



ASBESTOS MANAGEMENT PROGRAM

RISK MANAGEMENT AND SAFETY

2014

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1.0 INTRODUCTION

1.1 Policy

It is the policy of the University of Nevada Las Vegas (UNLV) to provide a safe, healthy learning, living, research and working environment. The requirements in this program are to provide individuals and contractors with pertinent information regarding asbestos safety. It is also the intent of UNLV to meet all Federal, State and Local regulations and to employ best management practices with regard to asbestos containing materials (ACM) to minimize unintentional disturbance.

1.2 Purpose

It is the purpose of this program to minimize the unintentional disturbance of asbestos containing materials at UNLV campuses and leased facilities to reduce exposure to students, staff, contractors and members of the public.

1.3 Scope and Application

This program applies to all UNLV faculty, staff and contractors, especially personnel who are responsible for the demolition, maintenance, renovation and repair of existing buildings and materials. This will be accomplished by implementing this Asbestos Management Program (AMP) which includes proper work practices in order to maintain ACM in good condition, to ensure proper clean-up of asbestos spills, prevent further release of asbestos fibers and assess the condition of ACM. Intact and undisturbed ACM does not pose a health risk.

Personnel responsible for renovation and maintenance projects which disturb or remove building materials must review the Asbestos Management Program prior to performing these activities. All materials except, glass, metal, plastic or wood are assumed to contain asbestos.

All asbestos maintenance and abatement work must be performed by contractors and/or employee's who maintain current State of Nevada Department of Business and Industry Industrial Relations Occupational Safety and Health Administration Asbestos Control Program licensing.

2.0 EMERGENCY CONTACT INFORMATION

For questions or concerns or to report an asbestos disturbance that may lead to an asbestos spill or unintentional disturbances contact the following:

During Normal Business Hours (8:00 a.m. – 5:00p.m.)

Risk Management and Safety (702) 895-4226

After Hours
Facilities Management Services (702) 895-4357
Police Services Dispatch (702) 895-3668

2.1 Asbestos Emergencies

Asbestos related emergencies develop due to incidental and accidental contact with ACM. This causes a disruption in the matrix of asbestos containing building materials. Minor and major releases of asbestos fibers can also occur from water damage, building or equipment vibration and air erosion.

A release of asbestos fibers is defined as the dislodging of materials containing asbestos.

Immediate actions that must be employed to reduce exposure to asbestos are as follows:

1. Stop work immediately and leave the area.
2. Secure access to the area and post signage at the entry to the affected areas.
3. Notify an immediate supervisor.
4. Contact the Risk Management and Safety Department (during normal business hours) ext. 54266, Facilities Management Services (after hours) ext. 54357 or Public Safety ext. 53668.

Only asbestos qualified personnel will use the proper methods and equipment to clean up an asbestos spill, refer to section 7.0 Asbestos Abatement.

Areas affected by minor and major fiber release episodes are not safe to re-enter until area air sampling results have determined the air within the affected area is below the occupational exposure limit of 0.01 f/cc as determined by Polarized Light Microscopy (PLM) laboratory analysis and authorization is given by the Risk Management and Safety Department.

3.0 REFERENCES AND REGULATIONS

3.1 References

American National Standards Institute (ANSI)
ANSI Z88.2 (1992) Respiratory Protection
ANSI Z9.2 (2001) Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems

ASTM International (ASTM)
ASTM D 1331 (1989; R 2001) Surface and Interfacial Tension of Solutions of Surface-Active Agents

National Institute for Occupational Safety and Health (NIOSH)
NIOSH No. 2005-149 (2007) Pocket Guide to Chemical Hazards Publication

Underwriters Laboratories (UL)
UL 586 (1996: Rev 2004) High-Efficiency, Particulate, Air Filter Units

3.2 Regulations

Nevada Administrative Code (NAC)
NAC 618 Abatement of Asbestos
NAC 444 Disposal of Asbestos

Nevada Revised Statutes (NRS)
NRS 618 Control of Asbestos

Occupational Safety and Health Administration (OSHA)
29 CFR 1910.134 Respiratory Protection
29 CFR 1910.1001 General Industry
29 CFR 1926.51 Sanitation
29 CFR 1926.59 Hazard Communication
29 CFR 1926.200 Accident Prevention Signs and Tags

Environmental Protection Agency (EPA)
40 CFR 61 SUBPART A - General Provisions
40 CFR 61 SUBPART M - National Emission Standard for Hazardous Air Pollutants
40 CFR 763 Asbestos

4.0 DEFINITIONS

Abatement - means any act which is intended to reduce, eliminate or encapsulate asbestos or materials containing asbestos.

