

GENERAL SERVICES ADMINISTRATION
Washington, DC 20405

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GSA ORDER

SUBJECT: Asbestos Policy

1. Purpose. The purpose of this directive is to establish GSA's asbestos policy and procedures, in GSA Federal and leased facilities. The procedures provide for the identification, communication, recordkeeping, monitoring, and overall management of asbestos-containing materials in buildings. As a first priority, GSA's policy is to safely manage asbestos in place. When asbestos can no longer be safely managed in place, one or more response actions, recognized by the U.S. Environmental Protection Agency (EPA) and U.S. Department of Labor - Occupational Safety and Health Administration (OSHA), must be used to minimize health and environmental risk.

2. Background. Asbestos is a naturally occurring fiber mineral, historically used by industry to provide strength, insulation, and fire resistant properties to a large number of products. Regulatory restrictions on asbestos began in the early 1970s, after it was discovered that it may cause disease from exposure to airborne fibers. While asbestos is largely absent from new products, it is still present in older building materials in the form of thermal insulation, fire-rated components, floor and ceiling tiles, and surfacing finishes. Federal regulations require special handling procedures and recommend managing asbestos in place to reduce potential exposures. It is GSA's responsibility to assess, reduce, and manage the impact of asbestos materials in facilities, operations, and services. In facilities where asbestos is managed in place, the GSA Public Buildings Service (PBS) uses risk management methodologies to minimize exposure to asbestos, financial liability, and life-cycle costs.

3. Scope and applicability. This directive applies to all PBS offices, employees, and contractors, and to GSA-controlled Federal and leased facilities. All GSA Federal facilities, constructed prior to 1998, must have an asbestos survey performed by a qualified individual.

4. Cancellations.

- a. Technical Guide-Work Above Suspended Ceilings, dated July 20, 2006;
- b. Guide Specification-Asbestos Abatement, dated July 20, 2006;

- c. Guide Specification-Third Party Monitoring, dated July 20, 2006;
- d. Technical Guide-Asbestos Clearance, dated July 20, 2006;
- e. Technical Guide-Asbestos Surveys, dated July 20, 2006;
- f. Technical Guide-Asbestos Management Plan Template, dated July 20, 2006;
- g. Technical Guide-Building Asbestos Surveillance, dated July 20, 2006;
- h. Technical Guide-Pre-Alteration Assessments, dated July 20, 2006; and
- i. Public Buildings Service Asbestos Policy, dated September 17, 2007.

5. Records and forms management.

a. Surveys. All GSA Federal facilities, constructed prior to 1998, must have an asbestos survey performed by a qualified individual. Survey information must be gathered in a compatible format with and uploaded to the PBS IRIS system.

b. Records Retention. All GSA asbestos-related records must be retained and preserved indefinitely, unless otherwise approved by the Office of General Counsel.

6. Signature.

/S/ _____
NORMAN DONG
Commissioner
Public Buildings Service

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1. Asbestos policy overview. PBS must adhere to U.S. Environmental Protection Agency (EPA) and U.S. Occupational Safety and Health Administration (OSHA) asbestos regulations, as well as to State and local asbestos regulations, as they apply to GSA-controlled Federal and leased facilities. It is PBS's policy to safely manage asbestos in place, as a first priority. When asbestos can no longer be safely managed in place, one or more response actions, recognized by the EPA and OSHA, must be used to minimize health and environmental risk. The selected response actions must be based on environmental, health, and cost considerations.

2. Policy and procedures applicable to PBS functions.

a. Leasing.

(1) Prospective offerors must identify the presence, location, and quantity of all asbestos-containing materials (ACM) in proposed tenant-occupied spaces and common areas. This information must be current to within a year before the proposed lease action.

(2) PBS National Office of Leasing must use the most current asbestos clause in new Solicitation for Offers (SFO) lease contracts.

(3) Subject to the terms of the lease, damaged ACM must be immediately repaired or abated by the Lessor in accordance with EPA, OSHA, State, and local regulations.

(4) Lessors must ensure that occupants are not exposed to airborne asbestos above OSHA permissible exposure limits. Lessors must further ensure that airborne asbestos fiber levels, at the perimeter of any asbestos clean-up, repair, or abatement worksite, not exceed initial background levels.

b. New construction. Products containing any amount of asbestos are prohibited from use in construction of GSA-controlled Federal or leased facilities.

c. Operations and Maintenance (O&M).

(1) Each GSA-controlled Federal and leased facility containing asbestos, that could be disturbed during renovation, construction, or maintenance or could otherwise pose a health and environmental risk in facility operations, must have a written management plan or O&M plan. Each plan must be based on the asbestos present in the facility and include the minimum provisions necessary to safely manage asbestos.

(2) ACM that is in stable condition, and not likely to be disturbed, may be managed in place. The ACM must be visually inspected at least annually by GSA employees or contractors to affirm the condition. Damaged ACM must be repaired or abated. Damaged ACM in locations and under conditions that pose potential exposure risks to occupants and visitors must be repaired or abated immediately.

(3) GSA Property Managers of facilities with asbestos must establish a written process to ensure that construction, renovation, or repair work, performed by GSA or customer agencies, accounts for the potential disturbance of asbestos. The process must include the following: timely written notification of the presence of asbestos to workers before they begin work; and a written record of asbestos risk reduction steps taken by notified workers. Property Management staff may choose to label asbestos to meet this notification requirement, however labels cannot be the only or primary method of notification and communication. Labels are impermanent and may not be readily visible in all locations. Labeling must occur in a way that does not disturb the asbestos.

(4) Before conducting any work in the vicinity of ACM, a pre-alteration assessment must be performed by a qualified individual, as defined in section 7(g) to determine the potential impact of that work on the ACM.

