. It is your responsibility to discuss the full scope of your work with the CPMG Project Manager or designee so that you have the appropriate information related to asbestos, lead and/or other potentially hazardous materials. If the scope of your work changes, contact your CPMG Project Manager or designee before proceeding to determine if the change in scope may involve the potential disturbance of asbestos, lead and/or other hazardous materials.

Should there be changes to your scope of work affecting areas outside of your original contract area, or, if unforeseen or unidentified suspect materials be uncovered or discovered during your work, you are required to stop all work which would impact those materials until they can be evaluated and tested by ASU. Immediately upon discovery of any unidentified or unforeseen building material, you must notify the CPMG Project Manager to arrange for ASU to evaluate and test the materials.

Prior to your work taking place, inspections for asbestos, lead and other potentially hazardous materials must be (or have been) conducted by ASU, and identified materials (containing asbestos, lead or other hazardous materials) that would be disturbed by your current scope of work will be (or have been) removed or isolated in such a manner as to prevent potential exposure. Please contact ASU CPMG Asbestos Program Manager at 480-965-7739 to determine if, based on your current scope of work, there are any remaining materials which are or may be present in adjacent location(s), but should not be disturbed.

Your signature on this document acknowledges you received this disclosure and that you had the opportunity to review your scope of work with the CPMG Project Manager or designee.

The [Service Provider Job-Site Safety Information](#) Orientation document is meant to serve as a guide for the contractor/vendor, any and all of its supervisors, and any and all of its subcontractors during their performance within the scope of work under their contract with ASU. Although the document sets forth certain guidelines and rules of operations on ASU sites, it is not intended to address every potential safety and health issue that may arise during the scope of the contracted work. **IT DOES NOT COVER EVERY POSSIBLE SITUATION.**

While ASU retains the right to periodically review the work of any service provider, its supervisors, or its subcontractors, ASU does not assume responsibility for any issues identified outside of contract compliance.

### TEMPE CAMPUS UTILITY TUNNEL SYSTEM

Asbestos exists in the underground utility tunnel system located on the Tempe Campus of Arizona State University. It is your responsibility to discuss the scope of your work with the CPMG Project Manager or designee in order to provide you with any further information related to asbestos issues which may be encountered during any work in the tunnels.

The gravel or earthen flooring material throughout the tunnel system has become contaminated with asbestos-containing material from historical damage and repair to pipe insulation. Walking on, or other disturbance to, the flooring material may cause entrained asbestos fibers to become airborne.

Department of Environmental Health and Safety



# Service Provider Acknowledgement

In addition, asbestos is present in most thermal system insulation applied to steam, steam condensate, and hot water piping. The disturbance of insulation materials is strictly prohibited.

ASU has determined that persons working in the underground utility tunnel system may be potentially exposed to airborne asbestos fibers at or above the U.S. Occupational Safety and Health Administration (OSHA) permissible exposure limit of 0.1 fibers per cubic centimeter (f/cc).

Vendors are advised that airborne fibers which exist in the tunnel areas may be below the minimum length of five microns capable of being detected by analysis using Phase Contrast Microscopy (PCM) analytical techniques. Airborne fibers within the tunnels are detectable using Transmission Electron Microscopy (TEM) methods. Each service provider is responsible for ensuring proper use of personal protective equipment including respiratory protection at all times while working in the Tempe tunnel system.

It is your responsibility to discuss the scope of work conducted within the tunnel system with your employees, or sub-contracted employees, and to provide the appropriate training, personal protective equipment and air monitoring as required by OSHA.

Accordingly, ASU expects each service provider to supplement the provisions contained in the Service Provider Job-Site Information & Guideline document with proper instructions and work practices that, based on knowledge and experience, will help decrease the likelihood of injury to service provider employees, subcontractors' employees, and to others, as well and prevent damage to property and material on ASU sites.

