



Asbestos and Lead Operations & Maintenance Program

**30 Trinity Street
Hartford, Connecticut**

Prepared for:

State of Connecticut
Department of Public Works

November, 1999
EnviroMed Project # IH-99-712

25 Science Park, New Haven, CT 06511
(203) 786-5580 • FAX (203) 786-5579

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INTRODUCTION

An Operations and Maintenance Program (O&M program) is an organized set of procedures and work practices designed to protect building operations personnel, tenants, outside vendors and other building occupants from the health hazards associated with exposures to airborne asbestos and lead.

The purpose of the O&M program is to provide worker training and specific work practices that result in minimal disturbance of building materials containing legally significant quantities of asbestos (greater than 1%) and lead during routine maintenance of the building as well as a standardized plan in the event of an emergency.

The program is also intended to facilitate the in-place management of asbestos-containing materials (ACM) and lead-containing materials (LCM) found in the interior of the building including clean up of material from damage that has previously occurred.

The O&M program must ensure that the facility is being operated in compliance with Federal, State and local regulations and guidelines pertaining to asbestos and lead. The asbestos work practices described in this document are applicable to projects qualifying as a Class III Repair Operation as defined by the Occupational Safety and Health Administration (OSHA) and an O&M Project as defined by the U.S. Environmental Protection Agency (Class III Repair Operations is defined as work involving less than 3 linear or 3 square feet of ACM). This document describes specific work practices for anticipated asbestos exposure or dust release based on the actual Class III asbestos work being performed.

The O&M work practices are not to be used for activities requiring abatement of ACM or LCM nor are they to be used for scheduled, repetitive activities. The program is intended to be used by the building Program Manager (PM) and trained workers.

All O&M related programs and activities should be reviewed periodically and revised if necessary. There may be certain situations where asbestos and lead-containing materials may be simultaneously impacted which may trigger additional requirements (i.e. waste labeling and disposal). Regulatory and guidance documents should also be reviewed periodically to ensure that they are current.

PART 1 - GENERAL

1.1 History and Health Effects

Asbestos

Asbestos is a naturally-occurring fibrous mineral that has been used in a wide variety of building products. Asbestos has been used to enhance the insulative quality, chemical reactivity, strength, and fire resistance of a wide variety of building materials including insulation, textiles, roofing, vinyl products, and cementitious products.

The health risks reported to be associated with asbestos exposure became apparent when workers in the construction and ship building industries exhibited higher frequencies of asbestos-related diseases. These diseases are reported to have been caused by inhaling high concentrations of airborne asbestos fibers. The diseases have long latency periods, meaning that the symptoms do not become apparent for some 20 to 40 years after excessive exposure. When the risks became widely recognized, regulations were enacted to control workers exposure to asbestos.

Lead

Lead is a naturally occurring element which has been used in a wide variety of products. Lead has been used for its versatility and favorable physical and chemical properties. Much of its usefulness is due to its plasticity and softness. Lead can be rolled into sheets which can be made into pipes and rods. It can be molded and mixed with other metallic elements. Lead was used in building construction, especially roofing, cornices, electrical conduits and pipes. Lead compounds such as lead chromate were widely used as pigments in paint. Lead was also commonly present in varnishes and primers.

The health risks associated with lead are mainly due to occupational exposure. Exposure to lead is most commonly from inhalation and ingestion of lead dust generated from deteriorated or disturbed lead based paint. High exposure to lead can damage the central nervous system, blood forming systems and kidneys. Regulations have been enacted to control workers exposure to lead.

The paragraph above describes the health effects of lead exposure in general, however it should be noted that those not involved in construction type activities and are simply building occupants working adjacent to lead-containing building materials not being disturbed are highly unlikely to be exposed to construction lead exposure levels.

1.2 Regulatory Requirements

The Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) have established regulations governing asbestos-containing materials.

OSHA's General Industry Standard (29 CFR Part 1910.1001) and Construction Industry Standard for Occupational Exposure to Asbestos (29 CFR Part 1926.1101) are applicable to Asbestos O&M. Both standards require building owners to identify asbestos-containing materials in their facility. The standards require building owners to treat as asbestos any thermal system insulation, surfacing, and flooring materials installed no later than 1980, unless analytical testing proves otherwise.

The EPA has several regulations and guidance documents pertaining to asbestos. The National Emission Standards for Hazardous Air Pollutants or Asbestos NESHAP, (40 CFR Part 61) requires building owners to inspect their facilities for asbestos prior to beginning any demolition or renovation activities. The EPA's "Asbestos-Containing Materials in Schools," (a.k.a. AHERA Regulation or 40 CFR Part 763) has detailed requirements for inspections and worker qualifications specifically referenced in the OSHA regulations.

The EPA also published a guidance document called "Managing Asbestos in Place--A Building Owners Guide to Operations and Maintenance Programs for Asbestos-Containing Materials. It is commonly referred to as the "EPA Green Book" and has been instrumental in the development of this program.

The Department of Public Health regulates asbestos activities in Connecticut. General Statute Section 19a-332 establishes standards for asbestos abatement, and procedures for State inspection and enforcement action. Section 20-435 establishes requirements for licensing for contractors and consultants.

OSHA's General Industry Standard (29 CFR Part 1910.1025) and Construction Industry Standard for Occupational Exposure to lead (29 CFR 1926.62) are applicable to Lead O&M. If lead is present in the workplace the building owner or employer is required to make an initial determination of whether any workers exposure to lead exceeds the action level (30 Mg/m³) The initial determination requires employers to monitor workers' exposures unless he or she has objective data which can demonstrate conclusively that no employee will be exposed to lead in excess of the action level. Workers involved in activities which disturb lead-based paint (LBP) or lead-containing materials (LCM) shall have a minimum 4-hour lead awareness training dated within one year to meet the OSHA requirements.

1.3 Glossary

Abatement: A general term used to refer to the various processes used to control asbestos and lead containing materials in buildings. Three alternative methods for abatement are removal, encapsulation and enclosure.

Action Level: Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) calculated as an eight hour time weighted average.

Aggressive Sampling: EPA defined clearance sampling method using air moving equipment such as fans and leaf blowers to stir the air.

AHERA: Asbestos Hazard Emergency Response Act. Asbestos regulations issued by EPA in 1987.

Aircell: Type of pipe or duct insulation comprised of corrugated cardboard which frequently contains asbestos combined with cellulose or refractory binders.

Amended Water: Water to which a surfactant has been added.

Asbestos: The general name for a group of fibrous mineral form including but not limited to chrysotile, amosite, crocidolite, anthophyllite, actinolite and tremolite.

Asbestos Air Monitoring: The process of collecting and analyzing air samples to determine the number of fibers present per cubic centimeter of air. This overall monitoring procedure is also called Air Testing, or Testing.

Asbestos Contaminated Elements (ACE): Building elements such as ceilings, walls, lights and ductwork that are contaminated by asbestos.

Asbestos-Containing Material (ACM): Any material containing more than 1% (one percent) by weight of asbestos of any type or mixture.

Asbestos-Containing Waste Material: Materials removed from an abatement area which is or is suspected of being contaminated with an asbestos-containing material.

Asbestos Waste Decontamination Facility: Airlock system consisting of drum/bag washing facilities and temporary storage area for cleaned containers. Used as exit for waste and equipment leaving the abatement area. May be used in an emergency to evacuate personnel.

Atomic Absorption Spectrophotometer (AA): An instrument which measures the lead content in parts per million (ppm) using a lead source lamp, a flame capable of measuring the absorbed energy and converting it to concentration.

Authorized Hazardous Lead Waste Disposal Facility: A location approved by the Connecticut Department of Environmental Protection and the EPA for handling and disposing of hazardous lead waste or by an equivalent regulatory agency and the EPA if the material is disposed of outside the State of Connecticut.

Barrier: Any surface that seals the work area to inhibit the movement of fibers. Containment Barrier - An airtight barrier, consisting of walls, floors and/or ceilings of sealed plastic sheeting, surrounding and sealing the outer perimeter of the work area. Critical Barrier - The barrier responsible for isolation of the work area from adjacent spaces, typically constructed of polyethylene sheeting secured in place at penetrations such as doors, windows or any other opening into the work area. Primary Barrier - Barriers assembled over critical barrier and exposed directly to decontamination work. Secondary Barrier - Any additional sheeting to collect and provide protection from debris during abatement.

Biological Monitoring: The analysis of a person's blood to determine the level of lead contamination in the body.

Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

Bridging Encapsulant: An encapsulant that forms a discrete layer on the surface of an asbestos matrix.

Bulk Test: The collection and analysis of samples of suspected asbestos materials. A small amount, or bulk, of the material is physically removed from the structure and placed in a rigid airtight container for transportation to an accredited lab for analysis.

Changing Area: Normally the first chamber of the personnel decontamination facilities, i.e., the "clean room".

Class I Asbestos Work: Means activities involving the removal of Thermal System Insulation (TSI) and surfacing ACM.

Class II Asbestos Work: Means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles and construction mastic.

Class III Asbestos Work: Means repairs and maintenance operation, where "ACM", including TSI and surfacing ACM, is likely to be disturbed.

Class IV Asbestos Work: Means maintenance and custodial activities during which employees contact but do not disturb ACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

Clearance Sample: An area sample taken to a certain airborne fiber levels after removal clean-up and final inspection have been completed.

Competent Person: An individual who is capable of identifying existing asbestos and lead hazards in the work place and has the authority to take prompt corrective measure to eliminate them.

Count: Refers to "Fiber Count," or the average number of asbestos fibers greater than five micrometers in length per cubic centimeter of air with a length to width aspect ratio of 3:1

Critical Barrier: A minimum of one layer of six (6) mil polyethylene sheeting taped securely over windows, doorways, diffusers, grilles and any other openings between the work area and the adjacent areas not within the work area.

Decontamination Unit: See Worker's decontamination facility.

Demolition: The removal of any building component, system, finish or assembly of a facility. Wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility. Standards for demolition involving ACM are as defined in NESHAP 40 CFR 61.145.

Disposal Bag: Six mil thick, air-liquid leak proof plastic bag used for transporting asbestos waste from abatement areas to disposal site. Each is labeled in accordance with OSHA regulations.

DPH: Department of Public Health, 410 Capitol Avenue, Hartford, Connecticut 06106.

Drum: A rigid, impermeable container made of cardboard, metal or plastic which can be sealed in an air and watertight manner.

EDF: Equipment Decontamination Facilities.

Encapsulant (asbestos): A material that surrounds or embeds asbestos fibers in an adhesive matrix and prevents release of fibers.

Enclosure: The construction of an air-tight, impermeable, permanent barrier around ACM or LCM to control the release of asbestos fibers or lead into the air.

EP Toxicity: A test, called the extraction procedure, that is designed to identify wastes likely to leach hazardous concentrations of particular Toxic constituents into the ground water as a result of improper management. It is a characteristic of hazardous waste. See TCLP.

Excursion Limit: 1 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of (30) minutes.

f/cc: Abbreviation for fibers per cubic centimeter of air and standard measurement units used to measure the level of asbestos contamination in the air.

Filter: A media component used in respirators or other equipment to remove solid or liquid particles from the air.

Fire-stop: Material used to close open parts of a structure and prevent the spread of fire.

Friable Asbestos Containing Material (FACM): Material that contain more than 1.0% asbestos by weight, which can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

Glove-bag: A sack (typically constructed of 6 mil transparent polyethylene or polyvinyl chloride plastic) with two inward projecting long sleeve gloves, which are designed to enclose an object from which an ACM is to be removed.

Hazardous Waste: As defined in the Resource Conservation and Recovery Act (RCRA) the term "hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

A. cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness, or

B. pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

As defined in the regulations, a solid waste is hazardous if it meets one of four conditions:

1. Exhibits a characteristic of a hazardous waste (40 CFR Sections 261.20 through 262.24),
2. Has been listed as hazardous (40 CFR Section 261.31 through 261.33),
3. Is a mixture containing a listed hazardous waste and a non-hazardous solid waste (unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste), or
4. Is not excluded from regulation as a hazardous waste.

High-Efficiency Particulate Air (HEPA) Filter: A filter which removes from the air 99.97% or more of monodisperse dioctyl phthalate (DOP) particles having a mean diameter of 0.3 micrometer.

HEPA Filter Vacuum Cleaner: High efficiency particulate (absolute) vacuum collection equipment with a HEPA filter system capable of collecting and retaining asbestos fibers.

Lead: Metallic lead, inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

Lead Based Paint: Paint found to contain any detectable level of lead.

Lead Containing Material (LCM): Any material containing a detectable level of lead.

Lead Control Area: An area where lead abatement operations are performed where airborne concentrations of lead dust exceed or can reasonably be expected to exceed the permissible exposure limit. The lead control area is isolated by physical boundaries from occupied areas to prevent the spread of lead dust, paint chips, debris, and unauthorized entry of personnel.

Encapsulation (asbestos): Treatment of ACM with an encapsulant.

Encapsulation (lead): The resurfacing or covering of surfaces, and sealing or caulking with durable materials so as to prevent or control chalking, flaking, lead-containing substances from being part of building dust or accessible to children. Painting or wallpapering is not considered encapsulation.

Lock-down: Encapsulation of all surfaces involved in abatement at the conclusion of ACM removal and before removal of primary barriers.

Manifest: The shipping document, EPA Form 8700-22, used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transportation from the point of generation to the point of treatment, storage, or disposal.

Manual Demolition: Removal of walls (plaster or gypsum) or building components coated with lead paint by sledge hammer or similar tool.

Microgram: One millionth of a gram: 453 grams in one pound, 28,310,000 micrograms in one ounce.

Negative Pressure: Air pressure lower than surrounding areas, created by exhausting air from a sealed space (work area).

Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

Negative Pressure System: A local exhaust system, utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outdoors.

NESHAP: National Emission Standards for Hazardous Air Pollutants.

Non-Friable Asbestos-Containing Material (NF-ACM): Material that contains more than 1% (one percent) asbestos by weight but cannot be crumbled, pulverized, or reduced to powder by hand pressure when dry. Non-friable asbestos materials can release asbestos fibers when power tools such as grinders, drills, sanders, etc. are used on them.

PAPR: Powered Air-Purifying Respirator.

PCM: Abbreviation for Phase Contrast Microscopy. Phase contrast microscopy utilizes a light microscope for the purpose of counting fibers. Reference NIOSH 7400 Method.

PEL: Permissible Exposure Limit (asbestos): 0.1 fibers per cubic centimeter of air as an eight (8) hour time-weighted average (TWA).

PEL: Permissible Exposure Limit (lead): Fifty (50) micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) of air averaged over an 8 hour period as determined by 29 CFR 1926.62.

Penetrating Encapsulant: Encapsulant that is absorbed by the asbestos matrix without leaving a discrete surface layer.

Personal Air Sampling: Air sample collected with a special battery-powered portable pump unit which is fitted on the body of the monitored person. The collection device (filter cassette) is located within the individual's breathing zone.

Personal Samples: Sampling of concentrations within the breathing zone of a worker to determine the 8-hour time weighted average concentration. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and the center at the nose or mouth of an employee.

Personal Monitoring: Sampling of the asbestos fiber or lead dust concentrations within the breathing zone of a person.

PLM: Abbreviation for polarized light microscopy with dispersion staining utilizing light microscopy and refractive indices to identify type of asbestos present.

Polyethylene Sheeting: Strong plastic barrier material usually transparent and made flame-resistant in compliance with NFPA 241.

Positive/Negative Pressure Fit Test: A negative-pressure respirator fit check, performed by placing the palm of one hand over the exhalation valve and exhaling (positive pressure) and feeling for face piece-to-face fit leakage or, covering the filters cartridges with the palms of the hand and inhaling (negative pressure) while feeling for face piece-to-face fit leakage.

Pressure Differential System: System which restricts airflow from adjacent areas into work area and continuously refilters air from the HEPA filtration machine. Minimal exhaust ventilation is utilized by maintaining a pressure differential of 0.02" of water.

Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator.

QNFT: Quantitative fit test.

RCRA: Resource Conservation and Recovery Act of 1976. What is commonly referred to as RCRA is an amendment to the Solid Waste Disposal Act of 1965. RCRA was amended in 1980, and most recently, on November 8, 1984 by the hazardous and solid waste amendments.

Removal Encapsulant: A penetrating encapsulant specifically designed for removal of ACM rather than encapsulation.

Renovation: Alteration of a facility or one or more facility components in any way. Standards for renovation involving ACM are as defined in NESHAP 40 CFR 61.145.

Replacement: A strategy of abatement that entails removing components that contain asbestos or lead and installing new components free of asbestos or lead.

Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.

Sealant: Another name for encapsulating material. This term also refers to the approved coating which is used to cover brown-coat ceilings after asbestos surfaces have been removed.

Sealed Work Area: Refers to the work area after containment barriers and decontamination facilities have been erected and a negative pressure air system installed.

Showers: Shower stalls installed in the Personnel Decontamination Facilities and used as part of the decontamination process required for every person leaving the sealed work areas. Also used in the Equipment Decontamination Facilities to wash disposal bags.

S.O.P.: Standard Operating Procedures required to be submitted by contractor.

Station Sample or Area Sample: Refers to air samples collected at a specific spot, or station, with high-volume air pumps.

Solid Waste: As defined in RCRA the term "solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under the Clean Water Act, or special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Stripping: Removal of lead based paint from a substrate.

Substrate: The surface upon which paint or varnish has been or may be applied. Examples of substrate include wood, plaster, or metal, including items such as door frame, window trim, walls, baseboards, etc.

Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

TEM: Abbreviation for transmission electron microscopy. TEM is used for the purpose of fiber counting and has the analytical capacity of identifying asbestos fibers.

TCLP: Toxicity characteristic leaching procedure utilizing EPA Test method SW-846, Method 1311.

Treatment: Any method, technique, or process designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to render it non-hazardous, or to recover it, make it safer to transport, store or dispose of, or amenable for recovery, storage, or volume reduction.

TSP: Acronym for trisodium phosphate.

u: Microgram: The prefix "micro-" means "1/1,000,000 of (a microgram is 1/1,000,000 of a gram or 1/1000 of a milligram).

VAT: Vinyl asbestos floor tile.

Visible Emissions: Any emission containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

Wet Cleaning: The process of thoroughly eliminating asbestos and lead contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with amended water or diluted removal encapsulant.

Worker Decontamination Facility (WDF): Another name for the main entrance/exit airlock system consisting of clean/change room, shower facilities, and equipment room (dirty room). Intended to be used exclusively for worker access to/from abatement area.

X-ray fluorescence (XRF) analyzer: An analytical instrument which measures lead concentration of dried paint on surfaces or in a laboratory sample in milligrams per square centimeter (mg/cm^2) using a radioactive source within the instrument. There are two types of XRF-analyzers commonly available, direct read and spectrum analyzer.

1.4 Selection, Training and Duties of Program Manager

The Connecticut Department of Public Works (CTDPW) shall designate an individual to perform the duties of the Program Manager (PM). The PM shall review work practices with the workers who will perform the work. Workers should be notified to consult with the PM if they have any questions during the work, if any problems occur, or if it appears to the workers that additional precautions might be necessary to safely perform the work. Additional responsibilities also include:

- Notifying employees, tenants, contractors, and vendors of the presence of ACM and LCM, and of the availability of the O&M program.
- Monitor the condition of ACM and LCM within the facility, and respond accordingly whenever hazards or potential hazards are detected.
- Control all work activities that may involve or be in close proximity to ACM and LCM.
- Implement appropriate work practices whenever disturbance of ACM and LCM is necessary.
- Require all asbestos and lead workers to be supervised, trained, medically fit, and to use all appropriate personal and respiratory protection.
- Maintain records of work orders, surveys, inspections, notifications, abatement activities, emergency work, training and waste disposal records.
- Schedule additional asbestos and lead surveys, pre-renovation inspections and periodic surveillance.

Minimum asbestos training for the PM must be equivalent to the 40-hour asbestos contractor/supervisor class certified by the Environmental Protection Agency's Model Accreditation Plan (MAP). The PM shall be sufficiently trained to ensure worker health and safety, inspect work, materials and equipment and be able to identify existing asbestos hazards in the workplace, the ability to select the appropriate control strategy for asbestos exposure and who has the authority to correct these hazards. In addition it is highly recommended that the PM have additional training in the form of EPA's 24-hour Asbestos Inspector class and the 16-hour Management Planner class. These classes will allow the PM to recognize suspect building materials, assess the condition of the building material and develop response actions/recommendations for each suspect material (i.e. removal, repair, enclosure, encapsulation and O&M).

Minimum lead training for the Program Manager shall be 4 hours of awareness training dated within one year to meet OSHA requirements.

****In addition, it shall be the responsibility of the Program Manager to determine whether or not asbestos and lead-containing materials will be simultaneously impacted. If so the Program Manager may be required to combine specific procedures provided in this document or use suitable alternate work practices. In either case the most stringent procedures, disposal requirements, rules and regulations shall apply.****

Program Manager General Procedures

PM 1

Work Scheduling

Work should be scheduled for a time when the work area will not be in use and can be closed off to anyone other than trained workers, or other authorized personnel. If an area is always occupied, plans should be made to isolate the work area from building occupants using visual and/or physical barriers. Because respirators are being used it might be desirable to vacate the area to avoid concerns resulting from a worker in a respirator working within sight of unprotected workers/occupants.

Scheduling of work might be affected by notification requirements. All notification requirements should be met before work is scheduled. Under certain circumstances, some emergency work can be performed prior to the filing of a notification. Review regulations and contact federal, state and local regulatory agencies concerning notification requirements for emergency work.

PM 2

Recordkeeping

EPA recommends that the following records of O&M work be retained in permanent files:

- Inspection and Assessment Reports
- A copy of the O&M Program (initial program and all updated versions)
- The Work Practices Used
- Respiratory Protection Program (provided by contractor performing O&M related repair work/abatement)
- Fiber Release Reports
- Job Request Forms
- Maintenance Work Authorization Forms
- Evaluations of Work Affecting ACM
- Reinspection/Periodic Surveillance Reports

For employers with employees engaged in asbestos and lead-related work, federal regulations require that the employer retain:

- Personal Air Sampling/Exposure Monitoring Records
- Historical Data (used to qualify for exemptions from OSHA's initial monitoring requirements)
- Medical Records (for employees subject to a medical surveillance program)
- Employee Training Records
- Fit Test Records (for employees that use respirators)

This O&M plan also recommends that records be maintained for:

- Waste Tracking and Disposal
- Air Monitoring Data - if any
- Qualifications and Performance Records for Outside Contractors performing O&M work

1.5 Notification of Building Occupants

Occupants of the building will be made aware of the existence of the Asbestos and Lead O&M program and, will be provided access to this document upon request for viewing purposes only. To avoid confusion (updating, etc.), no additional copies of the O&M program will be produced. Occupants will, in addition, be made aware that ACM and LCM may be present in their workplace, and will be cautioned that ACM and LCM is not to be damaged or disturbed except under controlled conditions by trained personnel. Occupants may review asbestos and lead related building survey records by contacting the Program Manager and/or Property Manager.