(5) Qualified O&M contractors may conduct work that disturbs asbestos for the purpose of repair or maintenance of equipment, systems, or facilities, including emergency repairs. Qualified O&M contractors may also perform cleanup of asbestos debris. This work must meet the definitions of OSHA Class III or Class IV asbestos work. Qualified local GSA employees must inspect and review O&M asbestos activities to ensure O&M contractors adhere to asbestos-related contract requirements, as well as to applicable asbestos regulations. Custodial contractors may not perform asbestos work.

(6) Work that meets the definition of OSHA Class I or Class II asbestos work must be performed by qualified asbestos abatement contractors.

(7) Customer agencies are responsible for ensuring any renovation or repair work done under their direction meets federal, state and local asbestos regulations. Qualified GSA local employees and contractors must review and monitor work performed by customer agencies, to ensure asbestos is managed safely with regard to the property and all building occupants.

(8) Qualified GSA employees or O&M contractors must conduct, at minimum, annual air sampling in facilities that contain asbestos fireproofing material. The air sampling must be conducted in a manner to best represent building air quality in proximity to the asbestos surfacing materials.

(9) In assigning adequate personal protective equipment or establishing a negative exposure assessment, it is the responsibility of the employer to conduct employee asbestos exposure monitoring. It is required when asbestos-related work is anticipated to produce an exposure at or above the OSHA permissible exposure limit. Employer is defined as the agency or company the employee works for. All exposure monitoring must be performed in accordance with OSHA regulations. The employer is responsible for ensuring their employees are afforded a safe and healthy workplace through full compliance with OSHA asbestos regulations including costs associated with exposure monitoring, personal protection and/or administrative or engineering controls.

(10) Where GSA employees disturb or clean up ACM as part of their regular duties, a formal asbestos occupational safety and health program must be established and implemented by the GSA Regional Office.

d. Property acquisition.

(1) PBS must not acquire property containing asbestos through purchase, exchange, or transfer, with the following exceptions: ACM is removed from occupied and common areas before occupancy; ACM in unoccupied areas is undamaged; and a written asbestos management plan or O&M plan is established.

(2) PBS must require the owner or transferring agency to disclose all available information about ACM before the property is acquired.

(3) PBS must perform a thorough asbestos survey before acquiring any property. The survey must be current to within five years before the date of acquisition. The survey may be completed as part of a Phase I environmental site assessment, or 'all appropriate inquiry'.

e. Property disposal.

(1) Landholding agencies must disclose all existing asbestos information in the title report, when reporting real property excess to GSA.

(2) PBS must disclose all asbestos information to GSA's Office of Real Property Utilization and Disposal, prior to excess.

(3) Previous asbestos survey information may be used to meet property disposal requirements in lieu of PBS performing an asbestos facility survey prior to property disposal.

(4) PBS must disclose all known ACM information in any offer to purchase or conveyance documents.

f. Renovation and demolition.

(1) A pre-alteration assessment must be performed by a qualified person, prior to design and construction of all PBS space projects in facilities containing asbestos or presumed to contain asbestos. Asbestos work must be incorporated into the scope of a project when the pre-alteration assessment uncovers an impact on facility asbestos by the project. The asbestos project scope must be designed or reviewed by a qualified individual.

(2) Project costs associated with asbestos work on PBS space projects must be coded and recorded independently, in accordance with the Office of the Chief Financial Officer requirements. Associated project costs include design, abatement, oversight,

and monitoring. Projects performed on behalf of customer agencies, that impact asbestos, must include the costs for all asbestos-related activities in the Reimbursable Work Authorizations (RWA) received.

3. Asbestos surveys. All PBS Federal facilities, constructed prior to 1998, must have an asbestos survey performed by a qualified individual. Upon completion of each survey, GSA must communicate the presence, location, and condition of asbestos to building occupants.

a. Survey information must be gathered in a compatible format with and uploaded to the PBS IRIS system.

b. All PBS asbestos-related records must be retained and preserved indefinitely, unless otherwise approved by the Office of General Counsel.

4. Training requirements for PBS employees.

a. All PBS employees engaged in duties that bring them in contact, or may likely bring them in contact, with asbestos must complete the GSA Online University 2-hour Asbestos Awareness training course. Employees with such duties include property managers, lease specialists, service contract inspectors, O&M staff, custodial staff, project managers, and construction site managers.

b. All PBS employees who perform asbestos O&M work must complete an EPA-approved Asbestos Model Accreditation Plan (MAP) 16-hour O&M training course.

c. All PBS employees who perform asbestos pre-alteration assessments must complete either an EPA-approved MAP 3-day Inspector or Project Designer course.

d. All PBS employees who perform asbestos project designs must complete an EPA-approved MAP 3-day Project Designer course.

5. Responsibilities of PBS Offices.

a. Regional Office. Each PBS Regional Office must designate an asbestos program manager, with the requisite experience and training, to oversee and coordinate the regional asbestos program. The Regional asbestos program manager must have successfully completed EPA-approved MAP Project Designer, Inspector/Management Planner, and Project Designer training courses.

b. Office of Project Delivery. This office is responsible for:

(1) Ensuring all space projects are reviewed for asbestos impact and that projects with asbestos impact include an asbestos design in the scope.

(2) Oversight, monitoring, and documentation of the asbestos work performed during construction to ensure compliance with applicable regulations and scope.

c. Office of Facilities Management and Services Programs. This office is responsible for:

(1) Managing the PBS asbestos program, conducting surveys, and overseeing O&M activities to ensure regulatory compliance.

(2) Providing asbestos building information to occupants and notifying contractors of asbestos presence in Federal facilities.

d. Office of Real Property Asset Management. This office is responsible for:

(1) Ensuring newly acquired properties to be either asbestos-free or have limited asbestos.