Abatement Worker - means any person who is licensed by the Enforcement Section in a nonsupervisory capacity, to clean, handle, repair, remove, encapsulate, enclose, haul, dispose of or otherwise work with materials containing asbestos.

Abatement Supervisor - means any abatement worker who is licensed by the Enforcement Section to be a contractor's competent person.

Amended Water - Water containing a wetting agent or surfactant with a maximum surface tension of 29 dynes per centimeter when tested in accordance with ASTM D 1331.

Asbestos - The term asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos and any of these minerals that has been chemically treated or altered.

Asbestos Containing Material (ACM) - Materials are considered to contain asbestos if the asbestos content of the material is determined to be more than one percent.

Asbestos Permissible Exposure Limit - 0.1 fibers per cubic centimeter of air as an 8-hour time weighted average measured in the breathing zone as defined by 29 CFR 1926.1101.

Authorized Visitor - Any person who has been authorized by the owner and required by work duties to be present in the regulated area.

Building/facility owner - is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

Category I Non-Friable ACM - asbestos containing packing, gaskets, resilient floor coverings and asphalt roofing products.

Category II Non-Friable ACM - non-friable asbestos containing products that are not Category I materials, such as asbestos cement products.

Certified Industrial Hygienist (CIH) - means one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

Class I - asbestos work activities involving the removal of TSI, surfacing ACM and PACM.

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

Class III - asbestos work activities involving repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

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

Contractor - The Contractor is that individual, or entity under contract to UNLV to perform listed work.

Competent Person - A person meeting the requirements for competent person as specified in 29 CFR 1926.1101. The competent person shall be a supervisor licensed by the Enforcement Section in accordance with NAC 618.

Demolition - the 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.

Emergency Asbestos Project - any activity for the abatement of asbestos requiring immediate action for safety or the protection of the public health, which is not planned but results from a sudden, unexpected event. The term includes projects required because of non-routine failures of equipment.

Employee Exposure - exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

Employee Information and Training - UNLV shall train each employee who is likely to be exposed in excess of a PEL, and each employee who performs Class I through IV asbestos operations, in accordance with the requirements of 1926.1101(k)(9). Such training shall be conducted at no cost to the employee. The employer shall institute a training program and ensure employee participation in the program.

Encapsulation - The abatement of an asbestos hazard through the appropriate use of chemical encapsulant.

Encapsulant - Specific materials in various forms used to chemically or physically entrap asbestos fibers in various configurations to prevent these fibers from becoming airborne. There are four types of encapsulant as follows which must comply with performance requirements as specified herein:

- A. Removal Encapsulant - can be used as a wetting agent
- B. Bridging Encapsulant - used to provide a tough, durable surface coating to asbestos containing material
- C. Penetrating Encapsulant - used to penetrate the asbestos containing material encapsulating all asbestos fibers and preventing fiber release due to routine mechanical damage
- D. Lock-Down Encapsulant - used to seal off or "lock-down" minute asbestos fibers left on surfaces from which asbestos containing material has been removed

Friable Asbestos Containing Material - a substance containing asbestos which can be crumbled, pulverized or reduced to powder by hand pressure.

HEPA Filter Equipment - High efficiency particulate air (HEPA) filtered vacuum and/or exhaust ventilation equipment with a filter system capable of collecting and retaining asbestos fibers. Filters shall retain 99.97 percent of particles 0.3 microns or larger as indicated in UL 586.

Homogeneous Area - an area of surfacing material or thermal system insulation that is uniform in color and texture.

Intact - ACM that has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

Initial Exposure Assessment - a demonstration by the employer, which complies with the criteria in 29 CFR 1926.1101 (f)(2)(iii) which states that an employee's exposure during an operation is expected to be consistently below the PELs.

License - an authorization issued by the Enforcement Section to engage in a project for the control of asbestos in a specific occupation.

Licensed Consultant - any person who is licensed by the Enforcement Section to be directly involved with providing consultant services regarding the control of asbestos and who is accredited as:

1. An Inspector;
2. A Management Planner;
3. A Monitor;
4. A Project Designer; or
5. Any combination thereof

Maintenance Activity - any act intended to preserve or sustain the integrity of a structure, material or apparatus (also see Class III definition).

Non-friable Asbestos Material - a substance containing asbestos which cannot be crumbled, pulverized or reduced to powder by hand pressure.

Owner - The University, hereinafter referred to as the Owner or UNLV, or the authorized representative of the Owner, or the consultant.

PACM - presumed asbestos containing material

Permissible Exposure Limits (PEL):

A. Excursion Limit - an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in 1926.1101 Appendix A, or by an equivalent method.