[Service Provider Name] \_\_\_\_\_

[Street Address] \_\_\_\_\_

[City, State Zip] \_\_\_\_\_

The above service provider certifies that they, any and all of its subcontractor's, or its supervisors, prior to commencing any work on an ASU site, have reviewed and understand the contents of the Service Provider Job-Site Information & Guidelines document and/or have attended the Service Provider Job-Site Information & Guidelines orientation program produced by ASU Department of Environmental Health and Safety. By having their representative sign and date this document prior to commencing any work, the service provider accepts, and agrees to the provisions of these Acknowledgement Clauses. The service provider is required to provide the original of this signed document to EHS and a copy to CPMG.

[Name] \_\_\_\_\_

[Title] \_\_\_\_\_

\_\_\_\_\_  
Employer Representative Signature Date

[Appendix F](#)

**Tunnel Disclosure Letter**



## **Disclosure of Asbestos in the Utility Tunnel System**

Arizona State University is informing you of the presence of asbestos which exists in the underground utility tunnel system located on the Tempe Campus of Arizona State University. It is your responsibility to discuss the scope of your work with the CPMG Project Manager or designee in order to provide you with any further information related to asbestos issues which may be encountered during your work in the tunnels.

The gravel or earthen flooring material throughout the tunnel system has become contaminated with asbestos-containing material. The contamination has been caused by historical damage and repair to pipe insulation. Walking on, or other disturbance to, the flooring material may cause entrained asbestos fibers to become airborne.

ASU has determined that persons working in the underground utility tunnel system may be potentially exposed to airborne asbestos fibers at or above the U.S. Occupational Safety and Health Administration (OSHA) permissible exposure limit of 0.1 fibers per cubic centimeter (f/cc).

Vendors are advised that airborne fibers which exist in the tunnel areas may be below the minimum length of five microns to be detected by analysis using Phase Contrast Microscopy (PCM) analytical techniques. Airborne fibers within the tunnels are detectable using Transmission Electron Microscopy (TEM) methods. Use of PPE is required regardless of personal air monitoring results.

This disclosure is to notify all persons who will be entering the tunnels of the presence of asbestos in the flooring materials, settled dust, pipe insulation, and potentially in the air of the tunnel system. All persons entering the tunnel system to perform work will need to use personal and respiratory protective equipment approved for asbestos as required by OSHA asbestos regulations.

It is your responsibility to discuss the scope of your work with your employees, or sub-contracted employees, and to provide the appropriate training, personal protective equipment and air monitoring as required by OSHA.

In summary:

1. Asbestos fibers are assumed present in most tunnel flooring materials. The asbestos fibers may be agitated and become airborne by foot traffic or other work activities.
2. Asbestos fibers are assumed present in the form of settled dusts on most horizontal surfaces in the tunnels, including pipes, valves, conduit, cables, and electrical boxes.
3. Asbestos is present in most thermal system insulation applied to steam, steam condensate, and hot water piping. Most insulation that contains asbestos is painted with the word "asbestos." The disturbance of insulation materials identified as "asbestos" or suspected of containing asbestos is strictly prohibited.
4. Use of PPE is required regardless of personal air monitoring results. Compliance with OSHA regulations is the responsibility of the contractor performing this work.

Please contact your assigned ASU Project Manager if you have questions.

### **Environmental Health and Safety**

1551 S. Rural Rd Tempe, AZ 85281-6810  
P O Box 876412 Tempe, AZ 85287-6412  
(480) 965-1823 Fax: (480) 965-0736

[Appendix G](#)

**Asbestos Abatement Consultant Audit Checklist**

**Asbestos Abatement Consultant Audit Checklist**

Date: \_\_\_\_\_

Inspector: Dave Jaggars, Asbestos & Environmental Safety Specialist

Time: \_\_\_\_\_

Project: \_\_\_\_\_  
Building Rooms

CPMG Project No.: \_\_\_\_\_

Consultant: \_\_\_\_\_  
Representative

Contractor: \_\_\_\_\_ Estimated Duration: \_\_\_\_\_

Materials: RACM  Cat I  Cat II  Specifications Required? Yes  No  Written? Yes  No