(2) Ensuring real property reported excess include applicable asbestos information, shared with the transferee.

e. Office of Leasing. This office is responsible for:

(1) Ensuring leased facility owners provide the asbestos information required in the SFO clause and that information is documented in writing.

(2) Oversight of leased facilities to ensure compliance with this policy and asbestos regulations.

f. Office of the Chief Financial Officer. This office is responsible for gathering and analyzing all asbestos cost information necessary to complete annual financial liability reporting.

6. Authority.

a. OSHA Construction Industry Asbestos Regulation, 29 CFR 1926.1101.

b. EPA National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations, 40 CFR 61 Subpart M.

c. OSHA General Industry Asbestos Regulation, 29 CFR 1910.1001.

d. EPA Asbestos MAP, 40 CFR 763 Appendix C to E.

e. GSA Federal Management Regulation (FMR), 41 CFR 102.

7. Definitions.

a. Asbestos-containing material (ACM). Defined by EPA as any material that when laboratory tested contains 1% or more asbestos content. EPA regulations apply only to this definition. Building materials containing less than 1% asbestos can pose an exposure risk when broken up and made airborne. OSHA, the agency responsible for employee exposures, regulates building materials with any asbestos content. An accurate test of building materials is essential in determining the low level content of asbestos.

b. Asbestos-containing building material (ACBM). An EPA-defined term used in asbestos regulations for schools, synonymous with ACM and often used interchangeably.

c. Class I and II asbestos work. OSHA-defined terms referring to the removal of thermal system insulation and surfacing ACM (Class I), and to the removal of other ACM (Class II).

d. Class III and IV asbestos work. OSHA-defined terms referring to repair or maintenance work on asbestos materials (Class III), and to work involving cleanup of asbestos and not repair or maintenance (Class IV).

e. Friable. A material that can be crushed or turned to powder with hand pressure. The term refers to the nature of an asbestos material, but is often misused to refer to the condition of a material.

f. Presumed asbestos-containing material (PACM). A building material assumed or presumed to contain asbestos. Both EPA and OSHA recognize the need to presume some materials, which cannot be accessed or tested, as asbestos.

g. Qualified individuals.

(1) Pre-alteration assessment. A person is qualified to perform a pre-alteration assessment if they have completed one of two EPA-approved 3-day MAP training courses: Inspector or Project Designer.

(2) Asbestos project design. A person is qualified to perform asbestos project designs once they have completed the 3-day EPA-approved MAP Project Designer course. The qualified person can either design the asbestos portion of a project or review the design performed by others.

(3) Asbestos surveys. A person experienced and trained in performing facility environmental, safety, or industrial hygiene inspections or inventory audits is qualified to conduct asbestos surveys. Most surveys are performed by environmental or industrial hygiene consultant contractors, and occasionally by GSA employees.

h. Response actions. EPA defines 5 different actions available in response to damaged asbestos.

(1) Removal. The process of removing asbestos from the substrate, and commonly referred to as 'abatement'.

(2) Repair. The process of repairing damaged asbestos, commonly performed in O&M.

(3) Encapsulation. The process of coating asbestos with a layer of material that soaks in to bind and harden the asbestos.

(4) Enclosure. The process of constructing a barrier around the damaged asbestos.

(5) Dismantling. The process of physically removing the entire asbestos-containing building component intact.

Appendix A. Asbestos Pre-alteration Assessments

1. Introduction. The assessment is used by the project designer to either avoid disturbing asbestos in the project area or to design controls to safely deal with the disturbance of the asbestos material. The intent is no different than determining whether other construction hazards are present and may be affected by the project.
2. Authority. Requirements for the pre-alteration assessment (pre-alt) are referenced in EPA and OSHA regulations and the FMR.
 - a. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP). "...the owner or operator of a demolition or renovation activity and prior to the commencement of the demolition or renovation, to thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos...". (40 CFR Part 61, subpart M)
 - b. EPA Asbestos School Hazard Abatement Reauthorization Act (ASHARA). Accredited inspectors, workers, supervisors and project designers are required when conducting asbestos activities in public and commercial buildings. (40 CFR Part 763)
 - c. OSHA Asbestos Construction Standards. "...Before work subject to this standard is begun, building and facility owners must determine the presence, location, and quantity of ACM [asbestos-containing material] and/or PACM [presumed asbestos-containing material] at the work site...". (29 CFR Part 1926)
 - d. Federal Management Regulations, 41 CFR Part 102-80.15(c). "...federal agencies must perform a pre-alteration asbestos assessment for activities that may disturb asbestos..."
3. Frequently asked questions.
 - a. When is a pre-alt not required? The regulations do not provide any exclusions to the requirement nor do they specify a construction date after which assessments are not required. However, PBS recognizes that a pre-alteration assessment is not needed when an Asbestos Confirmation Statement and related supporting documentation has been generated and accepted through the financial liability reporting process.
 - b. Is a pre-alt required for areas where asbestos has been previously abated? Asbestos abatement can mean: removal, encapsulation, enclosure or repair. All but removal refer to actions that leave asbestos in the area. Also, some projects only remove the minimum asbestos needed to accommodate the scope of the project and do not remove all asbestos in the area. Therefore it is important to review whether previous abatement was removal, and whether that removal included all asbestos impacted by the current scope.

A pre-alt is then not required when there is documentation that all asbestos in the affected area has been removed in a previous project. That documentation in effect, becomes the pre-alteration assessment.

c. Can an asbestos survey be used as the pre-alt? An asbestos survey is not a pre-alteration assessment but can provide valuable information to the assessment. In some cases the survey provides sufficient information to determine whether asbestos exists and if it may be impacted. However, in most cases the survey will only provide partial assessment information as highlighted below:

(1) An asbestos survey is intended to protect the health of building occupants, contractors and visitors. The survey information does not focus on projects but rather on maintaining the asbestos in a safe condition until abatement is feasible.