B. Time-Weighted Average (TWA) - an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in 1926.1101 Appendix A, or by an equivalent method.

Regulated Asbestos-Containing Material (RACM) – means:

A. Friable asbestos material (e.g. fireproofing, thermal system insulation on steam/hot water pipes, acoustical insulation such as popcorn ceiling texture)

B. Category I nonfriable ACM that has become friable (e.g. asphalt roofing products such as shingles, packings, gaskets, linoleum, vinyl asbestos tile)

C. Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting or abrading (e.g. roofing materials, packings, vinyl asbestos tile, linoleum)

D. Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or the regulated renovation operations (cement siding, transite shingles/pipes)

Renovation - Altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.

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

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

Suspect Material - any building materials which, are not listed in Section 1.3 and has not been proven to contain asbestos through laboratory analysis.

Thermal System Insulation (TSI) - ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain or water condensation.

5.0 RESPONSIBILITY

5.1 Risk Management and Safety

- 5.1.1 The Director of Risk Management and Safety shall designate, in writing, a Competent Person qualified to perform the functions associated with the Asbestos Program Manager.
- 5.1.2 Provide administrative support for this program and individual departments.
- 5.1.3 Develop and maintain the UNLV Asbestos Management Plan.
- 5.1.4 Review and revise the AMP to ensure compliance with all federal, state and local regulations
- 5.1.5 Notify appropriate regulatory agencies (State of Nevada Department of Business and Industry Industrial Relations Division Enforcement Section, Clark County Air Quality Environmental Management District) prior to abatement activities, when required.
- 5.1.6 Maintain copies of all friable building material assessments, asbestos building inspections, survey information, sampling records and abatement records.
- 5.1.7 Provide technical information for maintenance, renovation and demolition project implementation.
- 5.1.8 Notify the campus, via email, of upcoming asbestos abatement projects and post abatement notifications at the entrances to buildings during asbestos abatement activities.
- 5.1.9 Conduct baseline area air sampling prior to asbestos abatement projects.
- 5.1.10 Conduct initial exposure assessments prior to the removal of ACM where a negative exposure assessment has not been conducted.
- 5.1.11 Conduct an annual negative exposure assessment during Class I, Class II, Class III and Class IV asbestos removal and maintenance projects.
- 5.1.12 Identify and label, where applicable, ACM with appropriate asbestos danger signage as required by the Occupational Safety Health Administration (OSHA).
- 5.1.13 Conduct an annual assessment of all accessible, friable asbestos containing materials.
- 5.1.14 Maintain copies of all personnel certifications, licensing, medical evaluations, respirator fit test records and annual NESHAP and OSHA notifications.
- 5.1.15 Maintain a list of Known-Locations of asbestos containing materials.

Note: *All Materials are considered to be asbestos containing except those listed in section 1.3.*

5.2 Facilities Management Services

- 5.2.1 Provide administrative and financial support for this program and individual departments.
- 5.2.2 Ensure the AMP is implemented and maintained within the departments.

5.2.3 Ensure all maintenance and custodial personnel receive asbestos awareness training and are trained prior to conducting activities within facilities known to contain asbestos.

5.2.4 Require supervisors and their employees working in and around ACM receive the appropriate asbestos training.

5.2.5 Ensure only personnel who maintain current asbestos certifications/licensing perform any and all asbestos related work activities.

5.2.6 Ensure that a competent person is designated on all work sites and during all abatement activities.

5.2.7 Ensure employees conducting emergency asbestos work complete a Class III Asbestos Work Project Checklist

<http://rms.unlv.edu/occupational/asbestos/classIIIChecklist/> during the removal work.

5.2.8 Ensure all employees submit an online Asbestos Abatement Notification <http://rms.unlv.edu/occupational/asbestos/AsbestosJob/> to Risk Management and Safety and obtain an Asbestos Work Authorization prior to commencing any maintenance, repair, and renovation activities.

5.2.9 Ensure all employees submit an online Asbestos Service Request Form <http://rms.unlv.edu/occupational/asbestos/service/> to Risk Management and Safety and obtain an asbestos survey report prior to commencing any maintenance, repair, renovation or demolition activities.

5.2.10 Report all accidental disturbances to the Risk Management and Safety Department.

5.2.11 Ensure that all third party contracted work has an asbestos survey completed by Risk Management and Safety or a licensed asbestos consultant prior to starting any work.

5.2.12 Notify all contractors, working within a facility, of all known locations of asbestos whether or not they are required to work with the asbestos and have signed the Contractor Acknowledgement Form (**Appendix A**).

5.2.13 Contract with a third party consulting firm to ensure final air clearance sampling is conducted after asbestos removal activities.