Prior to the start of an asbestos or lead abatement project, additional information will be provided to building occupants that will explain the work that is to be performed, and the measures that are being employed to protect them. This information will be made available either at group meetings, or by letter, or a combination of the above. Information sessions would reinforce and clarify written notices and provide opportunity to answer questions. All employees should be included in the notification program on a continuing basis. An annual informational seminar which discusses the status of ACM and LCM in the building and informs occupants of the responsible parties may be appropriate.

Whatever its form, the information given to building occupants and workers should contain the following points:

- Asbestos and lead are potential health hazards.
- Material containing lead or asbestos has been found in the building.
- The locations of ACM and LCM.
- Avoid disturbing the ACM and LCM (e.g. do not hang plants or pictures on the ACM and LCM, do not push furniture against the ACM and LCM, do not remove ceiling tiles).
- Report any evidence of disturbance or damage.
- Cleaning and maintenance personnel are taking special precautions during their work to properly clean up asbestos and lead debris and to guard against disturbing the ACM or LCM.
- All ACM and LCM is inspected periodically and additional measures will be taken when needed to protect the health of the building occupants.
- Report any dust or debris from ACM and LCM, any change in the condition of the ACM and LCM or any improper action of building personnel to the Program Manager and/or Property Manager.
- The O&M plan is available for public inspection.

Any questions or concerns should always be directed to the Program Manager.

1.6 Contractor Awareness

Contractors employed by the State of Connecticut for 30 Trinity Street **must** first make contact with Program Manager prior to the start of any work in the building. The contractor shall then be informed by the Program Manager of the location of ACM or LCM in the area to which they are assigned. **Contractors shall, under no circumstances, damage or disturb ACM or LCM** unless they are a licensed asbestos or lead abatement contractor and have been specifically employed by the State to perform asbestos or lead removal.

Contractors will be provided, if applicable, with copies of the Job Request Forms for Maintenance Work and Maintenance Work Authorization Forms from the Program Manager or a comprehensive asbestos and/or lead inspection report specific to their work area and the materials that are to be disturbed.

The Property Manager will caution contractors that they shall not proceed with any change in work scope without first contacting the Program Manager for guidance and additional information.

It will be the responsibility of the contractor to provide to their employees their own asbestos and lead awareness program.

1.7 Current Building Operations and Maintenance Activities Performed

Based on interviews with the Property Manager and the thorough review of work orders from the past, the following is a list of typical repair and maintenance activities which may impact ACM and/or LCM and the worker procedure method that should be used (The detailed procedure can be found in Sections 2.3, page 31 and 3.3, page 74):

Clean-up of debris from damaged material/accidental disturbance

Installation/Removal/Moving of electrical outlets, computer cable, telephone lines, etc.

Scraping, Patching and Painting of walls and ceilings

Caulking, Scraping and Painting of windows

Repair of walls, ceilings and floors

Installation/Removal of blackboards, bulletin boards and pictures

Construction of office walls, shelves and closets to existing walls

Installation of ceiling fans, duct work and radiators

Removal/Replacement of suspended ceiling tiles

Removal/Replacement of fixed ceiling tiles and glue dots

Removal/Replacement of floor tiles and cove molding

Repair of leaking pipes and fittings

Removal of carpet

Emergency Procedures

Although this manual provides step-by-step procedures to be utilized by the Program Manager and trained workers, flexibility and adaptation to a given situation is critical to the success of this program. The ultimate choice of methods to be used should be left with the Program Manager in conjunction with the workers who have first-hand knowledge of the ACM and/or LCM, building conditions and other pertinent needs.

PART 2 - ASBESTOS OPERATIONS & MAINTENANCE PROGRAM

2.1 Asbestos Inventory

Below is a list of rooms and all associated asbestos-containing materials (ACM) found inside 30 Trinity Street. This list has been developed from previous asbestos inspections performed since 1997 as well as specific materials which were collected during the site survey in preparation for the O&M program. A copy of past inspection reports may be obtained from the Program Manager.

If at any time there is uncertainty as to the asbestos-content of a building material to be impacted by an O&M activity, stop immediately and contact the Program Manager.

Complete List of Asbestos-containing Materials:

- *9" Black Vinyl Floor Tile
- *9" Tan Vinyl Floor Tile
- *9" Lt. Gray Vinyl Floor Tile
- *9" Gray Vinyl Floor Tile
- *9" Drk. Gray Vinyl Floor Tile
- *Mastic below 9" Drk. Gray Vinyl Floor Tile
- *Joint Compound
- *Tansite Panel
- *Black Glue Daub
 - Air Cell Pipe Insulation
- *Paper Wrap Pipe Insulation
- *Mudded Pipe Joint Insulation
- *Gray Flashing Cement
- *Black Flashing Cement
 - Window Glazing
 - Window Frame Caulk

* -Sample collected during previous inspection

ACM shall be broken down on a room by room basis.

Asbestos-containing Materials - ACM (Based upon bulk sampling and PLM laboratory analysis):

| Basement | | |
|---------------------------------|--|---|
| <i>Room</i> | <i>material</i> | <i>Condition</i> |
| Main Hall | 9" dark. gray vinyl floor tile and mastic | Abated - 3/00 |
| | 9" gray vinyl floor tile | Abated - 3/00 |
| File Storage | 9" black vinyl floor tile and mastic | significant damage |
| Foyer | 9" black vinyl floor tile and mastic | significant damage |
| Stairwell 1 | 9" black vinyl floor tile and mastic | significant damage |
| Elevator Machine Rm. | transite panel – (on switch gear panel) | no damage |
| Ladies Lounge | 9" black vinyl floor tile and mastic | significant damage |
| Ladies Lavatory | 9" black vinyl floor tile and mastic | significant damage |
| | 9" light gray vinyl floor tile | significant damage |
| Secretary of State Stock Rm. #2 | 9" dark. gray vinyl floor tile and mastic | significant damage |
| | 9" gray vinyl floor tile | significant damage |
| Secretary of State Stock Rm. #3 | 9" dark. gray vinyl floor tile and mastic | significant damage |
| | 9" gray vinyl floor tile | significant damage |
| A/C & Fan Rm. | air cell pipe insulation – (in wall between A/C fan Rm. and chiller Rm.) | ends exposed and ragged. Should be removed or repaired. |

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| First Floor | | |
|----------------------|---|------------------|
| <i>Room</i> | <i>material</i> | <i>Condition</i> |
| Business Office | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Office 1 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Office 2 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Office3 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Office 4 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Stock Rm. | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| | air cell pipe insulation – (above suspended ceiling tile) | no damage |
| | pipe joint insulation – (above suspended ceiling tile) | no damage |
| Foyer 2 | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Mechanical Rm. | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Hallway 1 | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Hallway 2 | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Hallway 3 | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Lobby | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Conference Rm. 1 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Computer Rm. | 9" dark gray vinyl floor tile and mastic – (below a raised panel floor) | no damage |
| Commercial Recording | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Closet | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Vault | 9" dark gray vinyl floor tile and mastic | minor damage |

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| Second Floor | | |
|---------------------------|--|------------------|
| <i>Room</i> | <i>material</i> | <i>condition</i> |
| Lobby | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Hall to Men's Rm. | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Men's Rm. | air cell pipe insulation – (accessed through the hatch in the plaster ceiling) | no damage |
| Rm. 200-Election Services | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 200-File Rm. | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 200-Office 1 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 200-Office 2 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 200-Office 3 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 200-Stock Rm. | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Rm. 200-Office 4 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 200-Office 5 | 9" black vinyl floor tile – (below carpet) | no damage |
| Rm. 200-Office 6 | 9" black vinyl floor tile – (below carpet) | no damage |
| Rm. 200-Office 7 | 9" black vinyl floor tile – (below carpet) | no damage |
| Rm. 200-Office 8 | 9" black vinyl floor tile – (below carpet) | no damage |
| Rm. 200-Office 9 | 9" black vinyl floor tile – (below carpet) | no damage |
| Rm. 200-Office 10 | 9" black vinyl floor tile – (below 12" vinyl floor tile) | no damage |
| Rm. 210-Executive Offices | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 210-Office 1 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 210-Closet | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Rm. 210-Office 2 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 210-Office 3 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 210-Office 4 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 210-Office 5 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 210-Office 6 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 220 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 220A | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 230 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 240-Foyer | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |

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| Second Floor | | |
|---------------------|---|------------------|
| <i>Room</i> | <i>material</i> | <i>condition</i> |
| Rm. 240 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 240-Stock Rm. | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Rm. 250 | 9" black vinyl floor tile – (below carpet) | no damage |
| Rm. 250-Stock Rm. | 9" black vinyl floor tile – (below 12" vinyl floor tile) | no damage |
| Rm. 250-Office 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Rm. 250-Office 2 | 9" black vinyl floor tile – (below carpet) | no damage |
| Rm. 260 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Mechanical Rm. | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Elevator Rm. | 9" dark gray vinyl floor tile and mastic – (remnants of tile remain) | moderate damage |
| Kitchen | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Custodial Closet | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Hall 1 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Hall 2 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Hall 3 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |

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| Third Floor | | |
|--------------------------------------|---|--|
| <i>Room</i> | <i>material</i> | <i>condition</i> |
| Hall 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Records Storage | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Rm. 310 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 310A | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 310B | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 310C | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Rm. 310 Closet | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Telecom 1 | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Financial Unit & Cashier | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Human Resources/Payroll | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Fiscal/Purchasing Services | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |
| Custodial Closet | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Mechanical Rm. | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Elevator Rm. | 9" dark gray vinyl floor tile and mastic – (remnants of tile remain) | mastic exposed – significant damage to tiles that remain |
| Lounge | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Mail Rm./Shipping & Receiving-Part 1 | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Mail Rm./Shipping & Receiving-Part 2 | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Mail Rm./Shipping & Receiving-Part 3 | 9" dark gray vinyl floor tile and mastic – (below 12" vinyl floor tile) | no damage |
| Mail Rm./Shipping & Receiving-Part 4 | 9" dark gray vinyl floor tile and mastic – (below carpet) | no damage |

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| Fourth Floor | | |
|---------------------------------------|--|------------------|
| <i>Room</i> | <i>material</i> | <i>condition</i> |
| Lobby | 9" black vinyl floor tile – (below carpet) | no damage |
| Hall 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Secretary 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Chief Public Defender's Office | 9" black vinyl floor tile – (below carpet) | no damage |
| Conference Rm. 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Legal Council 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Chief Investigator | 9" black vinyl floor tile – (below carpet) | no damage |
| Chief Social Worker | 9" black vinyl floor tile – (below carpet) | no damage |
| Administrative Assistant | 9" black vinyl floor tile – (below carpet) | no damage |
| Director of Training | 9" black vinyl floor tile – (below carpet) | no damage |
| File Space 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Hall 2 | 9" black vinyl floor tile – (below carpet) | no damage |
| Purchasing 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Hall 3 | 9" black vinyl floor tile – (below carpet) | no damage |
| Social Worker 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Manager of Administrative Services | 9" black vinyl floor tile – (below carpet) | no damage |
| Senior Assistant Public Defender | 9" black vinyl floor tile – (below carpet) | no damage |
| Capital Defense & Trial Services Unit | 9" black vinyl floor tile – (below carpet) | no damage |
| Legal Council 2 | 9" black vinyl floor tile – (below carpet) | no damage |
| Investigator 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Investigator 2 | 9" black vinyl floor tile – (below carpet) | no damage |
| Investigator 3 | 9" black vinyl floor tile – (below carpet) | no damage |
| Senior Assistant Public Defender 2 | 9" black vinyl floor tile – (below carpet) | no damage |
| Assistant Public Defender 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Class Rm. 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Chief of Habeas Corpus Services | 9" black vinyl floor tile – (below carpet) | no damage |
| Habeas Corpus Unit | 9" black vinyl floor tile – (below carpet) | no damage |
| Assistant Public Defender | 9" black vinyl floor tile – (below carpet) | no damage |
| Paralegal 1 | 9" black vinyl floor tile – (below carpet) | no damage |
| Deputy Assistant Public Defender | 9" black vinyl floor tile – (below carpet) | no damage |
| Legal Council 3 | 9" black vinyl floor tile – (below carpet) | no damage |
| Video Conference Rm. | 9" black vinyl floor tile – (below carpet) | no damage |
| Manager of Information Services | 9" black vinyl floor tile – (below carpet) | no damage |
| Information Services | 9" black vinyl floor tile – (below carpet) | no damage |
| Hall 6 | 9" black vinyl floor tile – (below carpet) | no damage |
| Investigator 4 | 9" black vinyl floor tile – (below carpet) | no damage |
| File Space 2 | 9" black vinyl floor tile – (below carpet) | no damage |
| Personnel Office | 9" black vinyl floor tile – (below carpet) | no damage |

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| Fourth Floor | | |
|---------------------------------|--|------------------|
| <i>Room</i> | <i>material</i> | <i>condition</i> |
| Personnel Director | 9" black vinyl floor tile – (below carpet) | no damage |
| Pay Roll | 9" black vinyl floor tile – (below carpet) | no damage |
| Systems Department | 9" black vinyl floor tile – (below carpet) | no damage |
| Systems Manager | 9" black vinyl floor tile – (below carpet) | no damage |
| Systems Office | 9" black vinyl floor tile – (below carpet) | no damage |
| Library | 9" black vinyl floor tile – (below carpet) | no damage |
| Public Defender Training | 9" black vinyl floor tile – (below carpet) | no damage |
| Accounts Payable | 9" black vinyl floor tile – (below carpet) | no damage |
| Financial | 9" black vinyl floor tile – (below carpet) | no damage |
| Financial Director | 9" black vinyl floor tile – (below carpet) | no damage |
| Deputy Chief Public Defender | 9" black vinyl floor tile – (below carpet) | no damage |
| Secretary 2 | 9" black vinyl floor tile – (below carpet) | no damage |

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| Throughout Building | | |
|----------------------------|--------------------|------------------|
| <i>Room</i> | <i>material</i> | <i>condition</i> |
| Interior & Exterior | window glazing | Minor Damage |
| Exterior | window frame caulk | No Damage |

Suspect Asbestos Containing Materials - Following materials may be asbestos containing but could not be sampled due to the irreparable damage it would cause to the building or the safety hazard it would create for the inspector and/or building occupants. Should any disturbance be required, appropriate sampling must be conducted prior to said disturbance.

| <u>Materials</u> | <u>Location</u> |
|--|------------------------------------|
| glue below marble floor tile | Front Stairwell |
| glue below 1-1/2" ceramic floor tile | Bathrooms |
| glue behind marble wall panels | Front Stairwell |
| decorative ceiling plaster - (finish coat) | Deputy Secretary of State's Office |
| decorative ceiling plaster - (base coat) | Deputy Secretary of State's Office |
| fire door insulation | Throughout Building |
| cloth wire insulation | Throughout Building |

Non Asbestos-containing Materials - (Material found to contain legally insignificant amounts (0-1%) of asbestos based on bulk sampling and PLM laboratory analysis.):

| Thermal Systems Insulation | |
|-------------------------------------|--------------|
| <i>Materials</i> | <i>Floor</i> |
| White Cloth Flexible Duct Connector | Basement |

| Surfacing Materials | |
|-----------------------------|--------------|
| <i>Material</i> | <i>Floor</i> |
| spray-on fire proofing | Basement |
| | First Floor |
| | Second Floor |
| | Third Floor |
| | Fourth Floor |
| ceiling plaster (skim coat) | Basement |
| | First Floor |
| | Second Floor |
| | Third Floor |
| | Fourth Floor |
| ceiling plaster (base coat) | Basement |
| | First Floor |
| | Second Floor |
| | Third Floor |
| | Fourth Floor |
| wall plaster (skim coat) | Basement |
| | First Floor |
| | Second Floor |
| | Third Floor |
| | Fourth Floor |
| wall plaster (base coat) | Basement |
| | First Floor |
| | Second Floor |
| | Third Floor |
| | Fourth Floor |
| joint compound – (wall) | Basement |
| | First Floor |
| | Second Floor |
| | Third Floor |
| | Fourth Floor |
| joint compound – (ceiling) | Basement |
| | First Floor |
| | Second Floor |
| | Third Floor |
| | Fourth Floor |

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| Miscellaneous Materials | |
|---|--------------|
| <i>Material</i> | <i>Floor</i> |
| glue below multi colored carpet | Fourth floor |
| mastic below 9" black vinyl floor tile | Basement |
| | Second Floor |
| | Third Floor |
| | Fourth Floor |
| 12" tan w/ green & red vinyl floor tile and underlying mastic | Third Floor |
| | Fourth Floor |
| 4" gray/brown cove molding and underlying glue 2' gray rubber tile and underlying mastic | Fourth Floor |
| | First Floor |
| | Second Floor |
| | Third Floor |
| glue below blue carpet | Fourth Floor |
| | First Floor |
| | Second Floor |
| 4" blue cove molding and underlying glue | Third Floor |
| | First Floor |
| | Second Floor |
| 12" ivory w/ tan vinyl floor tile and underlying mastic | Third Floor |
| | First Floor |
| | Second Floor |
| 4" beige cove molding and underlying glue | Third Floor |
| | First Floor |
| | Second Floor |
| mastic below 9" gray vinyl floor tile | Third Floor |
| 4" black cove molding and underlying glue | Basement |
| | Basement |
| gray rubber stair tread and underlying glue | First Floor |
| mastic below 9" lt. gray vinyl floor tile | Basement |
| 12" tan vinyl floor tile and underlying mastic | Basement |
| glue below burgundy carpet | Basement |
| wall board/sheet-rock | Elevator 1 |
| | Basement |
| | First Floor |
| | Second Floor |
| | Third Floor |
| ceiling board/sheet-rock | Fourth Floor |
| | Basement |
| | First Floor |
| | Second Floor |
| | Third Floor |
| 12" fixed ceiling tile (w/ holes) and associated glue dots | Fourth Floor |
| | First Floor |
| | Third Floor |
| 2'x4' suspended ceiling tile (textured w/ holes) | Fourth Floor |
| | First Floor |
| | Second Floor |
| | Third Floor |
| | Fourth Floor |

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| Miscellaneous Materials | |
|---|--------------|
| <i>Material</i> | <i>Floor</i> |
| 2'x2' suspended ceiling tile (textured w/ holes) | First Floor |
| | Second Floor |
| | Third Floor |
| 12" fixed ceiling tile (marbled) and associated glue dots | Second Floor |
| 2'x4' suspended ceiling tile (worms & holes) | Basement |
| 2'x4' suspended ceiling tile (bird feet & holes) | First Floor |

2.2 Education and Training

Custodial and Maintenance Training

All maintenance and custodial staff who perform duties that do not involve the removal or disturbance of ACM shall receive two hours of training (OSHA Class IV) in a manner consistent with EPA requirements (40 CFR 763.92 (a) (2)) on an annual basis. Training will include:

- 1) Asbestos characteristics and typical uses of ACM
- 2) Locations of ACM in the building
- 3) Health effects of asbestos exposure and the combined effects of smoking and asbestos exposure
- 4) Purpose of the Asbestos Operations and Maintenance Program
- 5) Recognition of damaged ACM, and the response that should be made if damaged ACM is found

Worker Training: OSHA Class III, Spot Repair, Small-Scale, Short-Duration (SSSD) Asbestos Work

Maintenance personnel who perform duties that involve the removal or repair of less than 3 linear or 3 square feet of ACM shall receive an additional fourteen hours of training (OSHA Class III) in a manner consistent with EPA requirements cited above, including annual refresher training, which includes:

- 1) Methods of recognizing asbestos including those materials assumed to contain asbestos
- 2) Health effects associated with asbestos exposure
- 3) The relationship between smoking and asbestos in producing lung cancer
- 4) The nature of the operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures and waste disposal procedures
- 5) The purpose, proper use, fitting instructions and limitations of respirators as required by 29 CFR 1910.134
- 6) Fiber release episodes

- 7) Each employee shall receive hands-on training to include:
 - a) Setting up containment
 - b) Decontamination procedures
 - c) Glove-bag operations
 - d) Use and decontamination of tools and equipment
- 8) Each employee shall receive training on the appropriate work practices and procedures set forth in this document for performing the job
- 9) Medical surveillance program requirements
- 10) The requirements for posting signs and affixing labels and the meaning of each
- 11) Record-keeping requirements
- 12) A review of the requirements of the OSHA Asbestos Standard

Class I and Class II work is defined under the OSHA Construction Standard 1926.1101 as full asbestos abatement activities utilizing a licensed asbestos abatement contractor. Training is either 32 or 40 hours in length depending on the class of work performed. The contents of this document deal only with Class III and Class IV types of work. Refer to the training section of the above referenced OSHA regulation for further information.

The Program Manager shall be responsible for maintaining training records, medical surveillance records and respiratory protection records and updating as necessary (i.e. hiring of worker).

2.3 Work Practices and Procedures

Worker General Procedures

This section includes detailed general procedures for steps that are common to many of the specific work practices. Not all of the worker general procedures are used in every work practice. The general procedures should be reviewed in detail by all personnel using the specific work practices in this program. If possible, the general procedures should be covered in O&M training related to the implementation of this program.

The specific work practices and checklist refer the user to applicable general procedures for detailed information on how to perform a certain portion of the work. Once a user is familiar with the general procedure requirements, it might not be necessary to review the general procedures each time an O&M activity is performed. However, the general procedures should be reviewed periodically by all workers and the PM to verify that the proper procedures are being followed.