(2) An asbestos survey may not provide the level of detail or specificity needed to match the scope of an alteration, renovation or demolition project.

(3) Asbestos surveys typically do not sample inaccessible areas which may be impacted by a project.

(4) Asbestos surveys often assume (or “presume”) material to contain asbestos in lieu of sampling.

d. Is a pre-alt required if all suspect asbestos material is assumed to contain asbestos? Project managers can choose to consider suspect or assumed (“presumed”) materials to contain asbestos. In doing so, no further assessment is needed but the suspect material will of course need to be treated as though it tested positive for asbestos, throughout the project. The act of treating the material as asbestos, is the pre-alt. The project design will then need to include the asbestos assumed to be present. Whether to assume material is asbestos for a project is a business decision based on costs to conduct the pre-alt (i.e. sampling and assessment) compared to the cost of abating something that may not be asbestos.

e. How should a pre-alt be performed? The pre-alteration assessment should always begin with a review of the most current asbestos survey, inventory, or management plan. The asbestos materials and locations identified in these documents should be compared to the affected materials and locations of the project. Where there is an obvious overlap of building areas and features to what is known in the asbestos documentation, no additional investigation is needed. Where there are uncertainties about the location of asbestos or whether the project might impact the asbestos, further assessment is needed to clarify the uncertainties. This further assessment usually involves: a visit to the project site; inspection of materials scheduled for demolition or alteration on site to identify the location and amount; and possible collection of bulk materials for subsequent laboratory testing. Asbestos materials that are confirmed or are believed to be impacted by a project are then incorporated into the project design.

A pre-alteration assessment does not need to address asbestos materials outside the area(s) impacted by the project.

f. Who can perform the pre-alt? In accordance with the EPA ASHARA regulations, only persons who have completed the following EPA-certified courses may perform a pre-alt: EPA Asbestos Designer Course (3 days); or EPA Asbestos Inspector Course (3 days). In addition, some state and local environmental jurisdictions require that persons performing asbestos assessment and design be certified in those jurisdictions. It is also recommended that persons performing pre-alteration assessments for GSA have at least two (2) years project or building management experience in the type of building being assessed.

g. Do I need to submit the pre-alt to my environmental, health and safety (EHS) office for approval? All asbestos-related projects should be coordinated with the regional EHS office. While assessments are generally straightforward, it is always preferred to copy the EHS office on any pre-alt. They need to be aware of asbestos-related activities and may offer technical expertise on large or complicated projects

h. Do I need to formally document the results of a pre-alt? Yes. All documentation should be placed in the project file. This documentation includes: pre-alt assessments; documentation of no asbestos presence supporting the ACS; documentation of previous asbestos removal; and documentation supporting any assumption or presumption of asbestos. Documentation for the pre-alt may include site visit notes, bulk sampling results, and/or asbestos inventory information.

i. Which GSA organization should perform the pre-alteration assessment? The asbestos assessment should be viewed as an element of project planning and design. The project design firm, GSA's third party asbestos monitoring firm(s) or any other qualified environmental, health and safety firm, can perform the assessments. Qualified GSA subject matter experts can also perform the assessments. It is up to each region and/or organization to decide the most expedient process for doing pre-alt.

j. How should pre-alteration assessments be funded? The potential impact of asbestos-containing materials must be considered and included in the cost of Reimbursable Work Authorizations (RWAs) and programmed into proposed projects. In those instances where a pre-alt assessment will need to be contracted for, the pre-alt assessment is to be funded with BA61 funds. This is because a pre-alt assessment is investigative and its outcome is uncertain. The results will determine the scope of the project.

k. What is the cost of a typical pre-alteration assessment? The cost of a pre-alteration assessment will vary by project based on existing available asbestos data and whether additional sampling is required. In most cases, the cost of a pre-alteration assessment represents a negligible portion of the total project design.

l. How long does a pre-alteration assessment take? A pre-alteration assessment will vary depending on the scope of the project and the availability of existing data. If a direct match of project scope to existing data is possible the assessment may only take an hour or so. In the worst case scenario where no asbestos information previously exists, a qualified firm will need to inspect and potentially sample the project area. Large projects should take an inspector approximately one half day to evaluate, with small projects taking less time. Bulk samples generally take several days to one week to analyze.

m. What is the risk of not performing a pre-alt? The highest consequence of not performing a pre-alt is accidentally disturbing asbestos, resulting in real and perceived exposure of occupants, exposure of the project contractor and contamination of GSA property. Such incidents almost always result in project delays, change orders and significantly increased project costs. In addition, federal, state and local environmental and safety authorities can cite and levy fines on the project contractors. EPA can also levy fines on GSA.

Building materials found to contain asbestos		
Asphaltic Floor Tile	Electric wiring insulation	Drywall compound
Covebase	Electrical cloth	Laboratory gloves
Boiler Insulation	Electrical panel partitions	Lab hoods and counters
Breaching insulation	Elevator brake shoes	Pipe insulation
Ceiling tiles and panels	Elevator equipment panels	Roof mastic and patch
Cement wallboard	Fire Doors	Taping compounds
Floor tile mastic	Linoleum backing	Textured paint
Cooling tower panels	High temp gaskets	Thermal Paper Products
Ductwork connections	HVAC Duct Insulation	

Appendix B. Oversight and Monitoring of Asbestos Repair and Abatement

1. Introduction. Following completion of an asbestos abatement, action clearance is needed to verify the environment is acceptable for re-occupancy. An abatement action can consist of: asbestos removal, asbestos repair, asbestos encapsulation, asbestos enclosure, and asbestos dismantling. Clearance consists of two steps: visual inspection; and final air monitoring.