5.2.14 Ensure ACM waste is transported by a licensed transporter and transported to a proper disposal facility within the State of Nevada.

5.3 Planning and Construction Services

5.3.1 Provide administrative and financial support for this program and individual departments.

5.3.2 Ensure the AMP is implemented and maintained within the departments.

5.3.3 Ensure only personnel who maintain current asbestos certifications/licensing perform any and all asbestos related work activities prior to the commencement of any maintenance or abatement activities.

5.3.4 Ensure all employees submit an online Asbestos Service Request

<http://rms.unlv.edu/occupational/asbestos/service/> form to Risk Management and Safety and obtain an asbestos survey report prior to commencing any maintenance, repair, renovation or demolition activities.

- 5.3.5 Ensure that all third party contracted work has an asbestos survey completed by Risk Management and Safety or a licensed asbestos consultant prior to starting any work.
- 5.3.6 Notify all contractors, working within a facility, of all known locations of asbestos whether or not they are required to work with the asbestos and have signed the Contractor Acknowledgement Form **(Appendix A)**.
- 5.3.7 Contract with a third party consulting firm to ensure final air clearance sampling is conducted after asbestos removal activities.
- 5.3.8 Ensure ACM waste is transported by a licensed transporter and transported to a proper disposal facility within the State of Nevada.

5.4 Thomas & Mack/Sam Boyd Stadium

- 5.4.1 Provide administrative and financial support for this program and individual departments.
- 5.4.2 Ensure the AMP is implemented and maintained within the departments.
- 5.4.3 Ensure all maintenance and custodial personnel receive asbestos awareness training and are trained prior to conducting activities within facilities known to contain asbestos.
- 5.4.4 Require supervisors and their employees working in and around ACM receive the appropriate asbestos training.
- 5.4.5 Ensure only personnel who maintain current asbestos certifications/licensing perform any and all asbestos related work activities.
- 5.4.6 Ensure that a competent person is designated on all work sites and during all abatement activities.
- 5.4.7 Ensure employees conducting emergency asbestos work complete a Class III Asbestos Work Project Checklist <http://rms.unlv.edu/occupational/asbestos/classIIIchecklist/> during the removal work.
- 5.4.8 Ensure all employees submit an online Asbestos Abatement Notification <http://rms.unlv.edu/occupational/asbestos/AsbestosJob/> to Risk Management and Safety and obtain an Asbestos Work Authorization prior to commencing any maintenance, repair, and renovation activities.
- 5.4.9 Ensure all employees submit an online Asbestos Service Request Form <http://rms.unlv.edu/occupational/asbestos/service/> to Risk Management and Safety and obtain an asbestos survey report prior to commencing any maintenance, repair, and renovation or demolition activities.
- 5.4.10 Report all accidental disturbances to the Risk Management and Safety Department.
- 5.4.11 Ensure that all third party contracted work has an asbestos survey completed by Risk Management and Safety or a licensed asbestos consultant prior to starting any work.
- 5.4.12 Notify all contractors, working within a facility, of all known locations of asbestos whether or not they are required to work with the asbestos and have signed the Contractor Acknowledgement Form **(Appendix A)**.

5.4.13 Contract with a third party consulting firm to ensure final air clearance sampling is conducted after asbestos removal activities.

5.4.14 Ensure ACM waste is transported by a licensed transporter and transported to a proper disposal facility within the State of Nevada.

5.5 Student Affairs

5.5.1 Provide administrative and financial support for this program and individual departments.

5.5.2 Ensure the AMP is implemented and maintained within the departments.

5.5.3 Ensure all maintenance and custodial personnel receive asbestos awareness training and are trained prior to conducting activities within facilities known to contain asbestos.

5.5.4 Require supervisors and their employees working in and around ACM receive the appropriate asbestos training.

5.5.5 Ensure only personnel who maintain current asbestos certifications/licensing perform any and all asbestos related work activities.

5.5.6 Ensure that a competent person is designated on all work sites and during all abatement activities.

5.5.7 Ensure employees conducting emergency asbestos work complete a Class III Asbestos Work Project Checklist <http://rms.unlv.edu/occupational/asbestos/classIIIchecklist/> during the removal work.

5.5.8 Ensure all employees submit an online Asbestos Abatement Notification <http://rms.unlv.edu/occupational/asbestos/AsbestosJob/> to Risk Management and Safety and obtain an Asbestos Work Authorization prior to commencing any maintenance, repair, and renovation activities.

5.5.9 Ensure all employees submit an online Asbestos Service Request Form <http://rms.unlv.edu/occupational/asbestos/service/> to Risk Management and Safety and obtain an asbestos survey report prior to commencing any maintenance, repair, and renovation or demolition activities.