Workers should report any suggestions or problems regarding these work practices to the Program Manager (PM). The worker general procedures include:

Asbestos Worker Checklist

- W1 Tools, Equipment and Materials
- W2 Preparing Amended Water or Removal Encapsulant
- W3 Shut-off and Lockout of HVAC and Electrical Systems
- W4 Securing Work Area
- W5 Putting on Respirators and Performing Fit Checks
- W6 Putting on Protective Clothing
- W7 Beginning and Conducting Air Monitoring
- W8 Precleaning Work Areas and Wet Wiping
- W9 Setting up Work Areas
- W10 Packaging and Labeling Waste
- W11 Applying Lockdown Encapsulant
- W12 Cleaning Tools, Equipment and Work Area
- W13 Decontaminating Waste
- W14 Worker Decontamination and Removal of Protective Clothing and Respirators
- W15 Visual Inspection and Completing Air Monitoring
- W16 Waste Transportation, Storage and Disposal
- W17 Disposal of Contaminated Water

W-1 Tools, Equipment and Materials

The following is a list of tools, equipment and materials that are referenced in the work practices and are recommended to perform the work practices. Tools, equipment or materials that are unique to a certain work practice are listed under item 2 in each work practice. For frequent O&M work, it might be helpful to maintain an "O&M cart" containing the necessary tools, equipment and materials.

Tools and Equipment

- Utility knife
- Ground fault circuit interrupters (GFCI's), Extension cords and adapters
 - GFCI's should be used on any electrical equipment or tools used in O&M work where water might be in use or present in the work area.
- Lockout tags
- Temporary work lights
- Ladder for elevated work
- Wet wipes or bucket with clean water for wet wiping
- Smoke test bulb and tubes
- Safety glasses

Abatement Equipment and Materials

- Polyethylene sheeting (6 mil thickness)
- Duct tape
- Disposal bags with labels
- Waste Generator labels
- High efficiency particulate air (HEPA) vacuum with hose, attachments and proper HEPA filter (wet/dry type needed for some work practices)
- Respirators (if required)
- Disposable coveralls with head and foot covers (if required)
- Disposable towels or wet wipes
- Asbestos barrier tape
- Warning signs
- Aerosol cans or garden sprayer with lockdown encapsulant
- Air monitoring pumps, cassettes and calibration equipment (if required)
- Frame for mini-enclosure or prefabricated mini-enclosure

W-2 Preparing Amended Water or Removal Encapsulant

Amended water or removal encapsulant solutions are prepared by mixing a measured amount of surfactant or encapsulant with clean water in accordance with the manufacturer's instructions. Surfactants and encapsulants materials might be considered hazardous substances. Containers of amended water or removal encapsulant should be labeled to identify the contents in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200). Review and comply with Material Safety Data Sheet (MSDS) before mixing and using these materials. Amended water or removal encapsulant should be mixed in a labeled garden sprayer unit prior to the start of an O&M activity.

W-3 Shut-off and Lockout of Electrical Systems

Any electrical systems that might be worked on or affected by O&M activities should be shut off, locked and tagged with electrical lockout tags at the circuit breaker panel or disconnect switch. Affected systems include systems that could create electrical hazards during O&M activities that involve wetting. Lockout tags should note when and why power is shut down and the personnel performing the lockout. There should only be one key for each lock used on lockout tags to prevent accidental reactivation of equipment.

W-4 Securing Work Area

When asbestos fibers might be released, work areas should be vacated and secured (where feasible) by scheduling, locking doors (from inside the area if possible) or other means. Installing polyethylene critical barriers over all openings into the work area. If this is not feasible, access to the work area should be restricted, such as by asbestos barrier tape around the perimeter of the work area. If barrier tape is used to denote a work area, the suggested distance is 5 to 10 feet outside of any polyethylene protection used in the work area. Install barrier tape by taping or tying it to fixed objects.

Do not block access to any emergency exits, and when asbestos fibers might be released, post OSHA required "danger" signs at all entrances to the work area. For such projects, it might be desirable to have a visual barrier installed several feet in front of warning signs to avoid having warning signs readily visible to occupants. A "keep out of construction area" sign should be posted on visual barriers. A visual barrier would be arranged so that a person who goes past the visual barrier will then see required warning signs.

W-5 Putting on Respirators and Performing Fit Checks

The procedures described below are based on the assumption that workers wearing respirators have been trained in the purpose, use and limitation of respirators and, for negative pressure respirators, fit tested, and enrolled in a medical surveillance program as part of the Respiratory Protection Program. Respirators used should be approved by the National Institute of Occupational Safety and Health (NIOSH). These procedures are not a substitute for a Respiratory Protection Program in accordance with OSHA standard 29 CFR 1910.134 or regulatory requirements regarding respirators.

Wearers should inspect their respirators before each use of the respirator. Respirators must not be damaged, have missing parts or be deformed in any way. The straps must be intact and well attached. Proper filter cartridges for the hazards to be encountered must be installed. Verify that filters have been replaced in accordance with the Respiratory Protection Program. Batteries for powered respirators should be fully charged. The respirator should also be cleaned if it was not cleaned after the last use. If any problems exist, the respirator should be repaired or replaced in accordance with the Respiratory Protection Program.

When putting on a respirator, the straps should be loosened before it is put on. Filter caps (such as those used on some Powered Air Purifying Respirators) should be taped to the filter body or stored where it will not be lost. Powered respirators should be turned on and flow checked before the facepiece is put on. The respirator should be put on and then the straps tightened as recommended in the manufacturer's information provided with the respirator. Fit checks should then be performed.

Fit Checks Fit checks should be performed in accordance with the Respiratory Protection Program by each worker each time they put on a respirator. Both positive and negative pressure fit checks should be performed. When feasible, powered respirators should be checked with the motor unit turned off. A negative pressure fit check is done by donning the respirator and pulling the respirator straps so the unit fits snugly. Inhale gently while placing hands over filters to block off inhalation side. Respirator should pull to face and no air should leak in around face seal.

A positive pressure fit check is done by exhaling gently (without breaking respirator seal to face) breathing normally while blocking off the exhalation valve. The face piece should then expand away from face while exhaling. Adjust respirator straps as needed to obtain a good seal of the facepiece to the face. If a good seal cannot be obtained, obtain a new respirator and perform fit tests again.

W-6 Putting on Protective Clothing

Protective clothing for workers typically consists of disposable coveralls, gloves and boots. Coveralls should have hoods and booties attached. They should provide complete coverage of the body with the exception of hands and face. Cloth coveralls that are cleaned by a facility equipped to launder asbestos contaminated clothing might also be used. Do not modify coveralls.

Protective Clothing Options Available for O&M Work Include

If potential for exposure to asbestos-containing dust and debris is low and localized, use:

1. One disposable coverall with no street clothes, or
2. One disposable coverall over street clothes.

If potential for exposure to asbestos-containing dust and debris is moderate or dispersed, use:

1. Two disposable coveralls with no street clothes, or
2. Two disposable coveralls over street clothes.

If street clothes could become contaminated, two coveralls should be worn, or the street clothes should be removed before the start of work. When possible, street clothes should be removed in a changing area before protective clothing is put on. Protective clothing should be put on after respirators. The coverall hood should cover respirator straps.

Workers are encouraged to wear protective gloves that are duct taped at the cuffs to the protective coveralls. Eye, hearing, and head protection should also be used where needed. Rubber slip-resistant boots are recommended for work areas where slip hazards might occur (protective booties should cover feet inside the boots). Steel-toed boots should be used in areas where foot hazards exist. Do not use coveralls with loose foot coverings for activities that involve climbing ladders.

W-7 Beginning & Conducting Air Monitoring

Air monitoring during O&M activities can consist of personal monitoring, area monitoring and clearance monitoring. Air monitoring required for the work practice being performed should be listed on the Maintenance Work Authorization Form and be conducted in accordance with applicable regulations (such as 29 CFR 1926.1101 Appendix A), the O&M Plan and Air Monitoring Program. All air monitoring work should be conducted by a licensed air monitoring person or project monitor assigned by the PM.

The air monitoring person should calibrate, adjust, and record the flow rate of all air monitoring pumps to be used before air monitoring is started for an O&M activity.

Personal Monitoring To perform personal monitoring, attach a personal air monitoring pump to a belt worn by the worker. Attach an air sampling cassette to the hose from the pump. Route the hose up the worker's back and tape the hose to the worker's protective coveralls using duct tape. The cassette should be located with the open end facing downwards at approximately a forty-five degree angle in the worker's "breathing zone" at about collar level. Turn the pump on and record start time. The air monitoring person will retrieve or change the cassette when necessary, or when work is completed.

Area Monitoring Area monitoring is usually performed using high volume air sampling pumps. Place pumps inside the work area and outside the work area in occupied areas or areas where occupants could be exposed if fibers are released from the work area. Pumps should be located where they obtain meaningful measurements of potential worker exposure during monitoring. Attach sampling cassettes to the hoses from the pumps and attach the cassettes to the top of tripod stands or other stable structures (but not the pumps themselves) to locate the sample at four to five feet above the floor. These cassettes should be located with the open end facing downwards at approximately a forty-five degree angle. The air monitoring person will retrieve or change cassettes as needed or when the work is completed.

If any samples analyzed during the work exceed predetermined "stop work levels" specified in the O&M program (level suggested - 0.01 fibers/cc), work shall be stopped, the area cleaned and additional engineering controls implemented, as necessary.

W-8 Precleaning Work Areas and Wet Wiping

Precleaning of work areas prior to the start of work is done to remove accumulated debris that could be disturbed during the work. Precleaning might include picking up dust and debris with a HEPA vacuum, wet wiping non-porous surfaces, HEPA vacuuming surfaces that cannot be wet wiped, and cleaning any carpeted surfaces using steam extraction equipment. Precleaning might reduce the extent of cleaning required after the work and for clearances (if required).

Wet Wiping The procedures to be used for wet wiping are as follows:

1. Immerse disposable towel in bucket containing amended water.
2. Wring out towel and fold into quarters.
3. Wipe surface and refold to have a clean face exposed. Do not place towel back into bucket or water will become contaminated and will need to be replaced.
4. Repeat step 3 until all faces of towel have been used. Obtain a clean towel if more wiping is needed.
5. Dispose of used towels in disposal bags.
6. See general procedure W17 for disposal of contaminated water.

HEPA Vacuuming The procedures to be used for HEPA vacuuming are as follows:

1. For floors, use a floor attachment with rubber floor seals and adjustable floor-to-attachment height. For furniture, fabrics or other surfaces use an upholstery attachment or brush attachment.
2. Vacuum hard or smooth surfaces with attachment about 1/16" above the surface.
3. Vacuum carpet or fabrics with attachment just touching the surface.
4. Vacuum all surfaces in parallel passes with each pass overlapping the previous one by one-half the width of the attachment.
5. Once surfaces are cleaned in one direction, clean a second time at right angles to the first cleaning.
6. Use crevice brush or other tools to clean irregularly shaped surfaces.

The procedures to be used for steam cleaning carpet are as follows:

1. Steam clean carpet using carpet tool.
2. Steam clean all surfaces in parallel passes with each pass overlapping the previous one by one-half the width of the attachment.
3. Once surfaces are cleaned in one direction, clean a second time at right angles to the first cleaning.
4. See general procedure W17 for disposal of contaminated water from cleaning process.

W-9 Setting up Work Areas

Polyethylene work area protection is not to be used in place of other engineering controls and good work practices. Work practices such as wetting ACM, careful handling, local collection by HEPA vacuum and local exhaust ventilation should be the primary means of fiber control during O&M work. Polyethylene protection and mini-enclosures are intended as a secondary means of protection during the work.

Polyethylene Drop Cloth - Preparing a work area with a drop cloth requires that a single layer of polyethylene be spread on the floor of the work area and taped or weighted in place. Do not use more than one layer if ladders (or similar equipment) will be used, unless a hard surface, such as plywood is laid over the drop cloth. If floor is a soft material, such as carpet, use caution to prevent tearing of polyethylene under equipment. The drop cloth should cover an area large enough to catch falling debris. If work is to be performed at an elevated level, the drop cloth should be placed on the work platform, or extended at ground level beyond the immediate work location to catch any debris that might be generated. Note that the use of a drop cloth introduces potential slip hazards in the work area. Non-slip foot coverings are recommended where drop cloths are used.

Mini-Enclosure - A mini-enclosure is usually a polyethylene enclosure (it is suggested that fire retardant polyethylene be used) around a work area. Mini-enclosures are sealed enclosures used as a secondary means to help, or attempt to, contain fibers or debris generated during the work. Mini-enclosures also serve to provide a visual barrier between the workers and any other personnel around the work area.

There are a variety of commercially available types of mini-enclosures, including prefabricated pop-up boxes and adjustable framework assemblies to permit different sizes of enclosures to be constructed. Disposable liners for mini-enclosures (to facilitate set up and dismantling of the enclosure) are available from some manufacturers. It might be beneficial to construct or purchase a portable mini-enclosure unit that works for the typical conditions found in the building.

It is recommended that two workers be used to set up and operate mini-enclosures. To construct a mini-enclosure, erect a framework of wood, PVC piping or metal framing that will enclose the work area and be large enough for one person to work inside. The minimum width and depth of the enclosure should be at least 3 feet. The height of the enclosure will vary depending upon the work to be performed and the height of the work area. A larger enclosure is preferable where space permits. However, if the enclosure is too large, the final cleaning process will require more time. A mini-enclosure can include a separate 3 foot by 3 foot by 6 foot change room, with curtain doorways, attached to the mini-enclosure for changing and removing protective clothing.

Cover the floor and the framework for the enclosure and change room with one layer of polyethylene attached using duct tape. A second layer of polyethylene laid on the floor might facilitate clean up work, or reduce the possibility of tearing the polyethylene if equipment is used (do not use two layers under the legs of ladders). Construct curtain doorways between the change room and the enclosure and between the change room and the area outside the change room. A curtain doorway is made of three overlapping sheets of polyethylene. Attach sheets to framework at top and one side. The middle sheet should be attached on one side, and the inner and outer sheets attached on the other side. A sheet of polyethylene approximately 5 feet by 5 feet or larger should be installed outside the change room for use as a step off area and as a place to put decontaminated materials removed from the work area.

Negative Pressure System and HEPA Filtered Local Exhaust Ventilation:

Mini-enclosures should be provided with a negative pressure system maintained at a minimum of -0.02 inches pressure differential, and be ventilated by a minimum of 4 air volume changes per hour to reduce the possibility of fibers being released from the enclosure during the work, and to filter inside air discharged from the enclosure. Negative pressure inside mini-enclosures is commonly provided by a High Efficiency Particulate Air (HEPA) filtered vacuum or by negative pressure machines, depending upon the size of the enclosure. A HEPA vacuum will usually provide sufficient negative pressure for a small enclosure.

A negative pressure system for a mini-enclosure most commonly locates the HEPA vacuum or negative pressure machine outside the enclosure. The intake side of the unit is ducted to the enclosure through the vacuum hose or flexible duct material taped to a hole in the enclosure on the side opposite from the change room or as close as possible to where the work will be performed. The filtered exhaust side of the unit should be ducted to the outside of the building.

However, most vacuum units do not provide a connection for an exhaust duct, and are commonly exhausted to the inside. Additional protection might be desirable for an area where air is exhausted inside a building. Contact CTDPH for guidance when this situation arises in the building.

W-10 Packaging and Labeling Waste

Asbestos-containing waste material from O&M activities should be adequately wet in accordance with the NESHAP requirements (40 CFR 61.150). Pre-labeled asbestos disposal bags should be used for asbestos waste disposal where possible, appropriate and permissible. Disposal bags should be collapsed by evacuating the air from the bag with a HEPA vacuum in the work area or enclosure. Once collapsed, twist the bag to form a neck and wrap it tight with duct tape. Fold neck of bag over to form a loop, then again wrap duct tape around neck and loop. Place the first bag into a second disposal bag and sealed as described above. Label disposal bags as required by applicable NESHAP, OSHA and DOT regulations.

Sharp objects that might puncture polyethylene (such as floor tile) should be placed into a burlap type before being placed into a standard disposal.

All waste should be labeled as required by federal, state and local regulations (OSHA, EPA and DOT). Refer to the aforementioned regulations or contact CTDPH for guidance. Waste material to be transported off the facility site must also be labeled with the name of the waste generator and the location at which the waste was generated.

W-11 Applying Lockdown Encapsulant

A lockdown encapsulant should be applied to areas where ACM is removed. Encapsulants should be water resistant after curing and be Class "A" fire rated per ASTM 84-81A "Standard Method for Surface Burning Characteristics of Building Materials". Lockdowns need to be compatible with any materials that will be installed over the encapsulant. Note that many lockdown encapsulants will act as an adhesive and could be objectionable on some surfaces when dry. Care should be taken to avoid getting encapsulant on or in HVAC units, HEPA vacuums, and negative pressure machines.

W-12 Cleaning Tools, Equipment, and Work Area

Clean tools and equipment using HEPA vacuuming and/or wet wiping procedures. Special attention should be given to cleaning extension cords, equipment wheels, vacuum hoses and other items that could pick up debris during the work. Tools and equipment should be placed outside of the work area as soon as cleaning is completed. Drop cloths and mini-enclosures can be cleaned or disposed of as ACM. Any items that cannot be fully cleaned (such as boots or tools) that might be used in another O&M activity should be placed into disposal bags, sealed and labeled as ACM. These bags should be wet wiped and then placed outside of the work area with the other tools and equipment. Do not open bags containing contaminated tools, or open equipment such as a HEPA vacuum, except during another O&M activity or in a designated work area. HEPA vacuum hoses can be sealed with tape over both ends if the outside of the hose is clean.

Cleaning of the work area where an O&M activity is conducted consists of HEPA vacuuming and/or wet wiping (as appropriate) all surfaces in the area. HEPA vacuuming and wet wiping shall be performed as described in general procedure W-8 above.

W-13 Decontaminating Waste

Packaged waste should be HEPA vacuumed and wet wiped before it is moved out of the work area. Use the wet wiping and HEPA vacuuming procedures in general procedure W-8. Packaged waste should be placed on a sheet of polyethylene when it is moved outside of the work area. This polyethylene can be the outer portion of a drop cloth, if a drop cloth is being used.

W-14 Worker Decontamination and Removal of Protective Clothing and Respirators

Removal of Protective Clothing When Drop Cloth Work Area Protection, or no Work Area Protection, is used. HEPA vacuum all parts of protective clothing while standing at perimeter of drop cloth. Leaving respirator in place, remove protective clothing and fold inside out as it is removed. Place clothing, if contaminated, into a disposal bag and label as ACM waste.

Removal of Protective Clothing If A Mini-Enclosure and Change Room is used. HEPA vacuum all parts of protective clothing while inside work area enclosure.

If two disposable coveralls are used, remove outer coveralls in work area while leaving respirator in place. Fold coveralls inside out as they are removed. Move to change room, HEPA vacuum protective clothing, and remove second set of coveralls in the same manner.

If only one set of disposable coveralls is worn, remove in change room while leaving respirator in place. Fold coveralls inside out as they are removed.

Place protective clothing, if contaminated, into a disposal bag and label as ACM waste. Wash hands, face and surface of respirator with clean water and disposable towels. Use caution to avoid breaking seal between respirator facepiece and face. Place disposable towels into a disposal bag. Remove respirator and follow procedures specified in Respiratory Protection Program for cleaning and storing respirator. Change respirator filters if needed or required and dispose of used filters as ACM. Put street clothes on and exit change room.

Removal of Protective Clothing if a Shower is Available. If a shower with waste water filtering for ACM is available, follow the applicable clothing removal procedure described above. Remove protective clothing in work area and put on a clean set of protective coveralls. Proceed to shower with respirator still in place. At shower facility, remove protective coveralls, folding inside out during removal. Place clothing, if contaminated, into a disposal bag and label as ACM waste. Shower completely, and remove and clean respirator while showering as described below.

Street Clothes. If street clothes are worn under protective clothing and are contaminated during the work, the street clothes should be HEPA vacuumed, removed during decontamination and placed into a labeled disposal bag. These street clothes should then be disposed of as ACM.

Removal of Respirator

Remove respirator after removing protective clothing (if used). Before removing respirator, wash hands, face and surface of respirator with clean water and disposable towels. Use caution to avoid breaking seal between respirator facepiece and face. Avoid getting water into filter cartridges of respirator. Place disposable towels into a disposal bag. Remove respirator and follow procedures specified in Respiratory Protection Program for cleaning and storing respirator.

W-15 Visual Inspection and Completing Air Monitoring

Visual Inspection. A visual inspection should be conducted prior to the completion of air sampling to verify that all visible dust or debris has been cleaned up. The person performing the inspection can be a worker. If the PM or another person makes this inspection, they should wear the same type of personal protective equipment worn by the workers. If visible dust or debris remains, it must be cleaned up using wet wiping and/or HEPA vacuuming before clearance sampling is started.

W-16 Waste Transportation, Storage and Disposal

Transport asbestos waste from O&M activities to a designated storage area after the work is completed. Do not drag packaged waste. All waste should be lifted and carried, or transported in wheeled carts, when moved from one area to another. Packaged waste should be placed, not thrown or dropped, into the storage area.

Any asbestos waste that is not taken directly to a landfill should be stored in a secure, lockable area. Signage in accordance with NESHAP should be posted at the storage area. When asbestos waste in the storage area is taken to a landfill, it should be transported in accordance with all applicable federal, state and local regulations. Asbestos waste shipment records should be completed in accordance with the requirements in NESHAP Section 61.150.

The workers conducting the O&M activity should fill out a waste tracking form or an equivalent form. Once part 1 is completed and the waste is stored or taken to a landfill, the form should be turned over to the PM to complete part 2 and file with O&M records. NESHAP waste shipment records must also be completed (where applicable) and filed with waste disposal records.

W-17 Disposal of Contaminated Water

Contaminated water from O&M activities should be disposed of in accordance with all applicable federal, state and local regulations. Water should typically be filtered through a maximum 5 micron water filter before discharging water into a sanitary sewer system, if permitted. If a filter unit is not available at the work location, contaminated water can be put into leaktight drums and transported to a location with filtering equipment. If a portable shower unit with filtering equipment is available, contaminated water can be emptied into the shower and filtered through the shower filter system.

Worker Specific Procedures

The following general notes should be reviewed by users of the surfacing work practices:

1. Safe work practices recommend that "maintenance employees be instructed: Not to remove ceiling tiles below asbestos-containing materials without wearing the proper respiratory protection, clearing the area of other people, and observing asbestos waste disposal procedures."
2. The training program for the maintenance engineering staff should describe methods of handling asbestos-containing materials as well as routine maintenance activities that are prohibited when asbestos containing materials are involved. For example, maintenance staff employees should be instructed: Not to hang plants or pictures on structures covered with asbestos-containing materials.

SPA-1 Clean-Up Debris from Damaged Material or Accidental Disturbance

This work practice describes the procedures to be used to clean up a minor fiber release generated by surfacing ACM. If a major fiber release occurs, the PM shall inform an asbestos designer to develop cleanup procedures for the particular location and circumstances, and it should be treated as an abatement project, not as O&M work.