2. Visual inspection. As the name implies, visual inspection is the process of physically walking through the area and inspecting whether the area is free of asbestos debris, dust and residue. Visual inspection is always performed after all asbestos action is complete and the area has been completely cleaned up but before any final encapsulation.

Visual inspections should be performed by an experienced and trained representative of GSA or other 3rd-party professional. Third-party professionals are often industrial hygiene or environmental firms using individuals trained and experienced. It is best to use the same individuals responsible for periodic monitoring throughout the asbestos work to conduct the final inspection and clearance, since they are most familiar with project scope and the work of the contractor.

a. Asbestos removal, repair and dismantling projects. The inspector looks to see that all asbestos slated for removal has been removed. They look for visible debris on all walls, flooring and surfaces inside where the asbestos work took place. They may also wipe the removal surfaces with their fingers looking for dust on materials where friable asbestos was removed, such as mechanical equipment or piping. The inspector also inspects the inside of any plastic enclosure change areas or load-out areas for signs of dirt, dust or debris. Except in basement dirt crawlspaces and similar areas, any observed dust or dirt should be assumed to be asbestos. Dust, dirt or obvious asbestos debris found during the inspection should require the abatement contractor to re-clean the space; whereupon the inspector conducts a second visual inspection.

b. Encapsulation and enclosure projects. The inspection must visually look at the area enclosed or encapsulated to ensure the asbestos is completely locked down or sealed in. Any gaps in the encapsulation or enclosure must require the abatement contractor to seal the enclosure and encapsulated area.

3. Post-Abatement verification. For asbestos removal projects and during the final visual inspection, the inspector must verify the location and quantities of asbestos actually removed in the project. This information will be used by GSA to update the building asbestos inventory and provide valuable abatement cost information for annual financial liability reporting.

To complete this, the inspector should obtain the current inventory of asbestos materials listed for the affected work area. This information can be obtained from the building manager or the regional GSA environmental safety & health office. If a current inventory

is not available, they must obtain a list of materials scheduled for removal from the project documents. With the list in hand, the inspector visually verifies what, where and how much asbestos was actually removed in the project while performing their final visual inspection. They should note directly on the documents which materials have been removed and add any relevant notes of explanation. This document is then to be forwarded to the GSA project manager, who should share this information with the regional environmental health & safety staff.

4. Final air sampling. Following successful visual inspection, final air sampling should be performed whenever feasible to document acceptable air quality after asbestos project completion and prior to re-occupancy. Air sampling is commonly conducted after some minimal encapsulation has been performed in the abatement area and dried. Air sampling should be collected aggressively, when feasible, and be as representative as possible of the air within the asbestos work area. Aggressive air sampling, as defined by the EPA, involves the use of fans, leaf blowers and similar portable equipment used to entrain settled dust back in the air and keep it airborne throughout the sampling period. Aggressive air sampling is intended to simulate the worst possible air quality conditions with respect to asbestos. Air samples are collected using high flow air pumps running at approximately 10 liters/minute, calibrated before each sampling. Calibration and sampling must use the same sample media which will depend on the laboratory method of analysis.

a. Asbestos clearance air sample analysis. There are two accepted methods: phase-contrast microscopy (PCM) and transmission electron microscopy (TEM). In some instances, it is advantageous to collect both PCM and TEM samples such that if the PCM results come back questionable, the TEM batch can be analyzed to determine if the elevated air quality levels are due to asbestos or some other fibers.

(1) PCM. PCM sampling uses a different media (cassette) and is a modification of a method used to measure occupational exposures (NIOSH 7400). Under the NIOSH method small samplers, running at a mere 2 liters/minute are attached to work employees breathing zone areas to collect air throughout the worker's full shift. For clearance sampling this same media is attached at the much higher running pumps in the asbestos work area in an effort to measure relatively cleanliness of the air quality following abatement. The advantage to collecting PCM samples is the ability to receive laboratory results within a few hours of sample collection (compared to days, potentially for TEM samples). The disadvantage is that PCM laboratory analysis can only observe fibers of a certain minimum size and cannot discern asbestos from non-asbestos fibers.

(2) TEM. Sampling using TEM air sample media (cassettes) use the preferred method of clearance analysis which is an analytical method spelled out in the EPA Asbestos-in-schools regulations (40 CFR 763). This method detects and identifies all asbestos fibers in the air, which represent a worse-case scenario for re-occupancy since the air is constantly stirred up during sampling (i.e. aggressive sampling). The strict protocol under EPA is to collect 5 samples inside the work area, 5 outside and sample/method blanks. When the results of the inside samples are not statistically

worse or higher than the outside, the work area is considered clear, the project is complete and the space can be open for re-occupancy.

b. Air sampling location, quantity and method. Determining the location, quantity and method of final air clearance sampling is something of an art-form. The basic rule-of-thumb is to position the number and location of samples to be roughly representative of the air quality in the asbestos work area. The method(s) of sampling analysis are generally chosen based on the condition of the work area and the timeliness of the project.

Examples of common asbestos clearance scenarios	
Asbestos project condition	Clearance air sampling choice
Removal in a dirt crawlspace	Collect TEM samples at ~ 6 L/min to reduce dust overloading. Have the dirt lightly encapsulated first and minimize aggressive sampling.
Emergency removal in a 24/7 data center	Collect PCM samples using TEM media. Instruct the lab to prep both and analyze the PCMs immediately. Consider the area clean if PCMs are OK. Analyze the TEMs only as needed.
Single open office area	Collect a minimum of 3 clearance samples.
Office with 5 separate rooms	Collect a minimum of 5 clearance samples; 1 in each office.
Removal in an office next to an occupied area	Collect clearance samples inside the office and a couple in the occupied area for comparison.
Floor tile removal using chipping tools, in an area that must be re-opened quickly	Consider using the NIOSH 7402 method. Collecting PCMs which can then be analyzed to identify if tiny particles are in fact asbestos.