5.5.10 Report all accidental disturbances to the Risk Management and Safety Department.

5.5.11 Ensure that all third party contracted work has an asbestos survey completed by Risk Management and Safety or a licensed asbestos consultant prior to starting any work.

5.5.12 Notify all contractors, working within a facility, of all known locations of asbestos whether or not they are required to work with the asbestos and have signed the Contractor Acknowledgement Form (**Appendix A**).

5.5.13 Contract with a third party consulting firm to ensure final air clearance sampling is conducted after asbestos removal activities.

5.5.14 Ensure ACM waste is transported by a licensed transporter and transported to a proper disposal facility within the State of Nevada.

5.6 Architects, Project Coordinators and Project Managers

5.6.1 Notify Risk Management and Safety prior to the commencement of any asbestos removal projects by providing a complete project description.

5.6.2 Obtain an asbestos survey from Risk Management and Safety or a third party consultant prior to any asbestos removal projects.

Note: *Standard turn-around time for laboratory analysis of bulk samples is six working days. A shorter turn-around time is available and will be determined on a project by project basis*

5.6.3 Notify Risk Management and Safety of all job walks regarding ACM.

Note: *Job walks are often necessary to permit proper planning and scheduling of asbestos removal projects.*

5.6.4 Notify Risk Management and Safety five working days in advance regarding abatement project duration.

5.6.5 Provide complete close-out documentation to Risk Management and Safety (eg. signed purchase orders, abatement contractor and third party consultant close-out documents).

6.0 SPECIFIC PROCEDURES

6.1 Inspectors

6.1.1 All inspectors engaged in the sampling of ACM shall obtain certifications and licensing inclusive to any and all State of Nevada requirements during inspection and sampling of ACM.

6.1.2 Inspectors shall meet the requirements relating to the collection of bulk samples in accordance with 29 CFR 1926.1101 Class I and Class III asbestos work.

6.1.3 Inspectors must review previous survey and sampling data prior to conducting a site visit of the project area.

6.1.4 Inspectors must determine the presence location and quantity of ACM within the project area.

6.1.5 Inspectors must collect the appropriate number of bulk samples, in a random manner, from a homogeneous material according to 40 CFR 763 Subpart E regardless of the installation date of a building material.

6.1.6 Bulk samples of materials, when analyzed via Polarized Light Microscopy (PLM), have an asbestos content of 5% or less are to be point-counted using the EPA 400 point 600/R-93-116 method or are to be assumed to contain asbestos.

6.1.7 An annual NEA must be conducted while sampling asbestos containing materials.

6.2 Survey Reports

6.2.1 Surveys must contain a summary page identifying the project area, the date of the inspection, the materials sampled (eg... surfacing, TSI or miscellaneous) within the project area, the results of the sample analysis.

6.2.2 Other information that must be included in the survey report is a copy of the State of Nevada Department of Business and Industry Industrial Relations Occupational Safety and Health Administration Asbestos Control Program license of the inspector, the online service request, building drawings identifying the location of the sample with the sample number, chain-of-custody, laboratory analysis report and the Asbestos Abatement Specifications Section 02080 where applicable.

6.2.3 A copy of the shipping invoice and laboratory analysis invoicing must be provided to the department requesting the report.

Note: *Inspection reports are to be considered valid for one year if no renovation activity has taken place within the project area.*

Note: *Inspection reports are invalid after a renovation has taken place. A new survey of the newly installed building materials must be conducted prior to the next renovation.*

Note: *All Materials are considered to be asbestos containing except those listed in section 1.3.*

7.0 TRAINING

7.1 Asbestos Awareness Training

7.1.2 All UNLV maintenance and custodial personnel who may work in a building that contains ACM shall receive awareness training of at least 2 hours whether or not they are required to work with the ACM.

7.2 16 Hour Maintenance Worker Training

7.2.1 All UNLV maintenance and custodial personnel who are involved in general maintenance and asbestos-containing material repair tasks that will result in the disturbance of ACM shall receive 2-hour awareness training and 14-hours of additional training.

7.3 Asbestos Abatement Worker

7.3.1 Shall complete at least a 4-day training course as outlined in 40 CFR 763 Subpart E Appendix C. The 4-day worker training course shall include lectures, demonstrations, at least 14 hours of hands-on training, individual respirator fit testing, course review, and an examination. Hands-on training must permit workers to have actual experience performing tasks associated with asbestos abatement.

7.3.2 A licensed abatement worker shall keep his or her current license at the location at which the licensed abatement worker is performing activities for the abatement of asbestos.