Procedure:

1. Evacuate area of disturbance.
2. Notify Program Manager of existing conditions.
3. For picking up small amounts of ACM debris - Wet debris to be cleaned up using amended water. Cover debris with duct tape and press to adhere debris to tape if picking up small amount of ACM debris. Repeat with another piece of tape if needed. Dispose of tape as ACM or in accordance with applicable regulations.
4. To clean up a small amount of debris from damaged surfacing ACM - Prepare work area with critical barriers. Place tools, equipment and materials needed into work area. Adequately wet debris to be cleaned up using amended water. Pick up any large pieces of debris and place into disposal bags. Use HEPA vacuum and wet wiping to clean up small debris and dust. Wet wipe and HEPA vacuum all surfaces in contaminated area. Perform any required repair work using appropriate work practice. Perform clean-up and tear-down steps to complete work. Two or more workers are recommended to perform this procedure.

SPA-2 Attaching/Replacing Items to Walls or Ceilings Finished with ACM

This work practice describes the work required to attach an item to surface finished with surfacing ACM. This work practice must be used in conjunction with applicable Worker General Procedures (Section 2.3).

Procedure:

1. Evacuate area of disturbance.
2. Notify Program Manager of existing conditions.
3. Prepare work area with drop cloth, erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation. (See General Procedure W9)
4. Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for vacuuming areas above ceiling.
5. Enter enclosure and wet area on ceiling where item will be attached using garden sprayer with amended water. If items are being drilled, they can be drilled through a wet sponge or shaving cream to control fiber release.
6. If a wet sponge or shaving cream is not appropriate or adequate, scrape away surfacing to at least 1/2" beyond where hole is needed. Keep the hose of an operating HEPA vacuum within 6" of where scraping is occurring. Adequately wet scraping area and any dust or debris generated. Drill hole through substrate after ACM is removed. Adequately wet any dust or debris that is generated. Place all debris and sponges into ACM disposal bags.
7. Perform clean up and teardown steps to complete work. Two or more workers are recommended to perform this procedure.

SPA-3 Cut or Drill Holes in Walls or Ceilings Finished With ACM

This work practice covers the work required to cut or drill a hole through walls or ceilings finished with ACM. This work practice must be used in conjunction with applicable Worker General Procedures (Section 2.3) and Asbestos Worker Checklist.

Procedure:

1. Evacuate area of disturbance.
2. Notify Program Manager of existing conditions.
3. Additional tools, equipment and materials: Scraper, hand or power drill or saw. HEPA vacuum attachment on power tools is the preferred method.
4. Prepare work area with drop cloth, erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation. (See General Procedure W9)
5. Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for use during the work. If surface to be drilled is above a ceiling, extend enclosure (if feasible) to surface of or within approximately 1/2" of surfacing ACM.
6. Enter enclosure. If hole is being drilled through a surface, such as acoustical plaster where backside is inaccessible, use the procedures in step 6. If hole is being drilled through a surface, such as a fireproofed metal deck, where both sides are accessible, use the procedures in step 7.
7. A. Inside enclosure, install polyethylene sheet below removal location to catch any falling debris.
B. Adequately wet area where hole is to be drilled.
C. (1) Small holes can be drilled through a wet sponge or shaving cream. See C(2) for alternative methods. After drilling, remove shaving cream using wet/dry type HEPA vacuum.
(2) If a wet sponge or shaving cream is not appropriate or adequate, scrape away surfacing to at least 1/2" beyond where hole is needed. Keep the hose of an operating HEPA vacuum within 6" of where surveying is occurring. Adequately wet, any dust or debris generated. Drill surveying area and hole through substrate after ACM is removed.
D. Place HEPA vacuum hose near or through hole and run for several minutes to clean air on backside of surface.
8. A. If hole is drilled from topside of deck, adequately set ACM on underside and install enclosure below ACM on underside that will catch any falling debris, including material from hole (such as a concrete cylinder). (If hole is drilled from underside, see step B). Drill hole through surface. Adequately wet drilling area while drilling. Wet any debris in enclosure on underside, package up debris and enclosure and dispose of as ACM.
B. If hole is drilled from underside of deck, provide an enclosure on topside where hole will penetrate deck and follow steps 6A, 6B, 6C(2), and 6D.
9. Let HEPA vacuum run for at least 15 minutes to clean air in enclosure.
10. Perform maintenance work and clean up and teardown to complete work. Two or more workers are recommended to perform this procedure.

SPA-4 Replace Bulbs in Light Fixture Attached to or in Surface Finished with ACM

This work practice covers procedures for replacing light bulbs in a fixture attached to a surface finished with ACM. Light fixtures attached to or in surfaces finished with ACM can cause damage to ACM if the fixtures are moved during maintenance work.

Procedure:

1. Evacuate area of disturbance.
2. Notify Program Manager of existing conditions.
3. Special tools, equipment and materials: Replacement bulbs
4. Place tools, equipment and materials needed in work area.
5. Carefully replace light bulbs without jarring fixture. Clean up any dust or debris generated using HEPA vacuum.
6. Perform clean up and teardown steps to complete work. One worker is sufficient to perform this procedure.

SPA-5 Clean Room with Exposed Surfaces Finished with ACM

This work practice covers the procedures for cleaning a room with exposed surfaces finished with ACM. This room has been predetermined not to be contaminated or has previously been cleaned. This is not the procedure to use if a fiber release has occurred. See related work practices below. This work practice must be used in conjunction with applicable Worker General Procedures (Section 2.3). If any debris from ACM is found in an area to be cleaned, notify the PM. The PM will need to determine whether this work practice is appropriate or if more stringent practices are needed. One worker is sufficient to perform this procedure.

Procedure:

1. Tools, equipment and materials: Standard cleaning equipment and materials.
2. Clean area using standard cleaning methods. Avoid contact with any ACM materials that could be damaged during cleaning. The PM will select the appropriate work practice and personnel to clean up any debris from ACM. The following precautions should be observed when working around the ACM.
 - A). Do not bump ACM with vacuum cleaners, broom handles, mop handles or similar objects. Do not exhaust vacuum cleaners toward ACM.
 - B). Do not brush ACM surfaces with a broom or similar objects to remove cobwebs or other items attached to ACM.

SPA-6 Repair Damaged Surfacing ACM

This work practice covers the procedures for repairing small amounts of damaged surfacing ACM. The procedure assumes that the damage is in isolated areas not greater in size than OSHA Class III project limits. One worker is usually sufficient. Two or more workers may be needed to increase efficiency or for additional health and/or safety considerations. This work practice must be used in conjunction with applicable Worker General Procedures (Section 2.3). If ACM is in poor condition, abatement may need to be considered for the damaged area.

Procedure:

1. Evacuate area of disturbance.
2. Notify Program Manager of existing conditions.
3. Additional tools, equipment and materials: Small stiff-bladed scraper, non-ACM repair materials & tools.
4. Repair small damaged area using non-ACM caulking if surrounding ACM is not to be disturbed. Do not scrape or sand existing surface. If surrounding ACM is to be disturbed or is currently damaged go to step 4 otherwise perform clean-up and teardown steps on Asbestos Worker Checklist to complete work.
5. Prepare work area with drop cloth, mist damaged ACM surrounding small repair hole using garden sprayer containing amended water and allow water to soak for several minutes, with HEPA vacuum within several inches of damaged area, remove any loose material by hand or with scraper. Collect material in disposal bags as it is removed. Remove material around edges of damaged area until well-adhered material is found, but do not remove beyond area protected by drop cloth. Mist removal area during removal of damaged material. If area of repair is large and damage to surrounding ACM is expected, go to step 5 otherwise proceed to step 9.
6. Prepare work area with drop cloth, erect mini-enclosure and set up negative pressure system and /or HEPA filtered local exhaust ventilation. (See General Procedure W9)
7. Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for use during repair work.
8. Adequately wet area of damaged surfacing using garden sprayer containing amended water. Allow water to soak in for several minutes.
9. With HEPA vacuum within several inches of damaged area, remove any loose material by hand or with scraper. Collect material in disposal bags as it is removed. Remove material around edges of damaged area until well-adhered material is found, but do not remove beyond area protected inside enclosure. Mist removal area during removal of damaged material.
10. Repair damaged area using non-ACM materials. Perform clean up and teardown steps to complete work.

SPA-7 Painting Surfacing ACM

This work practice describes the work required to paint small amounts of surfacing ACM, such as plaster or sheetrock and joint compound. Paint coats should be as thin as possible to prevent delamination of surfacing that may be caused by painting. This work may need to be treated as abatement work depending upon the type and condition of the surfacing. One worker is recommended for this procedure. This work practice must be used in conjunction with applicable Worker General Procedures (Section 2.3).

Procedure:

1. Evacuate area of disturbance.
2. Notify Program Manager of existing conditions.
3. Additional tools, equipment and materials: Paint, rollers or low pressure airless sprayer, and other painting equipment.
4. Prepare work area with drop cloth. (See General Procedure W9)
5. Place tools, equipment and materials needed on drop cloth.
6. Paint surface using sprayer or rollers. If rollers are used, try to contact each area of the ceiling only once to avoid damage to ACM.
7. When painting is completed, clean up any loose debris using wet wiping and /or HEPA vacuuming and roll up drop cloth. Dispose of paint rollers as ACM.
8. Perform clean up and teardown steps to complete work.

SPA-8 Maintenance/Cleaning of ACM Flooring Material

This work practice describes the work required to maintain and clean ACM flooring material.

Guidelines:

1. Sanding of flooring material is prohibited.
2. Stripping of finish shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.
3. Burnishing or dry buffing may be performed only on flooring, which has sufficient finish so that the pad cannot contact the flooring material.
4. When cleaning flooring material, utilize damp mop only. Do not spread an excessive amount of water directly onto the flooring material as it may cause the flooring to lift up from the substrate.

SPA-9 Removal of ACM Flooring Material

This work practice describes the work required to remove and/or replace small amounts of flooring material such as 9 and 12 inch vinyl floor tile, flooring mastic, linoleum, carpet glue and cove molding glue. This work may need to be treated as abatement work depending upon the condition and amount of flooring material being removed/replaced. Two workers are required for this procedure. This work practice must be used in conjunction with applicable Worker General Procedures (Section 2.3).

Procedure:

1. Evacuate area of disturbance.
2. Notify Program Manager of existing conditions.
3. Additional tools, equipment and materials: Glove box, small or medium size stiff scraper.
4. The use of power tools, grinders or other machines, which may produce any dust during removal of ACM flooring material is prohibited.
5. Prepare work area with negative pressure glove box system.
 - (A) The glove box shall be constructed with rigid sides and top made from metal or other material, which can withstand water used during removal.
 - (B) The glove box shall be fitted with a flexible, rubber gasket at the floor interface point, which will create a tight seal along the perimeter of the box.
 - (C) Attach a HEPA equipped vacuum to act as a negative pressure filtration device to create negative pressure in the system.
 - (D) The box shall be fitted with gloved apertures
 - (E) An aperture on the side of the box shall serve as a bagging outlet for waste ACM and water
 - (F) A backup vacuum shall be present in the building
 - (G) The box shall be smoke tested for leaks and any leaks shall be sealed prior to each use.
6. Use hand scraper in conjunction with wet methods to remove ACM flooring material. Dispose of flooring material as ACM. Where carpet is laid over the flooring material, cut the carpet using utility knife and dispose of carpet and glue as asbestos.
7. Clean up any loose debris using wet wiping and /or HEPA vacuuming prior to removal of the glove box. Replace removed ACM flooring material with non-asbestos substitute.
8. Perform clean up and teardown steps on Asbestos Worker Checklist to complete work.

SPA-10 Removal of Asbestos Thermal System Insulation to Repair Leaking/Damaged Pipes and Pipe Fittings

This work practice describes the work required to remove less than 3 linear/square feet of pipe and pipe fitting insulation for the purpose of repairing damaged pipes and pipe fittings. Two workers are required for this procedure. This procedure shall not be used on pipes over 150 degrees Fahrenheit. This work practice must be used in conjunction with applicable Worker General Procedures (Section 2.3).

Procedure:

1. Evacuate area of disturbance.
2. Notify Program Manager of existing conditions.
3. Additional tools, equipment and materials: Pre-fabricated glovebag, bone saw, tin snips, wire cutter, utility knife, stapler, scrub brush, rags and wettable diplag cloth.
4. Place equipment to be used inside the glovebag's tool pouch. Place the glovebag around the section of pipe to be worked, and staple the top together, fold and tape down with duct tape. Tape the ends of the glovebag to the taped portion of the pipe. The glovebag shall be smoke tested for leaks and any leaks shall be sealed prior to use.
5. Insert the wand from the water sprayer through the water sleeve. Use duct tape to tape the water sleeve tightly around the wand to prevent air leakage. One worker places his hands into the long sleeved gloves while the second person directs the water spray at the work. If the section of pipe is covered with an aluminum jacket, this removed first, using the wire cutters to cut any bands and the tin snips to remove the aluminum. Use caution to prevent cuts and tears to bag.
6. Use the bone saw to cut the exposed insulation at end of the section to be removed inside the glovebag. Once the ends are cut the section of insulation should be slit from end to end using the utility knife and water continuously supplied. Cut wire in insulation if applicable.
7. Spray all tools with water inside the bag and place back into pouch. Lift the insulation off the pipe and gently place in bottom of bag. Clean pipe with scrub brush and rags using wet methods.
8. Wet pre-cut pieces of diplag cloth and install over the exposed ends of the insulation remaining on the pipe in the glovebag. Encapsulate exposed pipe section. (See General Procedure W-11) Remove water wand from sleeve and attach hose from HEPA vacuum. Turn vacuum on briefly to collapse bag. Remove vacuum hose and seal water sleeve with duct tape.
9. From outside the bag, pull the tool pouch away from the bag and twist it to separate it from the bag. Place duct tape over the twisted portion and then cut the tool bag from the glovebag, cutting through the twisted-taped section. The contaminated tools may be placed directly into the next glovebag without cleaning otherwise the tool pouch with tools can be placed in a bucket of water, opened underwater, and the tools can be cleaned and dried without releasing asbestos into the air.
10. Place rags and scrub brush with the removed insulation at the bottom of the bag. Twist the bottom of the bag several times and tape it to keep the material in the bottom during removal of the glovebag from the pipe.

SPA-10 continued on next page

11. Slip a waste disposal bag over the glovebag (still attached to the pipe). Remove the tape and open the top of the glovebag and fold it down into the disposal bag. Remove the disposable suits and place these into the bag with the waste. (See General Procedure W-10 and W-16 for packing, labeling, storage and disposal of ACM waste.)
12. Perform clean up and teardown steps to complete work.

SPA-11 Emergency Procedures/Major Fiber Release Episode

This work practice describes the necessary steps that should followed in the event of an emergency/major fiber release episode. A major fiber release episode is defined as the falling, dislodging or disturbance of more than three square feet or three linear feet of friable ACBM. The response to cleaning a major fiber release episode must be directed and carried out by trained and licensed persons.

Procedure:

1. Immediately evacuate and restrict entry into the area and post signs and seal access to the area with duct tape (if feasible) to prevent entry by persons other than those necessary and qualified to perform cleanup.
2. Shut off or temporarily modify HVAC to prevent the distribution of asbestos fibers to other parts of the building.
3. Contact Program Manager and give location and description of emergency and the procedures taken to this point.
4. The Program Manager will evaluate the site, type and amount of ACM to be handled and classify the cleanup as Class I or II. He will then immediately contact a licensed Asbestos Project Designer to design the proper response action as well as a licensed Asbestos Abatement Contractor to carry out the response action.

2.4 Respiratory Protection Program

The purpose of the respiratory protection program is to provide building maintenance and custodial personnel involved in O&M type activities that impact ACM with an adequate understanding of the health risks resulting from exposure to asbestos fibers and sufficient knowledge of the protective respiratory measures that should be taken to eliminate these health risks.

The written respiratory protection program shall be maintained and updated by the Program Manager and its contents shall comply with the requirements set forth in the OSHA Asbestos Construction Standard (29 CFR 1926.1101) and the OSHA Respiratory Protection Standard (29 CFR 1910.134).

2.5 Periodic Surveillance

An integral part of the O&M plan is the regular surveillance of the ACM still present in the building. Periodic surveillance will ensure that damage or deterioration of ACM will be detected so that corrective action can be taken.

After the O&M plan is in effect, it is the responsibility of the Program Manager to ensure that all areas of the building are surveyed by himself/herself or by a trained custodial or maintenance person at least every six months and a record of the inspection be kept to include: the date of the surveillance, the inspector's name and signature and any changes in the condition of the ACM. This record is to be kept as part of the O&M plan and shall be made available to workers and building occupants for review upon request.

Photographs may be helpful in assessing the condition of ACM.

2.6 Signs and Labeling of ACM

A labeling program should be implemented to identify known ACM in the building. The number and location of these signs or labels shall be sufficient to clearly identify ACM in routine maintenance areas. Where feasible the actual material shall be labeled in these areas as well as the accessways to these areas. The definition of a routine maintenance area is an area, such as a boiler room or mechanical room, that is not normally frequented by building occupants and in which maintenance employees or contract workers regularly conduct maintenance activities. Labels shall conform to current OSHA standards.

Signs or labels may not be required for some types of ACM if employee training and the distribution of records and information is performed. Examples of these types include asbestos-containing floor tile and mastic, linoleum, transite and other types of non-friable ACM maintained in good condition.

Reasonable precautions shall be taken to ensure that labels remain visible. During painting or other operations where labels will be hidden or covered, existing labels shall be removed and new labels affixed after painting or existing labels shall be protected.

2.7 Documentation and Recordkeeping

Importance of Documentation

The key to an effective and comprehensive O&M plan is documentation. This documentation must be maintained by the Program Manager.

The reasons for maintaining complete and detailed records of asbestos management are many. Historical documentation can only make renovation and adaptation easier in any facility. The legal liabilities involved with asbestos are complex and the more thorough the documentation, the more defensible are the actions taken. That the health of those working in or using the facility was not compromised is also important. Poor or sloppy recordkeeping could imply callousness toward those affected, or even place individuals/entities at an increased legal risk.

The method of keeping asbestos records is left for the Program Manager. No specific forms are required as long as the necessary information is recorded. Should omissions or errors occur in the documentation process, make clear attempts to rectify the error. An honest admittance of an error and a valid attempt to correct it will illustrate a complete and effective documentation process and help to prevent future liability.

Recordkeeping

Recordkeeping is mandated by OSHA and EPA regulations. To meet these requirements, the following files shall be maintained by the Program Manager:

- Asbestos Inspection and Sampling Reports
- Building Occupant/Tenant Notification and Acknowledgment Forms
- Periodic Surveillance and Air Monitoring Reports
- Pre-Renovation Inspection Reports
- Abatement Activities: Asbestos abatement projects will generate their own recordkeeping documents. Establish a file to summarize individual projects and make reference to the project's record keeping file.
- Regulatory Notification Forms
- Training of custodial and maintenance personnel
- Training for the Program Manager
- Respiratory protection training
- Medical surveillance
- Employee exposure measurements
- Copies of Program Manager O&M Checklists
- Copies of Job Request Forms for Maintenance Work
- Copies of Maintenance Work Authorization Forms

The following outline supplies the Program Manager with a format useful for accurate record keeping:

I. Training Records for Employees

- A. Employee's name
- B. Job title
- C. Date training was completed
- D. Location of training, including organization's name
- E. Number of hours completed

II. Personal Air Sampling Collection

- A. Name and signature of person collecting samples
- B. Location samples were collected and date
- C. Name and address of laboratory analyzing samples
- D. Date of analysis
- E. Method of analysis
- F. Results
- G. Name and signature of analyst

III. Work Practices, Preventive Measures and/or Response Actions

- A. Detailed written description of the measure or action
- B. Methods used
- C. Location
- D. Documentation on why a specific measure or action was selected
- E. Start and completion dates of all work
- F. Names and addresses of all contractors/personnel involved
- G. Any certification/accreditation numbers and/or reference statements
- H. If ACM was removed, name, location of storage/disposal sites (i.e. Waste Manifest)

IV. Periodic Surveillance

- A. Date
- B. Inspector
- C. Notation of changes (or lack of) in the condition of ACM

V. Cleaning (Each Instance)

- A. Names of person(s) doing cleaning
- B. Date
- C. Locations cleaned
- D. Methods used in cleaning

VI. O & M Plan Implementation

- A. Names of person(s) involved
- B. Start and finish date of action
- C. Locations
- D. Description of action, including methods and preventive measures taken
- E. If ACBM removed, name and location of storage or disposal site

VII. Renovation or Repairs Involving ACBM

- A. Name and signature of contractor
- B. Certification/accreditation numbers of contractor
- C. Start and finish dates of project
- D. Location(s)
- E. Description of project, including preventative measures taken
- F. If ACBM removed, name and location of storage/disposal site

VIII. Fiber Release Episodes

- A. Date of episode
- B. Location
- C. Method of repair
- D. Response action
- E. Name(s) of person(s) performing work
- F. If ACBM is removed, name and location of storage or disposal site

IX. Other

- A. Complete historical blueprint of facility, if available
- B. Any documentation on materials/products used in construction or renovation of the facility that may contain asbestos (include any correspondence with manufacturers)
- C. Copy of complete and up-to-date O&M plan
- D. Location and photographs of warning signs and barriers placed to prevent unauthorized access to areas of ACM.
- E. All documents and results pertaining to all facility surveys.
- F. Required state and federal forms dealing with notification and compliance
- G. All correspondence pertaining to the asbestos issue in the facility
- H. Any employee organization or employee requests for meetings, information, etc., regarding asbestos in the facility.

PART 3 - LEAD OPERATIONS & MAINTENANCE PROGRAM

3.1 Lead Inventory

Below is a list of lead containing (LCM) and non lead-containing materials found inside 30 Trinity Street, Hartford, Connecticut. This list has been developed from specific materials which were tested during the site survey in preparation for the O&M program. Those materials, which have not been tested to this point, shall be assumed to be lead containing until testing proves otherwise. **If at any time there is uncertainty as to the lead-content of a building material to be impacted by an O&M activity, stop immediately and contact the Program Manager (PM).**

LCM and non-LCM shall be identified on a floor by floor basis.