Appendix C. Asbestos Management and O&M Plans

1. Introduction. Asbestos Management Plans are a requirement of Environmental Protection Agency Asbestos Hazard Emergency Response Act (EPA AHERA 40 CFR 763) regulations for schools, which was reauthorized in 1991 to apply to public buildings.

- a. Operations and Maintenance (O&M) plan.
- b. Asbestos inventory.
- c. Documentation of roles and responsibilities.
- d. Asbestos communication, labeling and permitting.

2. Requirements of a management plan. A management plan is the result or product of an asbestos survey and the asbestos policy of an organization or agency. GSA asbestos policy requires the following:

- a. Designation of an asbestos program manager.
- b. Communication of asbestos facility information to occupants and contractors working in the facility.
- c. Labeling and permitting asbestos to avoid accidental disturbance of asbestos.
- d. Periodic surveys or inspections for asbestos.
- e. An inventory of facility asbestos maintained and updated in the IRIS system.
- f. Minimum training requirements for GSA and service contract staff.

3. Management and O&M plan contents. The following is an example outline of a common asbestos management plan, which includes the O&M plan as a component.

- a. Cover Sheet.
 - (1) Document title.
 - (2) Identification of the building.
 - (3) Date.
 - (4) Plan preparer name.

b. Executive summary. This is the Asbestos Management Plan for a [building identification]. This Management Plan includes policy, procedures, and technical guidance in support of GSA, OSHA and EPA compliance. Some of the procedures include notification to GSA employees and employers of other employees in the building, and regular inspections of asbestos containing material to determine and monitor the condition of the material.

- (1) Building Number.
- (2) Building Name.
- (3) Address.
- (4) Date of plan.
- (5) Prepared by.
- (6) Asbestos Program Manager.
- (7) Facility Manager.

c. GSA policy statement. Building Inspections will be conducted by trained and/or licensed asbestos professionals. Asbestos containing materials that are in good condition and not disturbed present a negligible exposure hazard. GSA intends to maintain any asbestos containing materials in an undamaged condition.

GSA is also responsible to its employees, employees of other agencies, and outside contractors, with regard to overall facility and asbestos management. The information contained herein, must be communicated or shared by GSA with all interested occupants and visitors. The information must be reviewed prior to any project or repair action performed in the facility that may disturb asbestos. Contractors and related personnel can only be allowed to work on asbestos through regulator permit issuance or similar documentation that asbestos information has been reviewed.

d. Table of contents.

e. Inspection report.

- (1) Introduction.
- (2) Summary of report.
- (3) Asbestos priority findings. Highlights of asbestos that is in fair or poor condition, including their locations and quantities.

(4) Complete asbestos listing. Tabular listing of all asbestos found and presumed from the survey. Includes information captured in the IRIS asbestos module template.

f. Asbestos operations and maintenance (O&M) plan. All O&M work in the facility involving asbestos must at minimum following the procedures indicated in this document. Final visual and air clearance must be performed after asbestos work or abatement is completed.

(1) Introduction.

(2) Training requirements and documentation for O&M staff.

(3) Notification and communication.

(4) Process of notifying and communicating asbestos information to occupants and visitors.

(5) Pre-alterations, inspections and re-inspections.

(6) Process of conducting assessments and inspections by the O&M.

(7) Employee exposure assessment.

(8) Process and results of any assessments performed for O&M staff.

(9) Medical surveillance and personal protective equipment (PPE). O&M staff medical surveillance program and PPE issued as needed.

(10) Emergency response procedures.

(11) Routine maintenance asbestos procedures.

(12) Recordkeeping.

(13) Work permitting process.

g. Reference documents.

(1) GSA asbestos technical guides.

(2) EPA and OSHA references.

(3) Applicable state and local regulations.

(4) Forms.

- h. Pre-alteration inspection findings.
- i. Periodic monitoring or surveillance results.
- j. Appendices.
 - (1) Laboratory reports.
 - (2) Field survey notes.
 - (3) Training certifications.
 - (4) Marked-up drawings.

4. Frequently asked questions.

a. Who is responsible for maintaining management plan information? The group responsible for O&M of the facility is responsible for maintaining and updating the O&M information in the plan. They are also responsible for following the plan, in so far as is specified in any associated service contract.

(1) The asbestos program manager is responsible for updating the plan with any re-inspection or re-survey information collected.

(2) The facility manager (one or more facility managers if there are several) who is designated as responsible for asbestos information in the facility is responsible for ensuring other information in the plan is updated such as: changes in points of contact in the document; major changes in the facility layout that could render a portion of the marked-up drawings not applicable; and changes in O&M service contractor and resulting change in the O&M plan.

b. How are changes in the asbestos inventory tracked and recorded? The PBS IRIS asbestos module is the repository for all asbestos inventory information. Changes in the inventory must be noted in IRIS as soon as they are captured. The plan should be updated with new IRIS inventory information after each annual asbestos surveillance or inspection. Changes in the inventory should be captured as follows:

(1) Regional construction projects. The third-party consultant responsible for oversight of the asbestos work, must verify the asbestos removed or abated during the final visual inspection as required in the GSA asbestos abatement master specification. Using a list of asbestos materials from the project or from IRIS, the consultant will make changes in location, quantity and condition on the printout during their visual inspection. This information will be forwarded through the project manager to GSA staff having access to update the inventory directly in IRIS.