7.4 Asbestos Abatement Supervisor

7.4.1 All persons seeking accreditation as asbestos abatement contractor/supervisors shall complete an additional 5-day training course, separate from the 4-day abatement worker training, as outlined in 40 CFR 763 Subpart E Appendix C.. The training course must include lectures, demonstrations, at least 14 hours of hands-on training, individual respirator fit testing, course review, and a written examination. Hands-on training must permit supervisors to have actual experience performing tasks associated with asbestos abatement.

7.4.2 A licensed abatement supervisor shall keep his or her current license at the location at which the licensed abatement worker is performing activities for the abatement of asbestos.

8.0 RESPIRATORY PROTECTION

Personnel engaged in asbestos abatement activities are required to follow the UNLV written respiratory program.

9.0 ASBESTOS ABATEMENT

9.1 Pre-Abatement Requirements

9.1.1 Prior to the project for the removal of asbestos containing material an asbestos survey identifying the asbestos containing materials must be obtained from RMS or a Third Party Consultant otherwise all materials within the project area are assumed to contain asbestos.

9.1.2 A walk-through of the project must be conducted at the project site prior to the start of project with the Project Manager, Risk Management and Safety representative, the Abatement Contractor and the Third Party Consultant if applicable.

9.1.3 Provide RMS with the project start time, start date and end date five working days in advance.

9.1.4 RMS to generate an email to notify the campus community of the up-coming abatement project. RMS will post signage at all building entrances one working day prior to the start of the abatement project.

9.1.5 Area baseline air sampling for all Class I abatement projects and annually in facilities for all Class II removal.

9.1.6 Contractor to provide submittal documents (eg. licensing, certifications, respirator fit testing records, notifications)

Note: *Abatement Contractor shall not stage any materials at the site prior to the start date of the removal project.*

9.2 Handling Materials Containing Less than One Percent Asbestos

The handling of this material (for example - composite sheetrock, tape, and mud wall system, vinyl floor tile) type is considered “unclassified” work according to OSHA. This means that only certain work practices and engineering controls outlined in the OSHA standards (29 CFR 1926.1101) apply. Which general work practices and engineering controls are applicable depends on whether the employees’ levels of exposure to airborne asbestos exceed either of the asbestos Permissible Exposure Limits (PELs). In the event the employee’s airborne exposures are below the PEL, then only two of the standard’s general work practice control procedures and three of the standard’s general prohibitions pertain to the sheetrock removal operations; and none of the standard’s engineering control methods pertain to the sheetrock removal operation. The general work practices the abatement contractor must observe under such conditions follow:

Using wet methods per 29 CFR 1926.1101(g)(1)(ii).

Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers per 29 CFR 1926.1101(g)(1)(iii). OSHA does not require the containers be labeled, only leak-tight.

Prohibitions include the following:

1. Use of high high-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air (29 CFR 1926.1101(g)(3)(i)).
2. Use of compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air (29 CFR 1926.1101(g)(3)(ii)).
3. Using employee rotation as a means of reducing employee exposure to asbestos (29 CFR 1926.1101(g)(3)(iv)).

9.3 Abatement Requirements

9.3.1 All contractors engaging in the removal of asbestos containing building materials must receive a copy of the UNLV Section 02080 Asbestos Abatement Specifications

9.4 Maintenance Activities

9.4.1 Only Class III, small scale short duration operation and maintenance type activities and Class IV asbestos work may be performed by predetermined and qualified UNLV personnel who have received the appropriate training as it relates to the activities being conducted. Work practices, as a minimum, must conform to the guidelines set forth in the O&M Work Practices Manual. (Appendix B)

9.5 Air Sampling

9.5.1 Initial Exposure Assessment

9.5.1.1 A "competent person" must conduct an exposure assessment immediately before or at the initiation of an asbestos operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment," and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly. UNLV shall presume that employees are exposed in excess of the TWA and excursion limit until the UNLV conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs.

9.5.2 Negative Exposure Assessment

9.5.2.1 A Negative Exposure Assessment (NEA) shall be conducted on all maintenance and abatement activities at intervals sufficient to document the validity of the exposure during removal operations annually. There are three potential approaches provided under 29 CFR 1926.1101(f)(2) for producing a negative exposure assessment. These are the use of objective data and previous air monitoring results which have been collected within the past year. If UNLV cannot produce a negative exposure assessment with objective data or previous air monitoring results, then exposure monitoring is required. Until a negative exposure assessment is produced, UNLV shall comply with the elements of the standard that are applicable and assume the PEL will be exceeded.

Personal protective equipment (eg. respirator, full body covering) is required for employees who are conducting abatement or maintenance activities while a negative exposure assessment is being established.