Lead-containing Materials - LCM Based upon XRay Fluorescence (XRF):

| <u>Material</u> | <u>Surface Condition**</u> | <u>Floor</u> |
|------------------------------|----------------------------|------------------------------|
| Painted Plaster Wall | 1 | Basement |
| | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Plaster Column | 1 | Basement |
| | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Brick Wall | 2 | Basement |
| Painted Cement Stair | 2 | Basement |
| Painted Cement Wall | 1 | First Floor |
| Painted Cement Column | 1 | Basement |
| | 1 | First Floor |
| Painted Metal Stair Riser | 2 | Basement |
| | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Metal Stair Stringer | 2 | Basement |
| | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Metal Stair Railing | 2 | Basement |
| | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| | 2 | Exterior (Front of Building) |

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| <u>Material</u> | <u>Surface Condition**</u> | <u>Floor</u> |
|---|----------------------------|-----------------------------------|
| Painted Metal Stair Tread | 2 | Basement |
| | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Metal Doors, Door Casings | 2 | Basement |
| | 1 | First Floor (Front Foyer only) |
| | 2 | Third Floor |
| Painted Metal Elevator Doors, Door Casings | 2 | Basement |
| | 2 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Metal Window Sashes, Window Casings | 2 | Basement |
| | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| | 2 | Exterior |
| Painted Wood Window Sills | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Wood Window Sash | 1 | Third Floor |
| Painted Cement Baseboards | 1 | Second Floor |
| | 2 | Third Floor |
| Painted Metal Baseboards | 2 | Third Floor |
| Rubber Baseboards | 0 | Basement |
| Painted Metal Pipe | 1 | Third Floor |
| Painted Metal Radiator | 1 | First Floor |
| Painted Plaster Ceilings | 1 | All Floors (Front Stairwell Only) |

Non Lead - Containing Materials:

| <u>Material</u> | <u>Surface Condition**</u> | <u>Floor</u> |
|------------------------------------|----------------------------|--------------|
| Painted Cement Ceiling | 1 | Basement |
| Painted Plaster Ceiling | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Wallboard Walls | 1 | Basement |
| | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Metal Bathroom Stall Walls | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |
| Painted Cement Floors | 2 | Basement |
| Painted Metal Doors, Door Casings | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Fourth Floor |
| Painted Wood Doors | 1 | Basement |
| | 1 | Third Floor |
| Stained/Varnished Wood Doors | 0 | First Floor |
| | 0 | Second Floor |
| | 0 | Third Floor |
| | 0 | Fourth Floor |
| Painted Wood Baseboards | 1 | Second Floor |
| Rubber Baseboards | 0 | First Floor |
| | 0 | Second Floor |
| | 0 | Third Floor |
| | 0 | Fourth Floor |
| Painted Wood Window Sill | 1 | Basement |
| Painted Wood Window Stool | 1 | First Floor |
| Painted Wood Chair Rail | 1 | Second Floor |
| Painted Metal Electrical Panels | 1 | First Floor |
| | 1 | Second Floor |
| | 1 | Third Floor |
| | 1 | Fourth Floor |

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30 Trinity Street
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| <u>Material</u> | <u>Surface Condition**</u> | <u>Floor</u> |
|----------------------------|----------------------------|-----------------------------|
| Painted Metal Window Grate | 2 | Exterior |
| Painted Metal Railing | 1 | Exterior (Rear of Building) |

**Surface Conditions:

- 0 = No paint (varnished, stained or rubberized).
- 1 = All paint is intact.
- 2 = Some paint is peeling, cracking or flaking.
- 3 = Large amounts of paint are peeling, cracking or

flaking.

3.2 Education and Training

Custodial and Maintenance Training

All maintenance and custodial staff who perform duties that involve the removal or disturbance of LCM that may cause lead exposure at or above the action level shall receive a minimum 4-hour lead awareness training dated within one year to meet the OSHA requirements detailed in 29 CFR 1926.62. The building owner or employer is required to make an initial determination of whether any workers exposure to lead exceeds the action level (30 ug/m³). The initial determination requires employers to monitor workers' exposures to lead and train workers in lead awareness unless he or she has objective data which can demonstrate conclusively that no employee will be exposed to lead in excess of the action level. If the initial exposure assessment indicates that workers are exposed above the PEL (50 ug/m³), the building owner or employer must institute engineering controls and work practice controls to the extent feasible to reduce exposure to lead. The building owner or employer is also required to develop and implement a written compliance program consistent with OSHA requirements (29 CFR 1926.62) if lead exposure is at or above the PEL.

3.3 Work Practices and Procedures

Worker General Procedures

This section includes detailed general procedures for steps that are common to many of the specific work practices. These general procedures are referenced in the work practices where required. Not all of the worker general procedures are used in every work practice. The general procedures should be reviewed in detail by all personnel using the work practices in this program. If possible, the general procedures should be covered in O&M training related to the implementation of this program.

The work practices and checklists refer the user to applicable general procedures for detailed information on how to perform a certain portion of the work. Once a user is familiar with the general procedure requirements, it might not be necessary to review the general procedures each time an O&M activity is performed. However, the general procedures should be reviewed periodically by all workers and the Program Manager (PM) to verify that the proper procedures are being followed.

Workers should report any suggestions or problems regarding these work practices to the PM. The worker general procedures include:

Lead Worker Checklist

- W1 Tools, Equipment and Materials
- W2 Shut-off and Lockout of HVAC and Electrical Systems
- W3 Securing Work Area
- W4 Putting on Respirators and Performing Fit Checks
- W5 Putting on Protective Clothing
- W6 Beginning and Conducting Air Monitoring
- W7 Precleaning Work Areas and Wet Wiping
- W8 Setting up Work Areas
- W9 Waste Determination
- W10 Cleaning Tools, Equipment and Work Area
- W11 Decontaminating Waste
- W12 Worker Decontamination and Removal of Protective Clothing and Respirators
- W13 Visual Inspection and Completing Air Monitoring
- W14 Disposal of Contaminated Water

Lead Worker Checklist

Operations and Maintenance Work Practices

Pre-Work Activities:

- ___ Obtain and review copies from Program Manager (PM) of:
 - ___ Completed Maintenance Work Authorization Form
 - ___ Worker practice(s) to be used including personal protective equipment options
 - ___ Work Notification(s) (as applicable)
 - ___ Schedule for work
- ___ Inspect work area for visible dust or debris. If present, stop work and notify PM
- ___ Obtain recommended tools, equipment and materials - See W1
- ___ Obtain required respirators as listed on Maintenance Work Authorization Form
- ___ Move tools, equipment, and materials to work area
- ___ Shut off and lock out electrical systems serving work area - See W2
- ___ Vacate and secure work area, such as by locking doors and/or setting up temporary barriers
- ___ Put on respirators and perform fit checks
- ___ Put on protective clothing
- ___ Air monitoring personnel begins air monitoring work (if required)
- ___ Preclean work area if visible dust or debris is present

Work Area

- ___ Set up work area and decontamination facilities as required by W9 and W13

Work Practices

- ___ Perform work per steps in specific work practices

Clean-up and Tear-Down

- ___ Package and label waste for disposal
- ___ Clean tools, equipment and work area using wet wiping and HEPA vacuuming as appropriate and return tools and equipment to outside work area
- ___ Decontaminate packaged waste & remove waste to outside work area
- ___ Workers decontaminate and remove protective clothing and respirators. If contaminated, dispose of protective clothing as hazardous lead waste
- ___ Complete visual inspection. Complete air monitoring work (if required)
- ___ Transport waste to designated waste storage area
- ___ Remove drop cloth and/or mini-enclosure
- ___ Return decontaminated tools, equipment and remaining materials to storage area
- ___ Remove lockout tags and restart electrical systems
- ___ Restore normal accessibility to work area
- ___ Notify Program Manager or Supervisor that work is completed & return documents to PM for record-keeping

W-1 Tools, Equipment and Materials

The following is a list of tools, equipment and materials that are referenced in the work practices and are recommended to perform the work practices. Tools, equipment or materials that are unique to a certain work practice are listed under item 2 in each work practice. For frequent O&M work, it might be helpful to maintain an "O&M cart" containing the necessary tools, equipment and materials.

Tools and Equipment

- Utility knife
- Ground fault circuit interrupters (GFCI's), Extension cords and adapters
 - GFCI's should be used on any electrical equipment or tools used in O&M work where water might be in use or present in the work area.
- Lockout tags
- Temporary work lights
- Ladder for elevated work
- Wet wipes or bucket with clean water for wet wiping
- Smoke test bulb and tubes
- Safety glasses

Abatement Equipment and Materials

- Polyethylene sheeting (6 mil thickness)
- Duct tape
- Disposal bags with labels
- Waste Generator labels
- High efficiency particulate air (HEPA) vacuum with hose, attachments and proper HEPA filter (wet/dry type needed for some work practices)
- Respirators (if required)
- Disposable coveralls with head and foot covers (if required)
- Disposable towels or wet wipes
- Warning signs
- Air monitoring pumps, cassettes and calibration equipment (if required)
- Frame for mini-enclosure or prefabricated mini-enclosure

W-2 Shut-off and Lockout of Electrical Systems

Any electrical systems that might be worked on or affected by O&M activities should be shut off, locked and tagged with electrical lockout tags at the circuit breaker panel or disconnect switch. Affected systems include systems that could create electrical hazards during O&M activities that involve wetting. Lockout tags should note when and why power is shut down and the personnel performing the lockout. There should only be one key for each lock used on lockout tags to prevent accidental reactivation of equipment.

W-3 Securing Work Area

When lead dust might be released and employees exposed at or above the Permissible Exposure Level (50 U_g/m³), work areas should be vacated and secured (where feasible) by scheduling, locking doors (from inside the area if possible) or other means. Installing polyethylene critical barriers over all openings into the work area. If this is not feasible, access to the work area should be restricted, such as by barrier tape around the perimeter of the work area. If barrier tape is used to denote a work area, the suggested distance is 5 to 10 feet outside of any polyethylene protection used in the work area. Install barrier tape by taping or tying it to fixed objects.

Do not block access to any emergency exits.

W-4 Putting on Respirators and Performing Fit Checks

The procedures described below are based on the assumption that workers wearing respirators have been trained in the purpose, use and limitation of respirators and, for negative pressure respirators, fit tested, and enrolled in a medical surveillance program as part of the Respiratory Protection Program. Respirators used should be approved by NIOSH. These procedures are not a substitute for a Respiratory Protection Program in accordance with OSHA standard 29 CFR 1910.134 or regulatory requirements regarding respirators.

Wearers should inspect their respirators before each use of the respirator. Respirators must not be damaged, have missing parts or be deformed in any way. The straps must be intact and well attached. Proper filter cartridges for the hazards to be encountered must be installed. Verify that filters have been replaced in accordance with the Respiratory Protection Program. Batteries for powered respirators should be fully charged. The respirator should also be cleaned if it was not cleaned after the last use. If any problems exist, the respirator should be repaired or replaced in accordance with the Respiratory Protection Program.

When putting on a respirator, the straps should be loosened before it is put on. Filter caps (such as those used on some Powered Air Purifying Respirators) should be taped to the filter body or stored where it will not be lost. Powered respirators should be turned on and flow checked before the face-piece is put on. The respirator should be put on and then the straps tightened as recommended in the manufacturer's information provided with the respirator. Fit checks should then be performed.

Fit Checks Fit checks should be performed in accordance with the Respiratory Protection Program by each worker each time they put on a respirator. Both positive and negative pressure fit checks should be performed. When feasible, powered respirators should be checked with the motor unit turned off. A negative pressure fit check is done by donning the respirator and pulling the respirator straps so the unit fits snugly. Inhale gently while placing hands over filters to block off inhalation side. Respirator should pull to face and no air should leak in around face seal.

A positive pressure fit check is done by exhaling gently (without breaking respirator seal to face) breathing normally while blocking off the exhalation valve. The face piece should then expand away from face while exhaling. Adjust respirator straps as needed to obtain a good seal of the face-piece to the face. If a good seal cannot be obtained, obtain a new respirator and perform fit tests again.

W-5 Putting on Protective Clothing

Protective clothing for workers typically consists of disposable coveralls, gloves and boots. Coveralls should have hoods and booties attached. They should provide complete coverage of the body with the exception of hands and face. Cloth coveralls that are cleaned by a facility equipped to launder asbestos contaminated clothing might also be used. Do not modify coveralls.

If street clothes could become contaminated, two coveralls should be worn, or the street clothes should be removed before the start of work. When possible, street clothes should be removed in a changing area before protective clothing is put on. Protective clothing should be put on after respirators. The overall hood should cover respirator straps.

Workers are encouraged to wear protective gloves that are duct taped at the cuffs to the protective coveralls. Eye, hearing, and head protection should also be used where needed. Rubber slip-resistant boots are recommended for work areas where slip hazards might occur (protective booties should cover feet inside the boots). Steel-toed boots should be used in areas where foot hazards exist. Do not use coveralls with loose foot coverings for activities that involve climbing ladders.

W-6 Beginning & Conducting Air Monitoring

Air monitoring during O&M activities can consist of personal monitoring, area monitoring and clearance monitoring. If air monitoring is required for the work practice being performed it should be listed on the Maintenance Work Authorization Form and be conducted in accordance with applicable regulations, the O&M Plan and Air Monitoring Program. All air monitoring work should be conducted by a licensed air monitoring person or project monitor assigned by the PM.

The air monitoring person should calibrate, adjust, and record the flow rate of all air monitoring pumps to be used before air monitoring is started for an O&M activity.

Personal Monitoring To perform personal monitoring, attach a personal air-monitoring pump to a belt worn by the worker. Attach an air-sampling cassette to the hose from the pump. Route the hose up the worker's back and tape the hose to the worker's protective coveralls using duct tape. The cassette should be located with the open end facing downwards at approximately a forty-five degree angle in the worker's "breathing zone" at about collar level. Turn the pump on and record start time. The air monitoring person will retrieve or change the cassette when necessary, or when work is completed.

Area Monitoring Area monitoring is usually performed using high volume air sampling pumps. Place pumps inside the work area and outside the work area in occupied areas or areas where occupants could be exposed if lead dust is released from the work area. Pumps should be located where they obtain meaningful measurements of potential worker exposure during monitoring. Attach sampling cassettes to the hoses from the pumps and attach the cassettes to the top of tripod stands or other stable structures (but not the pumps themselves) to locate the sample at four to five feet above the floor. These cassettes should be located with the open-end facing downwards at approximately a forty-five degree angle. The air monitoring person will retrieve or change cassettes as needed or when the work is completed.

W-7 Precleaning Work Areas and Wet Wiping

Precleaning of work areas prior to the start of work is done to remove accumulated debris that could be disturbed during the work. Precleaning might include picking up dust and debris with a HEPA vacuum, wet wiping non-porous surfaces, HEPA vacuuming surfaces that can not be wet wiped, and cleaning any carpeted surfaces using steam extraction equipment. Precleaning might reduce the extent of cleaning required after the work and for clearances (if required).

Wet Wiping The procedures to be used for wet wiping are as follows:

1. Immerse disposable towel in bucket containing water.
2. Wring out towel and fold into quarters.
3. Wipe surface and refold to have a clean face exposed. Do not place towel back into bucket or water will become contaminated and will need to be replaced.
4. Repeat step 3 until all faces of towel have been used. Obtain a clean towel if more wiping is needed.
5. Dispose of used towels in disposal bags.
6. See general procedure W15 for disposal of contaminated water.

HEPA Vacuuming The procedures to be used for HEPA vacuuming are as follows:

1. For floors, use a floor attachment with rubber floor seals and adjustable floor-to-attachment height. For furniture, fabrics or other surfaces use an upholstery attachment or brush attachment.
2. Vacuum hard or smooth surfaces with attachment about 1/16" above the surface.
3. Vacuum carpet or fabrics with attachment just touching the surface.
4. Vacuum all surfaces in parallel passes with each pass overlapping the previous one by one-half the width of the attachment.
5. Once surfaces are cleaned in one direction, clean a second time at right angles to the first cleaning.
6. Use crevice brush or other tools to clean irregularly shaped surfaces.

The procedures to be used for steam cleaning carpet are as follows:

1. Steam clean carpet using carpet tool.
2. Steam clean all surfaces in parallel passes with each pass overlapping the previous one by one-half the width of the attachment.
3. Once surfaces are cleaned in one direction, clean a second time at right angles to the first cleaning.
4. See general procedure W14 for disposal of contaminated water from cleaning process.

W-8 Setting up Work Areas

Polyethylene work area protection is not to be used in place of other engineering controls and good work practices. Work practices such as wetting LCM, careful handling, local collection by HEPA vacuum and local exhaust ventilation should be the primary means of exposure control during O&M work. Polyethylene protection and mini-enclosures are intended as a secondary means of protection during the work.

Polyethylene Drop Cloth - Preparing a work area with a drop cloth requires that a single layer of polyethylene be spread on the floor of the work area and taped or weighted in place. Do not use more than one layer if ladders (or similar equipment) will be used, unless a hard surface, such as plywood is laid over the drop cloth. If floor is a soft material, such as carpet, use caution to prevent tearing of polyethylene under equipment. The drop cloth should cover an area large enough to catch falling debris. If work is to be performed at an elevated level, the drop cloth should be placed on the work platform, or extended at ground level beyond the immediate work location to catch any debris that might be generated. Note that the use of a drop cloth introduces potential slip hazards in the work area. Non-slip foot coverings are recommended where drop cloths are used.

Mini-Enclosure - A mini-enclosure is usually a polyethylene enclosure (it is suggested that fire retardant polyethylene be used) around a work area. Mini-enclosures are sealed enclosures used as a secondary means to help, or attempt to, contain fibers or debris generated during the work. Mini-enclosures also serve to provide a visual barrier between the workers and any other personnel around the work area.

There are a variety of commercially available types of mini-enclosures, including prefabricated pop-up boxes and adjustable framework assemblies to permit different sizes of enclosures to be constructed. Disposable liners for mini-enclosures (to facilitate set up and dismantling of the enclosure) are available from some manufacturers. It might be beneficial to construct or purchase a portable mini-enclosure unit that works for the typical conditions found in the building.

It is recommended that two workers be used to set up and operate mini-enclosures. To construct a mini-enclosure, erect a framework of wood, PVC piping or metal framing that will enclose the work area and be large enough for one person to work inside. The minimum width and depth of the enclosure should be at least 3 feet. The height of the enclosure will vary depending upon the work to be performed and the height of the work area. A larger enclosure is preferable where space permits. However, if the enclosure is too large, the final cleaning process will require more time. A mini-enclosure can include a separate 3 foot by 3 foot by 6 foot change room, with curtain doorways, attached to the mini-enclosure for changing and removing protective clothing.

Cover the floor and the framework for the enclosure and change room with one layer of polyethylene attached using duct tape. A second layer of polyethylene laid on the floor might facilitate clean up work, or reduce the possibility of tearing the polyethylene if equipment is used (do not use two layers under the legs of ladders). Construct curtain doorways between the change room and the enclosure and between the change room and the area outside the change room. A curtain doorway is made of three overlapping sheets of polyethylene. Attach sheets to framework at top and one side. The middle sheet should be attached on one side, and the inner and outer sheets attached on the other side. A sheet of polyethylene approximately 5 feet by 5 feet or larger should be installed outside the change room for use as a step off area and as a place to put decontaminated materials removed from the work area.

Negative Pressure System and HEPA Filtered Local Exhaust Ventilation:

Mini-enclosures should be provided with a negative pressure system maintained at a minimum of -0.02 inches pressure differential, and be ventilated by a minimum of 4 air volume changes per hour to reduce the possibility of fibers being released from the enclosure during the work, and to filter inside air discharged from the enclosure. Negative pressure inside mini-enclosures is commonly provided by a High Efficiency Particulate Air (HEPA) filtered vacuum or by negative pressure machines, depending upon the size of the enclosure. A HEPA vacuum will usually provide sufficient negative pressure for a small enclosure.

A negative pressure system for a mini-enclosure most commonly locates the HEPA vacuum or negative pressure machine outside the enclosure. The intake side of the unit is ducted to the enclosure through the vacuum hose or flexible duct material taped to a hole in the enclosure on the side opposite from the change room or as close as possible to where the work will be performed. The filtered exhaust side of the unit should be ducted to the outside of the building.

However, most vacuum units do not provide a connection for an exhaust duct, and are commonly exhausted to the inside. Additional protection might be desirable for an area where air is exhausted inside a building. Contact CTDPH for guidance when this situation arises in the building.

W-9 Waste Determination

Lead containing waste material generated from O&M activities should be TCLP (Toxicity Characterizing Leaching Procedure) tested for waste determination. If waste materials are found to leach lead at hazardous levels (greater than or equal to 5 mg/liter of lead), containerize and dispose of as hazardous lead waste at an EPA approved treatment, storage, and disposal facility. All containers of hazardous lead bearing material shall be labeled as required in 29 CFR 1926.62. If waste materials are found to leach lead at less than 5.0 mg/liter of lead, containerize and dispose of as solid waste.

W-10 Cleaning Tools, Equipment, and Work Area

Clean tools and equipment using HEPA vacuuming and/or wet wiping procedures. Special attention should be given to cleaning extension cords, equipment wheels, vacuum hoses and other items that could pick up debris during the work. Tools and equipment should be placed outside of the work area as soon as cleaning is completed. Drop cloths and mini-enclosures can be wiped clean or disposed of as hazardous lead waste.

Cleaning of the work area where an O&M activity is conducted consists of HEPA vacuuming and/or wet wiping (as appropriate) all surfaces in the area. HEPA vacuuming and wet wiping shall be performed as described in general procedure W7 above.

W-11 Decontaminating Waste

Packaged waste should be HEPA vacuumed and wet wiped before it is moved out of the work area. Use the wet wiping and HEPA vacuuming procedures in general procedure W7. Packaged waste should be placed on a sheet of polyethylene when it is moved outside of the work area. This polyethylene can be the outer portion of a drop cloth, if a drop cloth is being used.

W-12 Worker Decontamination and Removal of Protective Clothing and Respirators

Removal of Protective Clothing When Drop Cloth Work Area Protection, or no Work Area Protection, is used. HEPA vacuum all parts of protective clothing while standing at perimeter of drop cloth. Leaving respirator in place, remove protective clothing and fold inside out as it is removed. Place clothing, if contaminated, into a disposal bag and label as hazardous lead waste.

Removal of Protective Clothing If A Mini-Enclosure and Change Room is used. HEPA vacuum all parts of protective clothing while inside work area enclosure.