(2) Small construction projects conducted at the facility level Small projects using a third-party asbestos consultant to conduct final visual inspection and air clearance must follow the method above for regional projects. Otherwise, the project manager must note the locations and quantities of asbestos removed and forward the information to GSA staff having access to update the inventory in IRIS.

(3) Repairs or maintenance performed by O&M staff. The O&M staff must update the management plan inventory information based on the repairs or maintenance performed on the asbestos. This information will be updated in IRIS during the next cycle of annual asbestos surveillance

Appendix D. Asbestos Surveys

1. Introduction. There are four essential features to identifying asbestos in any facility: location; quantity; condition; and potential for disturbance. At a minimum, surveys gather this information in an attempt to understand the asbestos risk for a given facility.

2. Definition of a survey. A survey (sometimes referred to as an inspection) is the physical act of walking through a facility and visually inspecting for asbestos. A survey can also include collecting samples of bulk building materials to be later analyzed by a laboratory to determine asbestos presence. There are three principle surveys conducted in GSA facilities:

a. Baseline (or initial, or full asbestos) survey. This survey looks at every building component throughout the entire facility and typically includes bulk sampling and analysis of all potential asbestos materials. A baseline is performed either on facilities with no prior asbestos information or information that is very dated or untrustworthy.

b. Re-inspection (or resurvey). This survey usually represents each follow-on conducted after the initial baseline survey. A re-inspection involves walking through the facility with the baseline or previous re-inspection information and making note of any changes in asbestos location, quantity or condition. A re-inspection may also be an update of the Operations and Maintenance (O&M) plan, using the initial O&M plan as a baseline.

c. Periodic surveillance. This is an abbreviated survey, usually conducted annually or semi-annually. It is also a walk-through of the facility and relies on the current survey or O&M information. However, this effort focuses primarily on noting any changes in the condition of the asbestos.

3. Survey contents. Once compiled or updated, surveys will typically consist of a report containing the following.

- a. Introduction and narrative (who performed what, when and where...).
- b. Summary of asbestos or presumed asbestos found.
- c. List of materials tested for asbestos.
- d. Appendix of laboratory testing results.
- e. Appendix inventory of all asbestos and presumed asbestos materials.
- f. Appendix of certifications and training documents for persons involved in the effort.

4. Frequently asked questions.

a. How and where is GSA survey information stored? Once received by GSA facility management staff, survey information is kept in the form of an inventory, management plan, and/or O&M plan. These are used for day-to-day facility management and assist in project planning. Project and portfolio decisions are sometimes based on this asbestos information and/or the associated cost.

GSA also requires that basic asbestos inventory information be compiled in a spreadsheet format that serves as a template for the IRIS system module. All current and future inventory information from surveys will be uploaded and maintained in the PBS IRIS system. National asbestos information centralized in a single database supports both financial liability reporting and facility risk management. The IRIS asbestos module survey template requires the following information:

- (1) Region.
- (2) Building number.
- (3) Survey date.
- (4) Floor.
- (5) Location.
- (6) Asbestos description.
- (7) Is it asbestos?
- (8) Quantity.
- (9) Is it friable?
- (10) Is it accessible?
- (11) Current condition.
- (12) Estimated cost to abate.
- (13) Variability in cost.

b. What does GSA policy require for asbestos surveys? Current policy requires a baseline survey for every GSA facility constructed prior to 1/1/1998. Information about the GSA Federal property portfolio indicates facilities constructed after 1997 do not contain asbestos. All GSA facilities, regardless of construction date, will be determined to not contain asbestos when sufficient documentation has been obtained. Documentation is considered sufficient when it supports the acceptance of an Asbestos Confirmation Statement (ACS) by an independent auditor in the course of agency financial accounting reporting. Documentation supporting ACS include but are not necessarily limited to: asbestos survey reports, abatement project final clearance reports, and written declarations from a knowledgeable source (project manager, design architect or building manager) about asbestos absence. No asbestos surveys are required for GSA facilities constructed after 1997 or those with an accepted ACS. The risk of asbestos-containing materials accidentally installed in new or ACS-accepted buildings is mitigated through the pre-alteration assessment process. Asbestos pre-alteration assessments should be performed prior to construction, renovation or repairs involving materials known or reasonably suspected to potentially contain asbestos.

The policy also requires a visual inspection of asbestos be conducted at a minimum of every 5 years. Occupied and common area must be inspected annually. The intent is to maintain current asbestos information for purposes of managing the asbestos properly.

c. What are the regulations covering asbestos surveys?

(1) Occupational Safety and Health Administration (OSHA), 29 CFR 1910.1001 and 29 CFR 1926.1101, Asbestos for General and Construction industries. Building and facility owners must determine the presence, location and quantity of asbestos-containing material (ACM) and presumed acm (PACM) at the work site.

(2) Environmental Protection Agency (EPA), 40 CFR 763 Subpart E, Asbestos Hazard Emergency Response Act (AHERA). Provides guidance on surveys, periodic inspections (surveillance) and record-keeping (Management Planning) for schools.

(3) Environmental Protection Agency (EPA), 40 CFR 763 Appendix C, Asbestos School Hazard Abatement Reauthorization Act (ASHARA) . Requires those conducting inspections or surveys in Public and Commercial buildings complete the EPA Model Accreditation Plan (MAP) Inspector, 3-day training course.

d. Who can perform an asbestos survey? EPA ASHARA regulations require all public building inspections be performed by an accredited Inspector. An accredited Inspector is someone who has successfully completed EPA Model Accreditation Plan training as an Inspector (3-day course). Some State or local jurisdictions may require additional certification for those conducting asbestos inspections. For GSA, baseline (or initial) and re-inspections (re-surveys) should be performed by an accredited inspector. Periodic surveillance can be performed by O&M or facility management staff, trained in identifying asbestos and characterizing its condition. Asbestos O&M, worker or supervisor training can serve this purpose, as well as inspector training.

e. How is an asbestos survey performed? Baseline or initial surveys are often performed in general accordance with the guidelines specified in EPA AHERA regulations for schools. These steps are as follows:

(1) Inspector uses a printed copy of floor plans, when available, to become familiar with the layout of the facility and note the different areas (locations and floors).