Note: *Prior to conducting an NEA, an Initial Exposure Assessment shall be conducted see Appendix C.*

9.5.3 Final Clearance Air Sampling

9.5.3.1 After final cleanup and the asbestos control area is dry, but prior to clearance sampling, the Contractor and a third party representative shall perform a visual inspection in accordance with ASTM E 1368 to ensure that the asbestos control and work area is free of any accumulations of dirt, dust, or debris.

9.6.2 A third party representative shall collect area samples using aggressive air sampling techniques as defined in the EPA 560/5-85-024 to establish an asbestos fiber concentration of less than 70 structures per square millimeter by use of transmission electron microscopy (TEM). Sample results shall be returned by the laboratory within 24 hours of the final air clearance sampling.

9.6 Waste Disposal

All asbestos that is intended for transport must be wetted with a water and surfactant mixture and stored in:

- a) A plastic bag which is not less than 6 mils thick and sealed so it will not leak;
- b) A combination of plastic bags which equal at least 6 mils in thickness; or
- c) A container made of cardboard or metal which is lined with plastic.
- d) Stored in the Universal Waste area.

9.7 Final Report Documentation

All completed forms and final report documentation shall be submitted to the Risk Management and Safety department.



APPENDIX A

Contractors Asbestos Location Notification and Acknowledgement Form

All contractors and subcontractors under direct contract with UNLV shall complete this form prior to beginning any projects at UNLV

All general and trade contractors and their employees under direct contract with UNLV shall assume responsibility for their respective subcontractors and their employees pertaining to all asbestos regulations while working on UNLV owned, leased or operated properties.

Building and Room Number/s _____

Name of Contractor _____

UNLV has identified the presence of various asbestos-containing materials throughout many of the buildings owned, leased or otherwise occupied by UNLV. The following is a partial listing of typical materials that contain asbestos. Disturbing these materials may result in an exposure to employee's and building occupants. Prior to disturbing these materials the UNLV project manager must be notified.

- | | | |
|-------------------------------------|---|--|
| <i>Acoustical Ceiling Panel</i> | <i>Insulating Wrap</i> | <i>Transite(piping, fume-hoods, exhaust flues, laboratory counter tops)</i> |
| <i>Base Molding Mastic</i> | <i>Mortar</i> | <i>Thermal System Insulation</i> |
| <i>Carpet Mastic/Adhesive</i> | <i>Plaster Sealants</i> | <i>Vinyl Sheet Flooring</i> |
| <i>Ceramic Tile Grout/Grout Bed</i> | <i>Sealants</i> | <i>Window Glazing</i> |
| <i>Chalkboard & Adhesive</i> | <i>Seam Putty</i> | <i>Wrapped Pipe Joints</i> |
| <i>Drywall/Sheetrock</i> | <i>Spray Acoustic - including overspray</i> | <i>Wallpaper</i> |
| <i>Electrical Insulation</i> | <i>Skimcoat/Joint Compound</i> | |
| <i>Flooring and Mastics</i> | <i>Structural Fireproofing</i> | |
| <i>Fire Doors</i> | <i>Textured Plasters</i> | |

Should the contractor or subcontractor, their employees or others intentionally or unintentionally disturb asbestos-containing material, stop work immediately, secure the area and inform the UNLV Project Manager at once. Do not return to the area or continue work until authorization has been given by the UNLV Project Manager.

The contractor shall indemnify UNLV and its officers, employees, agents and representatives from any loss, damage, cost or expense arising from any failure by the listed contractor and or its employees, agents, contractors, subcontractors and representatives to comply with any requirements set forth by the UNLV Project Manager. Failure to comply with all guidelines and conditions will result in the contractor assuming liability for all labor and materials required to alleviate the asbestos hazard.

UNLV Project Manager Signature _____

Contractor Representative Signature _____ Date _____

UNLV Risk Management and Safety Representative _____

Appendix B

O&M Work Practices Manual

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Section 1 General Notes

Use of these procedures is limited to situations where the amount of asbestos waste generated is not greater in size than the OSHA limit on Class III work (operation will generate no more waste than will fit into one 60 inch by 60 inch glovebag or waste disposal bag).

The three primary types of surfacing ACM identified in developing work practice examples are fireproofing, acoustical plaster, and decorative textured finishes.

Fireproofing

Fireproofing is one of the more important life safety systems in a building. Any action that compromises the fireproofing could, in the event of a fire, result in injury or death to building occupants or firefighters. Maintenance work must not compromise the rating of the fireproofing system.