If two disposable coveralls are used, remove outer coveralls in work area while leaving respirator in place. Fold coveralls inside out as they are removed. Move to change room, HEPA vacuum protective clothing, and remove second set of coveralls in the same manner. If only one set of disposable coveralls is worn, remove in change room while leaving respirator in place. Fold coveralls inside out as they are removed.

Place protective clothing, if contaminated, into a disposal bag and label as hazardous lead waste. Wash hands, face and surface of respirator with clean water and disposable towels. Use caution to avoid breaking seal between respirator face-piece and face. Place disposable towels into a disposal bag. Remove respirator and follow procedures specified in Respiratory Protection Program for cleaning and storing respirator. Change respirator filters if needed or required and dispose of used filters as LCM. Put street clothes on and exit change room.

Removal of Protective Clothing if a Shower is Available. If a shower with waste water filtering for lead is available, follow the applicable clothing removal procedure described above. Remove protective clothing in work area and put on a clean set of protective coveralls. Proceed to shower with respirator still in place. At shower facility, remove protective coveralls, folding inside out during removal. Place clothing, if contaminated, into a disposal bag and label as hazardous lead waste. Shower completely, and remove and clean respirator while showering as described below.

Street Clothes. If street clothes are worn under protective clothing and are contaminated during the work, the street clothes should be HEPA vacuumed, removed during decontamination and placed into a labeled disposal bag.

Removal of Respirator

Remove respirator after removing protective clothing (if used). Before removing respirator, wash hands, face and surface of respirator with clean water and disposable towels. Use caution to avoid breaking seal between respirator face-piece and face. Avoid getting water into filter cartridges of respirator. Place disposable towels into a disposal bag. Remove respirator and follow procedures specified in Respiratory Protection Program for cleaning and storing respirator.

W-13 Visual Inspection and Completing Air Monitoring

Visual Inspection. A visual inspection should be conducted prior to the completion of air sampling to verify that all visible dust or debris has been cleaned up. The person performing the inspection can be a worker. If the PM or another person makes this inspection, they should wear the same type of personal protective equipment worn by the workers. If visible dust or debris remains, it must be cleaned up using wet wiping and/or HEPA vacuuming.

W-14 Disposal of Contaminated Water

Contaminated water from O&M activities should be disposed of in accordance with all applicable federal, state and local regulations. The contaminated water should be collected in 55 gallon drums and filtered using a 2 stage filtration system composed of a 5 micron porosity in-line cartridge particulate filter followed by an activated carbon filter in-line cartridge. The filtered water should be tested prior to discharge to a sanitary sewer. Water that fails to meet testing criteria pH adjusted and retested. If the second test fails to meet the testing criteria, the water should be filtered by reverse osmosis prior to testing and discharge to the sanitary sewer.

Worker Specific Procedures

SPL-1 Clean-Up Debris from Damaged Material

This work practice describes the procedures to be used to clean up lead dust and debris generated by damaged material.

Procedure:

1. Perform Pre-work activities on Lead Worker Checklist as required.
2. Additional tools, equipment and materials: None.
3. Remove and containerize all visible accumulations of lead dust and lead containing debris. During clean-up, utilize rags and sponges wetted with amended water to minimize dust levels. Mop heads, waste water, broom heads, rags, and sponges used in the clean-up activity shall be disposed of as hazardous lead-bearing waste.
4. Clean all surfaces with HEPA filtered vacuum equipment prior to wet cleaning all surfaces within the effected area. Wet clean all surfaces and HEPA vacuum again.

SPL-2 Attaching/Replacing Items to Painted Walls, Ceilings, Columns or Floors Containing Lead

This work practice describes the work required to attach an item to a surface finished with LCM. This work practice must be used in conjunction with applicable Worker General Procedures (Section 3.3) and the Lead Worker Checklist.

Procedure:

1. Perform Pre-work activities on Lead Worker Checklist as required.
2. Special tools, equipment and materials (See General Procedure W1)
3. *Prepare work area with drop cloth, erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation. (See General Procedure W8)
4. Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for vacuuming areas above ceiling.
5. Enter enclosure and wet area on ceiling where item will be attached using garden sprayer with water.
6. If drilling a hole is necessary, drill hole with tools with a HEPA vacuum dust collection system. Adequately wet any dust or debris that is generated. Place all debris and sponges into containers and TCLP test for waste determination.
7. Perform clean-up and tear-down steps on Lead Worker Checklist to complete work.

SPL-3 Cut or Drill Holes in Painted Walls, Ceilings, Columns or Floors Containing Lead

This work practice covers the work required to cut or drill a hole through walls or ceilings containing LCM. This work practice must be used in conjunction with applicable Worker General Procedures (Section 3.3) and Lead Worker Checklist.

Procedure:

1. Perform Pre-work activities on Lead Worker checklist.
2. Additional tools, equipment and materials: Scraper, hand or power drill or saw. HEPA vacuum attachment on power tools is required.
3. *Prepare work area with drop cloth, erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation. (See General Procedure W8)
4. Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for use during the work.
5. Enter enclosure. If hole is being drilled through a surface, such as acoustical plaster where back side is inaccessible, use the procedures in step 6. If hole is being drilled through a surface, such as a fireproofed metal deck, where both sides are accessible, use the procedures in step 7.
6. A. Inside enclosure, install polyethylene sheet below removal location to catch any falling debris.
B. Adequately wet area where hole is to be cut or drilled.
C. Cut or drill hole with tools with a HEPA vacuum dust collection system
7. A. If hole is drilled from top side of deck, adequately set LCM on underside and install enclosure below LCM on underside that will catch any falling debris, including material from hole (such as a concrete cylinder). (If hole is drilled from underside, see step B). Drill hole through surface. Adequately wet drilling area while drilling. Wet any debris in enclosure on underside, package up debris and enclosure and TCLP test for waste determination.
B. If hole is drilled from underside of deck, provide an enclosure on top side where hole will penetrate deck and follow steps 6A, 6B, and 6C.
8. Let HEPA vacuum run for at least 15 minutes to clean air in enclosure.
9. Perform maintenance work and clean-up and tear-down steps on Lead Worker Checklist to complete work. Two or more workers are recommended to perform this procedure.

SPL-4 Replace Bulbs in Light Fixture Attached to or in Surface Finished with LCM

This work practice covers procedures for replacing light bulbs in a fixture attached to a surface finished with LCM. Light fixtures attached to or in surfaces finished with LCM can cause damage to the LCM if the fixtures are moved during maintenance work.

Procedure:

1. Perform Pre-work activities on Lead Worker Checklist.
2. Special tools, equipment and materials: Replacement bulbs
3. Place tools, equipment and materials needed in work area.
4. Carefully replace light bulbs without jarring fixture. Clean-up any dust or debris generated using HEPA vacuum.
5. Perform clean-up and tear-down steps on Lead Worker Checklist to complete work. One worker is sufficient to perform this procedure.

SPL-5 Repair Damaged Painted Walls, Ceilings, Columns or Floors Containing Lead

This work practice covers the procedures for repairing painted walls or ceilings containing lead. One worker is usually sufficient. This work practice must be used in conjunction with applicable Worker General Procedures (Section 3.3) and Lead Worker Checklist.

Procedure:

1. Perform pre-work activities on Lead Worker Checklist.
2. Additional tools, equipment and materials: hand scraper, sander, repair materials & tools.
3. Repair damaged area. Do not scrape or sand existing surface. If surrounding area is to be disturbed go to step 4 otherwise perform clean-up and tear-down steps on Lead Worker Checklist to complete work.
4. *Prepare work area with drop cloth, erect mini-enclosure and set up negative pressure system and /or HEPA filtered local exhaust ventilation. (See General Procedure W8)
5. Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for use during repair work.
6. Adequately wet area to be disturbed.
7. Remove any loose material by hand or with scraper. Collect material in disposal bags as it is removed. Remove material around edges of damaged area until well-adhered material is found, but do not remove beyond area protected inside enclosure. Mist removal area during removal of damaged material. Sand or smooth surface by hand or with power sander with a HEPA vacuum dust collection system. TCLP test all debris generated for waste determination.
8. Repair damaged area using non-LCM materials. Perform clean-up and tear-down steps on Lead Worker Checklist to complete work.

SPL-6 Scraping and Painting of LCM

This work practice describes the work required to scrape and paint LCM. One worker is recommended for this procedure. This work practice must be used in conjunction with applicable Worker General Procedures (Section 3.3) and Lead Worker Checklist.

Procedure:

1. Perform pre-work activities on Lead Worker Checklist.
2. Additional tools, equipment and materials: Paint, rollers or low pressure airless sprayer, and other painting equipment.
3. *Prepare work area with drop cloth, erect mini-enclosure and set up negative pressure system and /or HEPA filtered local exhaust ventilation. (See General Procedure W8)
5. Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for use during repair work.
6. Adequately wet area to be disturbed.
7. Remove any loose material by hand or with scraper. Collect material in disposal bags as it is removed. Remove material around edges of damaged area until well-adhered material is found, but do not remove beyond area protected inside enclosure. Mist removal area during removal of damaged material. Sand or smooth surface by hand or with power sander with a HEPA vacuum dust collection system. TCLP test all debris generated for waste determination.
8. Perform clean-up and tear-down steps on Lead Worker Checklist to prepare for painting.
9. Paint surface using sprayer or rollers.

SPL-7 Removal and Replacement of Intact Lead Containing Building Components

This work practice describes the work required to remove and replace intact lead containing building components such as window units and doors. One worker is recommended for this procedure. This work practice must be used in conjunction with applicable Worker General Procedures (Section 3.3) and Lead Worker Checklist.

Procedure:

1. Perform pre-work activities on Lead Worker Checklist.
2. Additional tools, equipment and materials: None
3. *Prepare work area with drop cloth, erect mini-enclosure and set up negative pressure system and /or HEPA filtered local exhaust ventilation. (See General Procedure W8)
5. Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for use during repair work.
6. Adequately wet area to be disturbed.
7. Remove intact lead containing building component, wrap in 6 mil polyethylene and store for TCLP testing for waste determination. Replace with lead free substitute building component.
8. Perform clean-up and tear-down steps on Lead Worker Checklist.

3.4 Respiratory Protection Program

The purpose of the respiratory protection program is to provide building maintenance and custodial personnel involved in O&M type activities that impact LCM with an adequate understanding of the health risks resulting from exposure to lead and sufficient knowledge of the protective respiratory measures that should be taken to eliminate these health risks.

The written respiratory protection program shall be maintained and updated by the Program Manager and its contents shall comply with the requirements set forth in the OSHA Lead Construction Standard (29 CFR 1926.62) and the OSHA Respiratory Protection Standard (29 CFR 1910.134).

3.5 Periodic Surveillance

An integral part of the O&M plan is the regular surveillance of the LCM present in the building. Periodic surveillance will ensure that damage or deterioration of LCM will be detected so that corrective action can be taken.

After the O&M plan is in effect, it is the responsibility of the Program Manager to ensure that all areas of the building are surveyed by himself/herself or by a trained custodial or maintenance person at least every six months and a record of the inspection be kept to include: the date of the surveillance, the inspector's name and signature and any changes in the condition of the LCM. This record is to be kept as part of the O&M plan and shall be made available to workers and building occupants for review upon request.

3.6 Documentation and Record-keeping

Importance of Documentation

The key to an effective and comprehensive O&M plan is documentation. This documentation must be maintained by the Program Manager.

The reasons for maintaining complete and detailed records of lead management are many. Historical documentation can only make renovation and adaptation easier in any facility. The legal liabilities involved with lead are complex and the more thorough the documentation, the more defensible are the actions taken. That the health of those working in or using the facility was not compromised is also important. Poor or sloppy record keeping could imply callousness toward those affected, or even place individuals/entities at an increased legal risk.

The method of keeping lead records is left for the Program Manager. No specific forms are required as long as the necessary information is recorded. Should omissions or errors occur in the documentation process, make clear attempts to rectify the error. An honest admittance of an error and a valid attempt to correct it will illustrate a complete and effective documentation process and help to prevent future liability.

Record-keeping

The following files should be maintained by the Program Manager:

- Lead Inspection and Sampling Reports
- Building Occupant/Tenant Notification and Acknowledgment Forms
- Periodic Surveillance and Air Monitoring Reports
- Pre-Renovation Inspection Reports
- Abatement Activities
- Training of custodial and maintenance personnel
- Training for the Program Manager
- Respiratory protection training
- Medical surveillance
- Employee exposure measurements
- Copies of Program Manager O&M Checklists
- Copies of Job Request Forms for Maintenance Work
- Copies of Maintenance Work Authorization Forms

The following outline supplies the Program Manager with a format useful for accurate record keeping:

I. Training Records for Employees

- A. Employee's name
- B. Job title
- C. Date training was completed
- D. Location of training, including organization's name
- E. Number of hours completed

II. Initial Exposure Assessment Sampling Collection

- A. Name and signature of person collecting samples
- B. Location samples were collected and date
- C. Name and address of laboratory analyzing samples
- D. Date of analysis
- E. Method of analysis
- F. Results
- G. Name and signature of analyst

III. Work Practices, Preventive Measures and/or Response Actions

- A. Detailed written description of the measure or action
- B. Methods used
- C. Location
- D. Documentation on why a specific measure or action was selected
- E. Start and completion dates of all work
- F. Names and addresses of all contractors/personnel involved
- G. Any certification/accreditation numbers and/or reference statements
- H. If LCM was removed, name, location of storage/disposal sites (i.e. Waste Manifest)

IV. Periodic Surveillance

- A. Date
- B. Inspector
- C. Notation of changes (or lack of) in the condition of the LCM

V. Cleaning (Each Instance)

- A. Names of person(s) doing cleaning
- B. Date
- C. Locations cleaned
- D. Methods used in cleaning

VI. O & M Plan Implementation

- A. Names of person(s) involved
- B. Start and finish date of action
- C. Locations
- D. Description of action, including methods and preventive measures taken
- E. If LCM removed, name and location of storage or disposal site

VII. Renovation or Repairs Involving LCM

- A. Name and signature of contractor
- B. Certification/accreditation numbers of contractor
- C. Start and finish dates of project
- D. Location(s)
- E. Description of project, including preventative measures taken
- F. If LCM removed, name and location of storage/disposal site

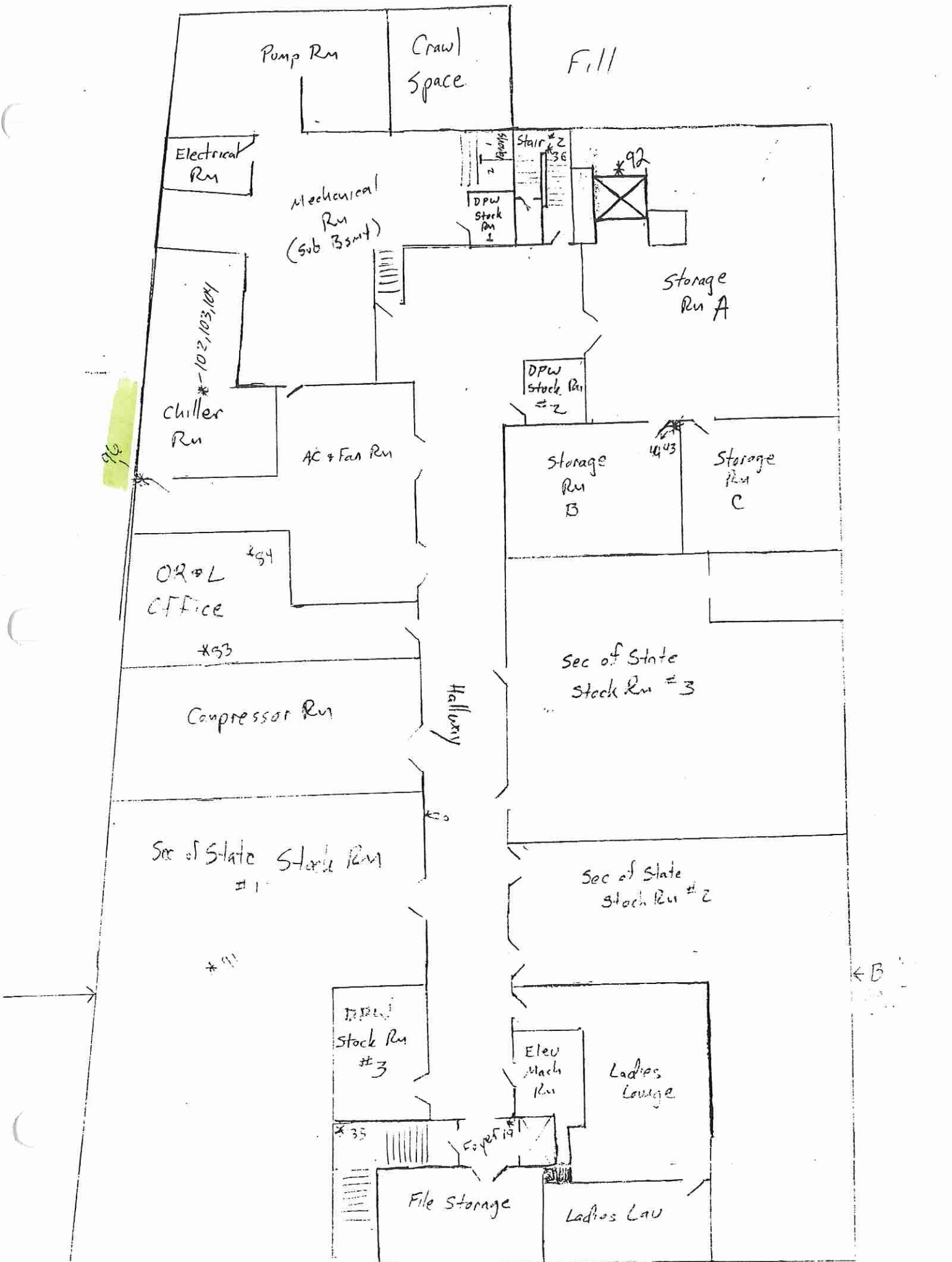
VIII. Other

- A. Complete historical blueprint of facility, if available
- B. Any documentation on materials/products used in construction or renovation of the facility that may contain lead (include any correspondence with manufacturers)
- C. Copy of complete and up-to-date O&M plan
- D. All documents and results pertaining to all facility surveys.
- E. All correspondence pertaining to lead issues in the facility
- F. Any employee organization or employee requests for meetings, information, etc., regarding lead in the facility