(2) Typically the inspector begins in the lowest floor and proceeds to walk the building: room-by-room (or location-by-location) and floor-by-floor.

(3) The inspector often brings along the following: an asbestos bulk sampling kit; printed drawings; a spreadsheet (electronic or paper) to record information; a camera to photograph examples of each asbestos material; and a flashlight and ladder to assist access.

(4) Once in a given area, the inspector observes and notes various suspect or potential asbestos materials. Common suspect materials found in GSA facilities are: floor tile (9 inch); non-fiberglass pipe insulation; non-fiberglass insulation on boilers, air ducts, tanks; cement-like panels and siding; and asphaltic roofing patch and membranes.

(5) The inspector may touch or gently squeeze a suspect material to note its friability. All materials observed initially are not known to contain asbestos. They are only suspect until bulk samples are collected and laboratory analyzed. Suspect materials, however may be simply assumed (called presumed by OSHA) to contain asbestos and forgo bulk sampling.

(6) The inspector records then the location, condition, quantity, friability, description and accessibility of each suspect material. Conditions can be noted as:

Good	Undamaged
Fair	up to 10% damaged overall or 25% locally
Poor	over the 10% or 25% amounts indicated above

(7) Accessibility may include whether the material may be subject to physical contact, air erosion or water damage. But the minimum accessibility is typically the potential for future damage and noted as: low; medium; and high.

(8) The inspector will collect bulk samples for analyses in a number and location considered to be roughly representative of the material in the facility. Like materials of type, color and use are combined together for sampling purposes and assigned an arbitrary but unique homogeneous area identification. For example, a 9 inch yellow vinyl floor tile containing black specks and found in multiple rooms and halls in a facility might likely be considered the same suspect asbestos material and assigned a single homogeneous area (or material) number. Bulk samples will be collected for each

homogeneous area number. Some bulk sampling follows a 3,5,7 rule taught in the EPA inspector training class, indicating the number of representative samples based on the materials and quantity present. 9 bulk samples of a homogenous area is considered fully representative by EPA regardless the quantity of material present.

(9) Some materials cannot be sampled and some locations may not be accessible to the inspector. Materials that cannot undergo bulk sample for fear of destroying the integrity of the material (such as roofing felts) or defacing the property will be presumed (or assumed) as asbestos by the inspector. Likewise, locations that cannot be accessed (sealed walls or gaps) during the survey, will have to be noted by the inspector and any suspect materials there will need presumed as asbestos until sampling can determine whether asbestos exists.

(10) Locations of samples and asbestos will often be noted on any printed drawings by the inspector. The inspector may also choose to assign unique identifiers for each location or room on the drawings and in their listing of asbestos information. This will serve as a more permanent location identifier for future reference, since room numbers and office names may change frequently over the years. Once bulk sample laboratory analysis is complete, the inspector will update their survey inventory information accordingly (between what is and isn't asbestos), then compile all information into a final survey report.

Appendix E. Asbestos Periodic Surveillance

1. Introduction. This guide refers to periodic surveillance in the form of:
 - a. Annual O&M inspection of asbestos as required by GSA policy.
 - b. Air monitoring in facilities with sprayed-on asbestos fireproofing.
2. Definition of air monitoring. Air monitoring is ambient sampling of the general asbestos air quality in buildings with sprayed-on asbestos fireproofing. The number and location of samples collected should roughly approximate the general air in the facility, recognizing any existing staff or cost resource limitations. Samples are collected using high air flow and volume; typically 10 liters/minute and 3,000 liters in total.
3. Frequently asked questions.
 - a. How should air samples be collected and interpreted? Samples are collected on media for and analyzed by transmission electron microscopy. Results are interpreted using the clearance suggested by the Environmental Protection Agency (EPA) of 70 s/mm². Any air samples above this value, corrected for blanks, should result in the asbestos program manager either investigating the possible source or collecting a re-sample. Consistent levels above 70 s/mm², should result in action taken to reduce the levels based on potential contributors found from site investigation.
 - b. How often should air sampling be conducted? At least annually, but quarterly is recommended based on potential fluctuations due to seasonal changes.
 - c. What does annual O&M asbestos inspection consist of? An annual inspection should be considered a regular part of preventive maintenance as well as the asbestos O&M plan. The inspection should be performed as part of the regular PM duties performed by O&M personnel, but using trained individuals.

Prior to performing the inspection, the O&M person obtains a current printout of the asbestos inventory for the facility or area they are inspecting. The inventory can be exported from the IRIS asbestos module or taken from the facility asbestos management plan. The inventory can be in electronic or paper format.

The inspector then tours the building with the following recommended equipment on hand: flashlight; disposable rubber gloves; disposable paper shoe covers; and method of estimating lengths (tape measure or laser measure).

The inspector tours each area on each floor where asbestos is indicated on the inventory, noting any change in condition of the asbestos or obvious change in quantity or presence. The inspector makes corrections to changes noted directly on the electronic or paper printout of the inventory.

Upon completion of the inspection, the inspector inserts any inventory changes into the asbestos O&M plan listing, asbestos inventory or management plan. They must also forward the changes to the asbestos program manager for updating in the IRIS module.