Abatement Stage  Pre-clean  Prep  Abate  Visual/Clearance  Tear-down/Post

		Comments
1. Consultant On-Site? Work Underway <input type="checkbox"/> Lunch Break <input type="checkbox"/> Shift Over/Not Begun <input type="checkbox"/>	_____ (0 or 10 Pts)	
2. Perimeter Air Monitoring In Place? Number: Number of monitors appropriate? Placement? Strategy?	_____ (1 - 10 Pts)	Number of Monitors:
3. Hourly Log (or other Documentation) Up to Date?	_____ (1 - 10 Pts)	
4. Contractor Documentation Checked & On-Site? Certifications <input type="checkbox"/> NESHAP <input type="checkbox"/> Specs (if any) on site? <input type="checkbox"/>	_____ (1 - 10 Pts)	
5. Polyethylene Sufficient and Intact?	_____ (1 - 5 Pts)	
6. Equipment Operational & Functioning?	_____ (0 or 5 Pts)	
7. Viewport Installed?	_____ (0 or 5 Pts)	
8. Contractor Workers in PPE?	_____ (0 or 5 Pts)	
9. OSHA Signage Installed? (ASU Notification Signage Posted at All Building Entrances <input type="checkbox"/> )	_____ (0 or 5 Pts)	
10. Equipment Installation Safe for General Public? (Trip Hazards, Ex. Tubes Suspended, Exhaust Away Public?)	_____ (1 - 5 Pts)	
11. Waste Packaged, Staged & Stored Appropriately?	_____ (1 - 10 Pts)	
12. Consultant PPE Present On-Site?	_____ (0 or 10 Pts)	
13. Consultant Rep Alert & Knowledgeable About Project?	_____ (1 - 10 Pts)	

**Total:** \_\_\_\_\_ **Out of 100 Possible**  
(50 if in Prep Stage)

Additional Comments on Back

Inspector Signature: \_\_\_\_\_

Date Transmitted to CPMG: \_\_\_\_\_

[Appendix H](#)

**Service Provider Acknowledgement Training Verification Letter**





Date

(name and address of Custodial Service Provider)

Subject: ASU Service Provider Acknowledgement Agreement and Verification of  
Asbestos Awareness Training

Arizona State University (ASU) is committed to protecting the health and welfare of students, faculty, staff, and visitors, and the environment. Accordingly, it is important that all members of the ASU community recognize and share this commitment and comply with the environmental, health and safety policies, rules, procedures and regulations governing ASU campus activities. We appreciate your assistance with that as evidenced by the Service Provide Acknowledgement Agreement completed by your organization. Assistance related to this agreement is available at <http://cfo.asu.edu/ehs-service-providers>.

As a valued member of the ASU community, we need your assistance by verifying your organization has met its commitment as an ASU service provider to ensure compliance with all applicable local, state, and federal rules and regulations, including those related to the Occupational Safety and Health Act of 1970. One such rule we have particular concern with relates to providing all custodial employees working at ASU facilities with asbestos awareness training as required by 29 CFR 1926.1101(k)(9)(vi).

This standard requires this training as part of "Class IV" operations to be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(1). This would include available information concerning the locations of thermal system insulation and surfacing Asbestos Containing Material (ACM) or Presumed Asbestos Containing Material (PACM), and asbestos-containing flooring material, or flooring material where the absence of asbestos has not yet been certified; and instruction in recognition of damage, deterioration, and delamination of asbestos containing building materials. Such course shall take at least 2 hours.

**Environmental Health and Safety**

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Completion of this training is your responsibility and is not available from ASU. However, if you would like to discuss these training requirements, please do not hesitate to contact me. There are many resources available to assist you with this training if it has not already been addressed. Also, ASU has provided your organization with a list of locations of thermal system insulation and surfacing ACM/PACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not yet been certified (collectively "Asbestos Information"). Please acknowledge your receipt and understanding of the Asbestos Information and confirm that your organization is in compliance with the OSHA asbestos awareness training requirements by signing and dating below and returning this letter to me at the address below.

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Signature/Title

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Date

Again, ASU values your contributions and appreciates your cooperation and assistance in ensuring EH&S regulatory compliance. Please let me know if you have questions or would like to discuss this issue further.

Sincerely,

Leon Igras  
Arizona State University  
Director, Environmental Health & Safety  
P O Box 876412  
Tempe, AZ 85287