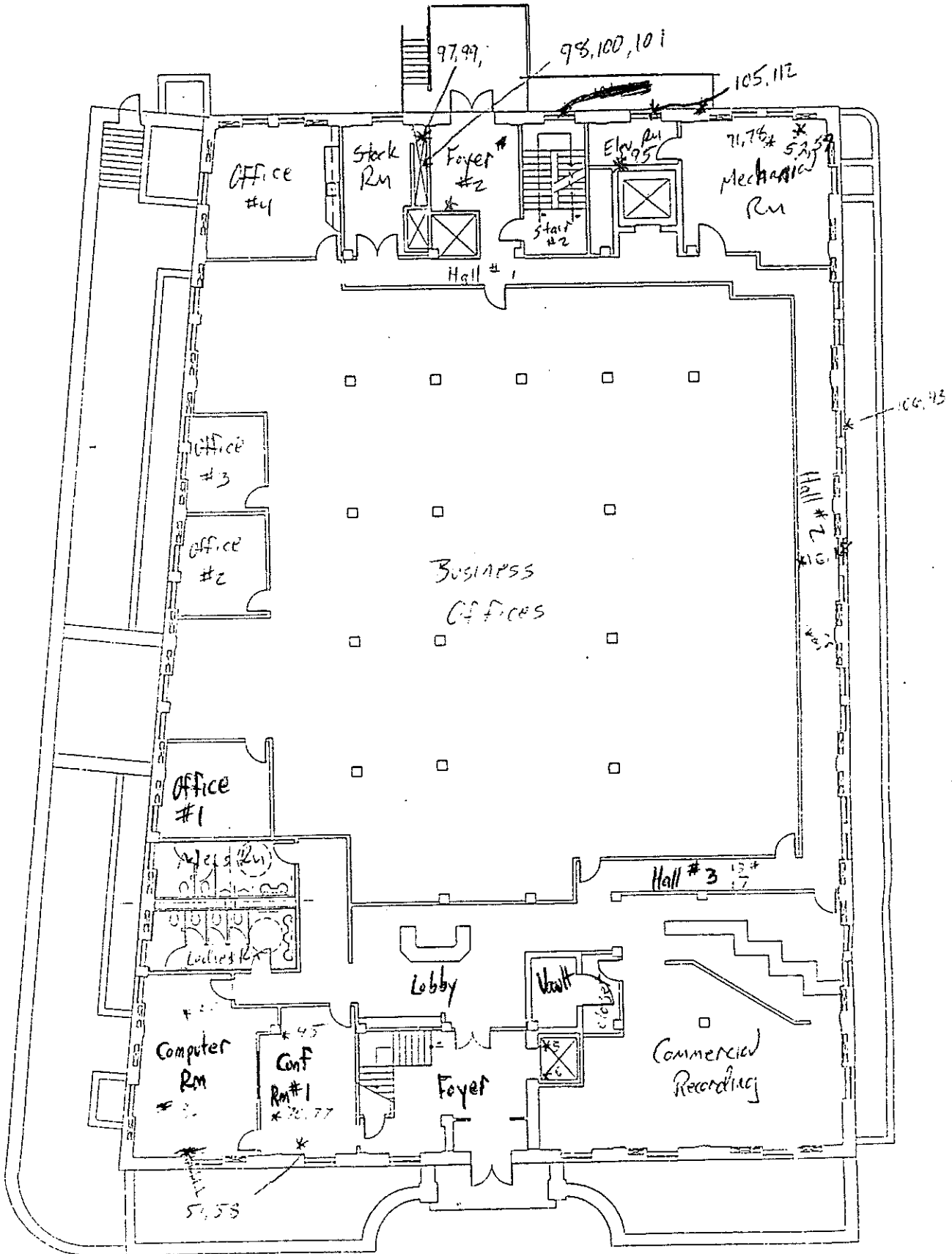
PART 4 - ATTACHMENTS

Attachment 1

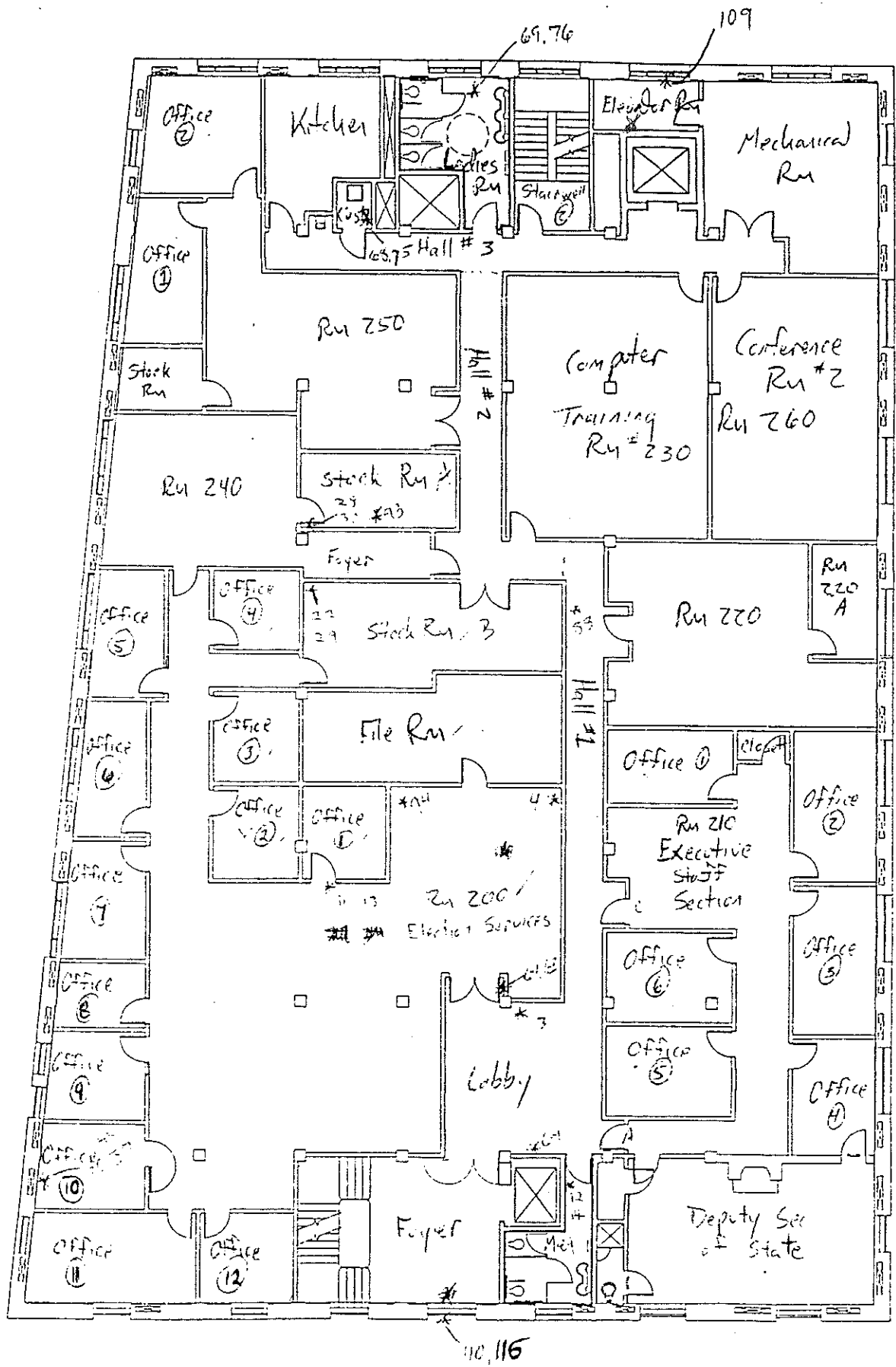
Job Request Form for Maintenance



30 TRINITY ST.
HARTFORD CT.

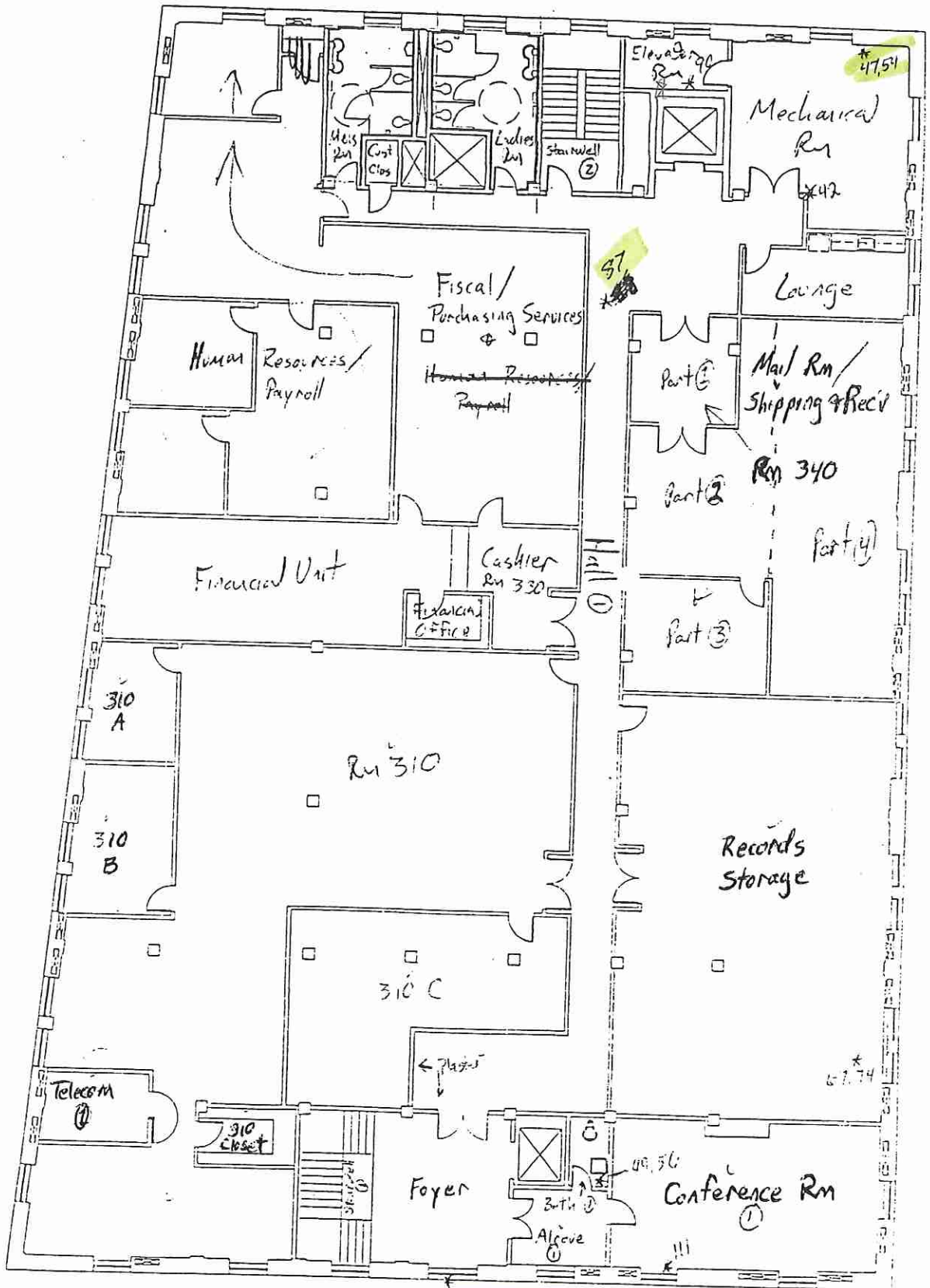


1ST FLOOR



SECOND FLOOR
NOT TO SCALE

Infor Tech - Michele, Terry, Chris, Suzy

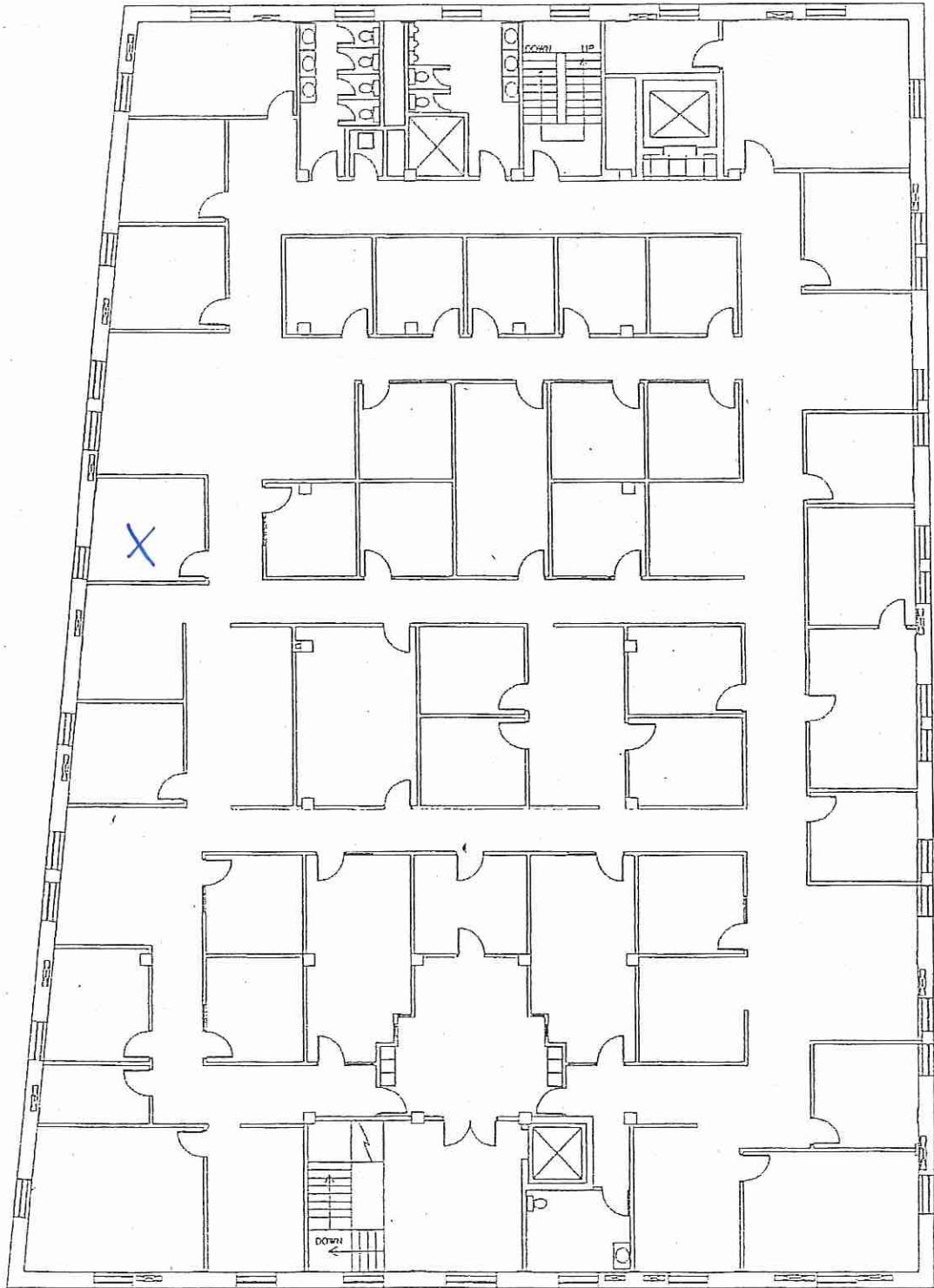


← North

310 Rm
2D key
2

68.15

THIRD FLOOR
NOT TO SCALE



FOURTH FLOOR
NOT TO SCALE

N



FOURTH FLOOR
NOT TO SCALE

STATE OF CONNECTICUT DEPARTMENT OF PUBLIC WORKS

Procedure for Completing Job Request Form for Maintenance/Renovation Work Utilizing Outside Contractors/Vendors.

1. Obtain a Job Request Form from O&M Program Manager.
2. Fill out the top portion of the form completely providing as much detail as possible. It is imperative that a form be completed as soon as work is needed.
3. Return the form to the Program Manager. Please note on the form whether a meeting is necessary to discuss the specific project.
4. The Program Manager will review the form, the work area and meet with the requestor, if necessary, to determine the proper course of action.
5. The form will be completed by the Program Manager and returned to the requestor within 48 hours.
6. If a request is granted the requestor must send a copy of the form to the contractor. The contractor must check in with security personnel and show the completed form upon entering the building. A contractor without the completed form will not be allowed to enter the building.
7. If a request is denied the Program Manager will notify the requestor and send a request to:
John Wytas
Statewide Services
DPW - Asbestos/Lead Management - Room 280
Tel.: 860-713-5702
Fax: 860-713-7250

This request will be for any additional sampling that is necessary or abatement that will be required prior to the start of any work.

8. Once sampling and/or abatement has been completed a notice will be sent to the requestor that work can commence. The contractor performing the work must have a copy of this notice upon entering the building.

NOTE: This procedure applies only to work that will be performed by outside contractors/vendors. This does not replace the work order system for in-house trades personnel (1-800-259-6132). The Program Manager prior to the start of work must also review all work orders through this system.

Rev 4/13/00

Job Request Form for Maintenance/Renovation Work utilizing Outside Contractors/Vendors

Department Project No.: _____ Job Request No.: _____

Requestor Name: _____ Date: _____

Telephone No.: _____ Fax No.: _____

Requested Starting Date: _____ Anticipated Completion Date: _____

Floor, room number(s) and department where work is to be performed: _____

Description of Work (attach demo./renov. drawings when available): _____

Signature of Requestor: _____

NOTE: A written authorization must be received before any work can proceed.

Submit application to Program Manager

Section to be completed by Program Manager

Description of any ACM and/ or LCM that might be affected including location and type:

_____ Granted (Job Request No. _____)

_____ With conditions*

_____ Denied

*Conditions:

Additional Comments:

Signed: _____
(Program Manager)

Date _____



Attachment 2
Maintenance Work Authorization Form

**STATE OF CONNECTICUT DEPARTMENT OF PUBLIC WORKS
Maintenance Work Review/Authorization Form**

Work Order# _____ Form# _____

Description of maintenance work requested: _____

Presence of ACM and/or LCM:

_____ ACM and/ or LCM are not present in the vicinity of the maintenance work,

_____ ACM and/ or LCM is present, but its disturbance is not anticipated, however if conditions change, the Program Manager shall be notified and the work re-evaluated prior to proceeding.

_____ ACM and/ or LCM: is present and may be disturbed.

If ACM/LCM is present, what is the material(s) and how is it impacted by the requested maintenance work: _____

Authorization to Proceed with Above Maintenance Work by In-House Trades Personnel

Authorized _____

Not authorize _____

Reason for denying authorization: _____

If authorization is given, the following work practices shall be employed to avoid or minimize disturbing ACM and/ or LCM if maintenance work performed by in-house trades personnel:

Signed: _____
(Program Manager)

Date: _____

By signing below the individual who completed the work states that the work was performed in accordance with the instructions of the Program Manager:

Print: _____

Signed: _____
(Trades Person who Completed Work)

Date: _____

**Request for Licensed Asbestos/Lead Abatement Contractor/Consultant for
Operations and Maintenance Work**

TO: John Wytas Tel: 860-713-5702
Statewide Services Fax: 860-713-7250
DPW -Asbestos /Lead Management

FROM: O&M Program Manager- Tel:

DATE: _____

LOCATION OF WORK: _____

TYPE OF WORK REQUESTED:

_____ Sample Material to Determine Course of Action

Material: _____ Analyze for: _____

Material: _____ Analyze for: _____

Material: _____ Analyze for: _____

_____ Asbestos Abatement/Repair Work

_____ Lead Abatement/Repair Work

_____ Asbestos and Lead Abatement/Repair Work

PRIORITY: _____ (1-3, 1 - highest)

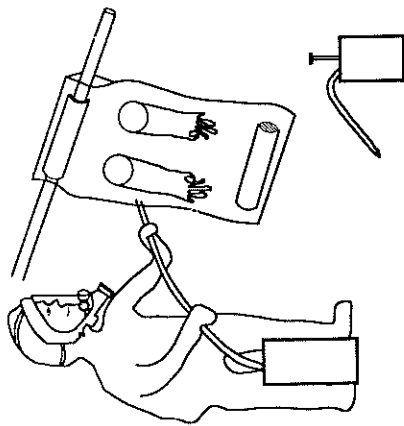
PRIORITY EXPLANATION: _____

SCOPE OF WORK: _____

Please contact the Program Manager when a request is authorized to schedule a walkthrough of the work area.

Attachment 3

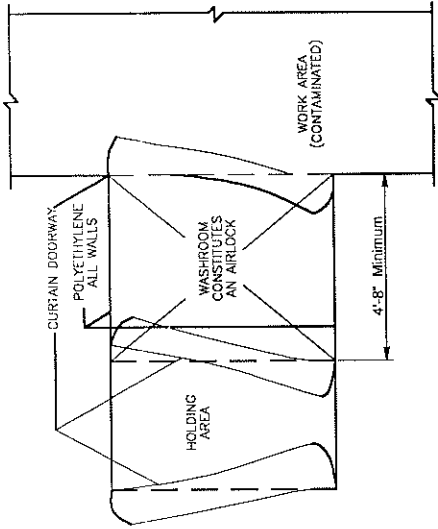
Detail Sheets of Glove-bag and Negative Pressure Set-Ups



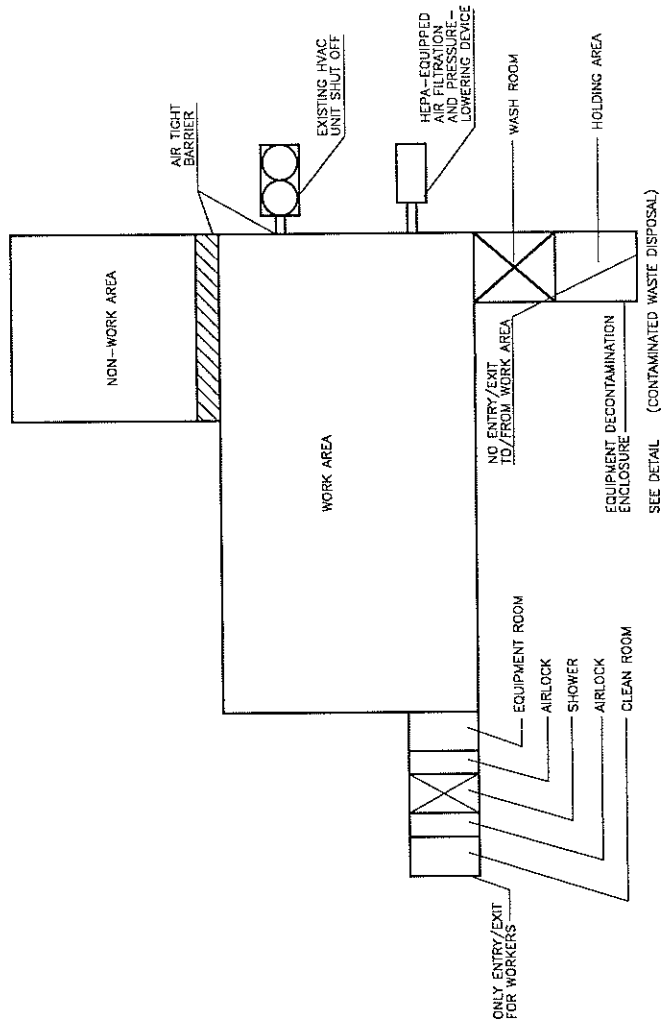
GLOVE BAG REMOVAL TECHNIQUE

NOTE:

1. WORKERS SHALL NOT ENTER CH EBT FROM THIS AREA
2. TWO CURTAIN DOORWAYS SPACED AT A MINIMUM OF 6'-0" APART CONSTITUTES AN AIRLOCK



PLAN OF EQUIP./BAG DECONTAMINATION ENCLOSURE



TYPICAL SCHEMATIC BUILDING PLAN

| REVISIONS | | Drawing Title: Detail Sheet | |
|--|------|---|--|
| DATE | MARK | DESCRIPTION | |
| | | | |
| Prepared by: | | EnviroMed Services, Inc. | |
| Project: | | 25 Science Park, New Haven, CT 06511 | |
| Prepared for: | | Secretary of State Building 30 Trinity Street Hartford, Connecticut | |
| Drawing No.: | | State of Connecticut Department of Public Works Hartford, Connecticut | |
| Date: 04/18/00 | | Scale: N.T.S. | |
| Drawn By: JPF | | Approved By: VNT | |
| Drawing No.: | | Drawing No.: | |
| 1 of 1 | | 1 of 1 | |
| EIMS Job # 011-00-713 DPW#00000000; Client Job #01-2B-071(ASB) | | | |

Attachment 4

Asbestos Sample Log and Results Table for November 1999 O&M Inspection

SAMPLE LOG AND RESULTS TABLE

| Sample Number | Location | Material Sampled | Percent Asbestos |
|---------------|--|---|------------------|
| 1 | fourth floor lobby | glue under multicolor carpet | NAD |
| 2 | fourth floor hall outside west stairwell | glue under multicolor carpet | NAD |
| 3 | second floor lobby | glue under blue carpet | NAD |
| 4 | second floor election services room 200 | glue under blue carpet | NAD |
| 5 | west elevator | glue under burgundy carpet | NAD |
| 6 | west elevator | glue under burgundy carpet | NAD |
| 7 | fourth floor telecom room | 4" gray/brown cove molding | NAD |
| 8 | fourth floor lobby | 4" gray/brown cove molding | NAD |
| 9 | fourth floor telecom room | glue behind 4" gray/brown cove molding | NAD |
| 10 | fourth floor lobby | glue behind 4" gray/brown cove molding | NAD |
| 11 | second floor room 200 | 4" blue cove molding | NAD |
| 12 | second floor men's room | 4" blue cove molding | NAD |
| 13 | second floor room 200 | glue behind 4" blue cove molding | NAD |
| 14 | second floor men's room | glue behind 4" blue cove molding | NAD |
| 15 | first floor hall #3 | 4" beige cove molding | NAD |
| 16 | first floor hall #2 | 4" beige cove molding | NAD |
| 17 | first floor hall #3 | glue behind 4" beige cove molding | NAD |
| 18 | first floor hall #2 | glue behind 4" beige cove molding | NAD |
| 19 | basement foyer | 4" black cove molding | NAD |
| 20 | basement main hall | 4" black cove molding | NAD |
| 21 | basement foyer | glue behind 4" black cove molding | NAD |
| 22 | basement main hall | glue behind 4" black cove molding | NAD |
| 23 | fourth floor telecom room | 12"x12" tan with green and red vinyl floor tile | NAD |
| 24 | fourth floor telecom room | 12"x12" tan with green and red vinyl floor tile | NAD |

NAD - No Asbestos Detected

| Sample Number | Location | Material Sampled | Percent Asbestos |
|---------------|--------------------------------|--|------------------|
| 25 | fourth floor telecom room | mastic under 12"x12" tan with green and red vinyl floor tile | NAD |
| 26 | fourth floor telecom room | mastic under 12"x12" tan with green and red vinyl floor tile | NAD |
| 27 | second floor stock room B | 12"x12" ivory with brown vinyl floor tile | NAD |
| 28 | second floor stock room A | 12"x12" ivory with brown vinyl floor tile | NAD |
| 29 | second floor stock room B | mastic under 12"x12" ivory with brown vinyl floor tile | NAD |
| 30 | second floor stock room A | mastic under 12"x12" ivory with brown vinyl floor tile | NAD |
| 31 | fourth floor east stairwell | 24" gray rubbery tile | NAD |
| 32 | fourth floor east stairwell | 24" gray rubbery tile | NAD |
| 33 | fourth floor east stairwell | mastic under 24" gray rubbery tile | NAD |
| 34 | fourth floor east stairwell | mastic under 24" gray rubbery tile | NAD |
| 35 | basement west stairwell | gray rubbery stair tread | NAD |
| 36 | basement east stairwell | gray rubbery stair tread | NAD |
| 37 | basement west stairwell | glue behind gray rubbery stair tread | NAD |
| 38 | basement east stairwell | glue behind gray rubbery stair tread | NAD |
| 39 | fourth floor telecom room | wallboard wall | NAD |
| 40 | basement storage room B | wallboard wall | NAD |
| 41 | fourth floor telecom room | joint compound on wall | NAD |
| 42 | third floor mechanical room | joint compound on wall | NAD |
| 43 | basement storage room B | joint compound on wall | NAD |
| 44 | second floor office 10 | joint compound on wall | NAD |
| 45 | first floor conference room #1 | joint compound on wall | NAD |
| 46 | fourth floor telecom room | wall plaster - skim coat | NAD |
| 47 | third floor mechanical room | wall plaster - skim coat | NAD |
| 48 | fourth floor class room | wall plaster - skim coat | NAD |
| 49 | third floor bathroom | wall plaster - skim coat | NAD |

NAD - No Asbestos Detected

| Sample Number | Location | Material Sampled | Percent Asbestos |
|---------------|--|-----------------------------|------------------|
| 50 | second floor office 10 | wall plaster - skim coat | NAD |
| 51 | first floor computer room | wall plaster - skim coat | NAD |
| 52 | first floor mechanical room | wall plaster - skim coat | NAD |
| 53 | fourth floor telecom room | wall plaster - base coat | NAD |
| 54 | third floor mechanical room | wall plaster - base coat | NAD |
| 55 | fourth floor class room | wall plaster - base coat | NAD |
| 56 | third floor bathroom | wall plaster - base coat | NAD |
| 57 | second floor office 10 | wall plaster - base coat | NAD |
| 58 | first floor computer room | wall plaster - base coat | NAD |
| 59 | first floor mechanical room | wall plaster - base coat | NAD |
| 60 | first floor lobby | wallboard ceiling | NAD |
| 61 | second floor election services room 200 | wallboard ceiling | NAD |
| 62 | first floor lobby | joint compound on ceiling | NAD |
| 63 | second floor election services room 200 | joint compound on ceiling | NAD |
| 64 | second floor lobby | joint compound on ceiling | NAD |
| 65 | fourth floor telecom room | ceiling plaster - skim coat | NAD |
| 66 | fourth floor men's room | ceiling plaster - skim coat | NAD |
| 67 | third floor record storage room | ceiling plaster - skim coat | NAD |
| 68 | second floor closet | ceiling plaster - skim coat | NAD |
| 69 | second floor ladies' room | ceiling plaster - skim coat | NAD |
| 70 | first floor conference room #1 | ceiling plaster - skim coat | NAD |
| 71 | first floor mechanical room | ceiling plaster - skim coat | NAD |
| 72 | fourth floor telecom room | ceiling plaster - base coat | NAD |
| 73 | fourth floor men's room | ceiling plaster - base coat | NAD |
| 74 | third floor record storage room | ceiling plaster - base coat | NAD |

NAD - No Asbestos Detected

| Sample Number | Location | Material Sampled | Percent Asbestos |
|---------------|---|---|------------------|
| 75 | second floor closet | ceiling plaster - base coat | NAD |
| 76 | second floor ladies' room | ceiling plaster - base coat | NAD |
| 77 | first floor conference room #1 | ceiling plaster - base coat | NAD |
| 78 | first floor mechanical room | ceiling plaster - base coat | NAD |
| 79 | void | void | void |
| 80 | void | void | void |
| 81 | fourth floor main hall | 2'x4' suspended ceiling tile (texture with holes) | NAD |
| 82 | first floor hall #2 | 2'x4' suspended ceiling tile (texture with holes) | NAD |
| 83 | basement OR&L office | 2'x4' suspended ceiling tile (worms and holes) | NAD |
| 84 | basement OR&L office | 2'x4' suspended ceiling tile (worms and holes) | NAD |
| 85 | first floor computer room | 2'x4' suspended ceiling tile (birds feet and holes) | NAD |
| 86 | first floor computer room | 2'x4' suspended ceiling tile (birds feet and holes) | NAD |
| 87 | third floor main hall | 2'x2' suspended ceiling tile (texture with holes) | NAD |
| 88 | second floor hall #1 | 2'x2' suspended ceiling tile (texture with holes) | NAD |
| 89 | fourth floor elevator room | spray-on fireproofing insulation | NAD |
| 90 | third floor elevator room | spray-on fireproofing insulation | NAD |
| 91 | basement stock room #11 | spray-on fireproofing insulation | NAD |
| 92 | basement storage room A | spray-on fireproofing insulation | NAD |
| 93 | second floor stock room A | spray-on fireproofing insulation | NAD |
| 94 | second floor election services room 200 | spray-on fireproofing insulation | NAD |
| 95 | first floor elevator room | spray-on fireproofing insulation | NAD |
| 96 | basement chiller room | aircell pipe insulation | 10 |
| 97 | first floor stock room | aircell pipe insulation | 15 |
| 98 | first floor stock room | aircell pipe insulation | 15 |
| 99 | first floor stock room | mudded pipe joint insulation along aircell insulated pipe | 15 |

NAD - No Asbestos Detected

| Sample Number | Location | Material Sampled | Percent Asbestos |
|---------------|-----------------------------|---|------------------|
| 100 | first floor stock room | mudded pipe joint insulation along aircell insulated pipe | 25 |
| 101 | first floor stock room | mudded pipe joint insulation along aircell insulated pipe | 30 |
| 102 | basement chiller room | white cloth flexible duct connector | NAD |
| 103 | basement chiller room | white cloth flexible duct connector | NAD |
| 104 | basement chiller room | white cloth flexible duct connector | NAD |
| 105 | first floor elevator room | interior and exterior window glazing | NAD |
| 106 | first floor hall #2 | interior and exterior window glazing | NAD |
| 107 | fourth floor front foyer | interior and exterior window glazing | NAD |
| 108 | third floor foyer | interior and exterior window glazing | NAD |
| 109 | second floor elevator room | interior and exterior window glazing | 2 |
| 110 | second floor foyer | interior and exterior window glazing | NAD |
| 111 | third floor conference room | interior and exterior window glazing | 2 |
| 112 | first floor elevator room | exterior window caulking | NAD |
| 113 | first floor hall #2 | exterior window caulking | NAD |
| 114 | fourth floor front foyer | exterior window caulking | 2 |
| 115 | third floor foyer | exterior window caulking | NAD |
| 116 | second floor foyer | exterior window caulking | 3 |

NAD - No Asbestos Detected

Attachment 5

**Lead Inspection XRF Data Sheets
for January 2000 O&M Inspection**

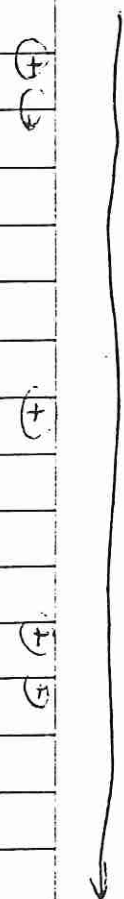
LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity St
 UNIT NUMBER: Hartford, Ct

NO. DOORS: _____
 NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|--------------|-----------|-----------|-----------|
| 1 | 1.10 | test | | | |
| 2 | 1.10 | test | | | |
| 3 | 1.10 | test | | | |
| 4 | 0.00 | FL | C | 3 | 0.00 |
| 5 | 0.70 | wl | BR | 1 | white |
| 6 | 3.3 | wc | M | 2 | Red |
| 7 | 4.7 | wsf | M | 2 | " |
| 8 | 0.00 | WSL | W | 1 | " |
| 9 | 0.00 | DR | M | 1 | tan - new |
| 10 | 0.00 | DR | M | 1 | tan - new |
| 11 | 0.00 | wL | WB | 1 | |
| 12 | 7.7 | BB | R | 0 | Black |
| 13 | 0.30 | DR | M | 2 | tan - old |
| 14 | 0.20 | DR | M | 2 | tan - old |
| 15 | 0.00 | FL | C | 2 | Red |
| 16 | 2.10 | LWL | BR | 3 | gray |
| 17 | 14.0 | wL | BR | 2 | white |
| 18 | 0.20 | DR | M | 2 | gray |
| 19 | 0.20 | DR | M | 2 | gray |
| 20 | 0.20 | step | C | 2 | Black |

Basement



LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity ST
 UNIT NUMBER: _____

NO. DOORS: _____

NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|--------------|-----------|-----------|-------------|
| 21 | 0.30 | LWL | BA | 1 | red |
| 22 | 0.10 | uwl | BA | 2 | white |
| 23 | 0.00 | FL | C | 2 | red |
| 24 | 0.20 | LWL | BA | 2 | tan |
| 25 | 0.10 | uwl | BA | 2 | white |
| 26 | 0.10 | DC | M | 2 | brwn |
| 27 | 0.10 | DA | M | 2 | |
| 28 | 0.00 | DA | M | 2 | tan |
| 29 | 0.00 | PC | M | 2 | |
| 30 | 0.10 | LWL | BA | 3 | green |
| 31 | 0.00 | uwl | BA | 3 | light green |
| 32 | 1.60 | WC | M | 2 | gray (+) |
| 33 | 1.20 | WSH | M | 2 | gray (+) |
| 34 | 0.00 | WL | WB | 1 | yellow |
| 35 | 0.00 | WL | WB | 1 | white |
| 36 | 0.00 | DA | W | 1 | gray |
| 37 | 0.00 | DC | M | 2 | " |
| 38 | 0.10 | DL | C | 1 | white |
| 39 | 0.20 | WL | BA | 1 | white |
| 40 | 0.20 | BB | BA | 1 | Black |

Basement



LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity St
 UNIT NUMBER: _____

NO. DOORS: _____

NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|--------------|-----------|-----------|------------------|
| 41 | 1.80 | WC | M | 2 | tan (+) Basement |
| 42 | 1.00 | WST | M | 2 | tan (+) |
| 43 | 0.00 | CL | C | 1 | white |
| 44 | 0.00 | CL Beam | C | 2 | " |
| 45 | 0.00 | WL | WB | C | yellow/green |
| 46 | 0.00 | BB | R | 0 | Black |
| 47 | 0.00 | WL | WB | 1 | white |
| 48 | 0.10 | BB | R | 0 | Black |
| 49 | 0.00 | CL | C | 1 | white |
| 50 | 0.30 | LWL | BR | 1 | green |
| 51 | 0.20 | uwl | BR | 1 | tan |
| 52 | 0.00 | FL | C | 1 | green |
| 53 | 0.30 | LWL | BR | 1 | Blue |
| 54 | 0.10 | Lcd | C | 1 | green |
| 55 | 0.20 | uwl | C | 1 | light green |
| 56 | 0.10 | LWL | BR | 1 | gray |
| 57 | 0.10 | uwl | BR | 2 | white |
| 58 | 0.00 | CL | C | 1 | white |
| 59 | 0.20 | LWL | BR | 3 | dark green |
| 60 | 0.10 | uwl | BR | 3 | white |

Basement



LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity St
 UNIT NUMBER: Hartford, CT

NO. DOORS: _____
 NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|--------------|-----------|-----------|-----------------|
| 61 | 0.10 | wL | Ba | 3 | Black |
| 62 | 0.20 | Du | m | 1 | Red - cav |
| 63 | 2.90 | DC | m | 1 | Red - cav (+) |
| 64 | 0.10 | Rail | m | 2 | Black |
| 65 | 0.10 | SM+TR | m | 2 | Black |
| 66 | B | wL | Ba | 1 | white sweep (+) |
| 67 | 2.4 | Rail | m | 1 | Black (+) |
| 68 | 2.3 | Rise/stn | m | 1 | " (+) |
| 69 | 0.20 | wL | pl | 1 | white |
| 70 | 0.00 | EL | c | 2 | gray |
| 71 | 0.40 | LWL | Ba | 1 | Black |
| 72 | 0.30 | wL | Ba | 1 | white |
| 73 | 0.30 | Rise/stn | m | 1 | Black |
| 74 | 0.50 | LWL | pl | 1 | Black |
| 75 | 0.20 | wL | pl | 1 | white |
| 76 | 0.00 | CL | pl | 1 | " sweep |
| 77 | 0.00 | wL | wB | 1 | white |
| 78 | 0.00 | Ba | R | C | Black |
| 79 | 0.00 | DC | m | 1 | Blue |
| 80 | 1.40 | wL | pl | 1 | white |

Bulldozed

1st Floor



LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity St

NO. DOORS: _____

UNIT NUMBER: _____

NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|--------------|-----------|-----------|---------|
| 81 | 0.0 | BB | R | 0 | B/W |
| 82 | 2.00 | WCL | W | 1 | white |
| 83 | 1.00 | WC | M | 1 | " |
| 84 | 1.00 | WSH | M | 1 | " |
| 85 | 2.00 | WL | PL | 1 | white |
| 86 | 0.00 | WL | WB | 1 | " |
| 87 | 0.10 | WD | M | 1 | white |
| 88 | 2.00 | WC | M | 1 | " |
| 89 | 1.70 | WSH | M | 1 | " |
| 90 | 0.00 | CL | PL | 1 | " |
| 91 | 2.00 | WL | PL | 1 | " |
| 92 | 0.00 | DR | M | 1 | Black |
| 93 | 0.30 | WL | PL | 1 | white |
| 94 | 0.00 | DR | M | 2 | tan |
| 95 | 0.00 | DR | M | 2 | tan |
| 96 | 0.00 | DR | M | 1 | B/W |
| 97 | 0.90 | WL | PL | 1 | white |
| 98 | 0.00 | WL | PL | 1 | white |
| 99 | 34.0 | WCL | PL | 1 | " |
| 100 | 0.00 | WCL | WB | 1 | " |

First Fl.



LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity ST
 UNIT NUMBER: _____

NO. DOORS: _____
 NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|--------------|-----------|-----------|---------------|
| 101 | 0.00 | Ruo | m | 1 | lay |
| 102 | 1.60 | wel | m | 1 | lay |
| 103 | 1.80 | wc | m | 1 | " |
| 104 | 0.00 | wsteel | w | 1 | lay |
| 105 | 0.00 | s-wall | m | 1 | |
| 106 | 0.00 | wl | wB | 1 | wk up |
| 107 | 0.00 | BB | R | 0 | Blue |
| 108 | 0.00 | DC | m | 1 | Blue |
| 109 | 0.70 | col | C | 1 | white |
| 110 | 0.20 | wl | C | 1 | " |
| 111 | 0.20 | col | C | 1 | " |
| 112 | 2.00 | wel | w | 1 | " |
| 113 | 0.00 | DR | w | 0 | stained (typ) |
| 114 | 1.10 | test | — | | |
| 115 | 1.10 | wel | — | | |
| 116 | 1.10 | wel | — | | |
| 117 | 1.00 | test | | | |
| 118 | 1.00 | test | | | |
| 119 | 1.00 | test | | | |
| 120 | 1.00 | test | | | |

First Floor

11

LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity St
 UNIT NUMBER: _____

NO. DOORS: _____
 NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|--------------|-----------|-----------|---------------|
| 121 | 0.00 | WL | WB | 1 | white |
| 122 | 0.00 | BB | R | 0 | Blue |
| 123 | 0.00 | DC | M | 1 | " |
| 124 | 1.10 | WC | M | 1 | white |
| 125 | 0.50 | WSH | M | 1 | " |
| 126 | 0.00 | stained | W | 1 | |
| 127 | 0.00 | DL | W | 0 | stained |
| 128 | 1.00 | WSL | W | 1 | white |
| 129 | 0.00 | WSH | M | 1 | " |
| 130 | 1.10 | WC | M | 1 | " |
| 131 | 0.40 | WL | PL | 1 | " |
| 132 | 0.00 | BB | W | 1 | " - under RBB |
| 133 | 0.50 | WL | PL | 1 | " |
| 134 | 1.10 | WTAM | W | 1 | " |
| 135 | 1.80 | WC | M | 1 | " |
| 136 | 1.40 | WSH | M | 1 | " |
| 137 | 1.80 | WSL | W | 1 | " |
| 138 | 5.2 | WL | PL | 1 | " |
| 139 | 0.40 | BB | C | 1 | " |
| 140 | 0.00 | BB | R | 0 | fair |

2nd Floor



LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity St
 UNIT NUMBER: _____

NO. DOORS: _____

NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|-----------------|-----------|-----------|----------|
| 141 | 0.80 | Wstf | M | 1 | wlf |
| 142 | 1.90 | Wsl | W | 1 | v |
| 143 | 1.20 | Wc | M | 1 | v |
| 144 | 0.00 | CL | PL | 1 | v |
| 145 | 0.00 | Wl | WB | 1 | v |
| 146 | 0.00 | COL | PL | 1 | v |
| 147 | 0.50 | Wstf | M | 1 | v |
| 148 | 1.20 | Wc | M | 1 | v |
| 148 | 0.00 | COL | PL | 1 | v |
| 150 | 0.00 | Dr | M | 2 | far |
| 151 | 0.00 | CH ₄ | W | 1 | wlf |
| 152 | 1.50 | Dr | M | 2 | v OLD |
| 153 | 0.70 | OC | M | 2 | v |
| 154 | 0.30 | WWL | PL | 1 | v |
| 155 | 0.00 | Dr | W | 1 | v |
| 156 | 3.80 | DC | M | 1 | v |
| 157 | 1.40 | BB | M | 2 | Black-ox |
| 158 | 7.1 | Wl | PL | 1 | wlf |
| 159 | 0.00 | Dr | M | 2 | v |
| 160 | 0.00 | Wl | WB | 1 | v |

2nd FL

3rd FL

LEAD INSPECTION DATA PAGE

PROJECT NAME: 307 Trinity St
 UNIT NUMBER: _____

NO. DOORS: _____
 NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|-----------------|-----------|-----------|------------|
| 161 | 0.00 | BB | R | 0 | Blue |
| 162 | 0.00 | DC | M | 1 | " |
| 163 | 0.00 | DR | W | 0 | Van |
| 164 | 1.10 | wsl | W | 1 | wht |
| 165 | 1.10 | wc | M | 1 | " |
| 166 | 0.40 | wst | M | 1 | " |
| 167 | 0.60 | wL | PL | 1 | " |
| 168 | 0.00 | wL | WB | 1 | " |
| 169 | 1.70 | wc | M | 1 | " |
| 170 | 1.10 | wsl | M | 1 | " |
| 171 | 0.50 | wst | W | 1 | " |
| 172 | 0.20 | wL | PL | 1 | " |
| 173 | 13.0 | pipi | M | 1 | " |
| 174 | 0.40 | paic | M | 1 | Black |
| 175 | 2.80 | Riser | M | 1 | " |
| 176 | 0.70 | BB | C | 2 | Black |
| 177 | 3.4 | STU | M | 1 | " |
| 178 | 17.0 | underside stair | M | 1 | Blue/green |
| 179 | 0.70 | wL | PL | 1 | wht |
| 180 | 0.00 | Flap on | M | 1 | " |

3rd Floor



LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity St

NO. DOORS: _____

UNIT NUMBER: _____

NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm ²) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|-------------------------------|--------------|-----------|-----------|---------|
| 181 | 2.60 | wsl | w | 1 | w/d |
| 182 | 1.60 | wsif | m | 1 | " |
| 183 | 1.30 | wc | m | 1 | " |
| 184 | 0.40 | col | pl | 1 | " |
| 185 | 1.80 | col | pl | 1 | " |
| 186 | 0.60 | wl | pl | 1 | " |
| 187 | 0.00 | wl | pl | 1 | " |
| 188 | 0.00 | wl | wB | 1 | " |
| 189 | 0.00 | BB | R | 0 | tan |
| 190 | 8.6 | col | pl | 1 | white |
| 191 | 7.2 | wl | pl | 1 | " |
| 192 | 2.00 | wsl | w | 1 | " |
| 193 | 0.10 | wsif | m | 1 | " |
| 194 | 1.20 | wc | m | 1 | " |
| 195 | 8.6 | wl | pl | 1 | " |
| 196 | 1.90 | wsl | w | 1 | " |
| 197 | 1.00 | wsif | m | 1 | " |
| 198 | 1.40 | wc | m | 1 | " |
| 199 | 0.00 | wl | wB | 1 | " |
| 200 | 0.00 | BB | R | 0 | tan |

3rd Fl.
↓
4th Floor
↓

LEAD INSPECTION DATA PAGE

PROJECT NAME: 30 Trinity ST
 UNIT NUMBER: _____

NO. DOORS: _____
 NO. WINDOWS: _____

| SAMPLE NUMBER | RESULTS (Mg/cm2) | SURFACE TYPE | SUBSTRATE | CONDITION | COMMENT |
|---------------|------------------|--------------|-----------|-----------|---------|
| 201 | 0.00 | DN | W | 0 | SP |
| 202 | 0.00 | DC DM | M | 1 | Yaz |
| 203 | 1.20 | WSL | W | 1 | wit |
| 204 | 1.00 | WSIT | M | 1 | " |
| 205 | 1.20 | WC | M | 1 | " |
| 206 | 1.10 | test | | 1 | |
| 207 | 1.10 | test | | 1 | |
| 208 | 1.10 | test | | 1 | |
| 209 | | | | | |
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4th Floor