Wetting

Wetting or surface misting with amended water is one of the most common asbestos control procedures. Most fireproofing materials are fairly forgiving of being wetted. However, fireproofing is an essential life-safety system and should not be carelessly tampered with. Check with the manufacturer of the fireproofing about the wisdom of wetting the material. If the manufacturer is not available then follow the cautious route and restrict wetting to a surface misting. Care should also be used to avoid wetting materials so much that problems with the HEPA vacuum are created. Many HEPA vacuums have paper bags as their first filter. Wet material can cause this bag to fail creating problems with emptying the HEPA vacuum, and possibly prematurely clogging the secondary filter, or even compromising it. In no case should a removal or penetrating encapsulant be used for this purpose unless it has a specific UL test rating.

Lockback Encapsulants

Beginning with its 1989 edition, Underwriters Laboratories requires all components of a fireproofing system to be subjected to an E-119 burn test. This includes any primers (an encapsulant is a primer in this application). A primer (encapsulant) incompatibility could cause the fireproofing to fall off and leave the steel exposed and unprotected. If the encapsulant affects the bond of the patching material, it could fall off. If the encapsulant softens too much when heated, it can cause the fireproofing to fall off during fire conditions. Some encapsulant manufacturers have tested their products with common fireproofing materials. Select a fireproofing patching material and encapsulant that have been tested together. Otherwise there is a real possibility of a fireproofing failure, and the installation won't conform to the test criteria and the installation will not have a UL rating.

- If the steel in the building was primed prior to fireproofing, the patching material must be compatible with both the existing primer and any primer that may be applied

during maintenance activities. In this instance the primer can be used for the lock-back.

- Some fireproofing systems have an adhesive/sealer that can be used as a lock-back. This is preferable to use as a lock-back encapsulant, it avoids encapsulant compatibility issues altogether.

Acoustical Plaster

Acoustical plasters have both an engineering and aesthetic function. These functions should be preserved and maintained.

Acoustical

The typical asbestos-containing acoustical plaster has a relatively open composition that allows sound waves to penetrate into and through the plaster. If the plaster is on a solid substrate such as a scratch coat or deck, then the sound reflects around inside the acoustic plaster and is absorbed.

Aesthetic

Acoustical plasters typically have a sandy or textured surface. Even when painted the texture of the material usually echoes through the paint film. During O&M activities patching and painting should be conducted in a manner that matches the original surface. This can be accomplished by specifying a particular patching material and method of application. It is possible that the application of the patching material could sufficiently impact the asbestos-containing plaster, this could affect the O&M Level appropriate for the activity. For example, the blending of a sand finish patch into an existing asbestos-containing acoustical plaster could disturb the ACM enough to turn a Level B work practice into a Level C.

Wetting

Many of the work practice require that the acoustical plaster be misted with amended water. If not done carefully this could stain the surface. Stains result from two processes. If lightly dampened, impurities left behind when the water evaporates can stain the surface. If the surface is over wetted, fine material in the acoustical finish can be suspended by the water, or water soluble components may dissolve in the water. These suspended materials migrate to the margins of the wet spot and are deposited in a ring-like stain as the water evaporates. Staining can be avoided by restricting the amount of water used to what is necessary for asbestos control purposes, or possibly by using distilled water.

When selecting work practices for a surfacing material it is important to distinguish between situations where the material is in its original condition and those where it has been encapsulated or coated with layers of paint. Different work practices may be necessary for each situation.

Decorative Textured Finishes

Decorative textured coatings do not have an acoustical function. The appearance of these materials should be maintained in the same manner as work on acoustical plasters.

Implementing Work Practices

An O&M program will be easier and more practical to implement if it is designed so that the majority of work can be performed without enclosures. For this to happen, each work practice needs to be developed to the point that there is no airborne exposure to asbestos.

In terms of the OSHA construction standard this means that a Negative Exposure Assessment (NEA) must be made. If the lack of a negative exposure assessment is available then an initial exposure assessment must be conducted prior to the start of work.

In general, asbestos control procedures used during the work to the extent that Level A and B controls can reliably control airborne fiber levels and control the spread of ACM dust and debris will result in a safer and more economical O&M program. The use of Level C work practices will be limited to outside abatement contractors unless these procedures will be used on a routine basis.

Work that occurs in the vicinity of an ACM surfacing treatment, but does not contact it and will not disturb it, is not given a level designation but requires control to insure that a disturbance does not occur. This control can be accomplished by designating spaces such as above ceiling plenums as "Controlled Areas." ACM surface treatments in the vicinity of work but which do not need to be contacted should be designated as "Controlled Systems." Exposure monitoring is not required for these activities as ACM is not being contacted. Awareness training is required to inform workers about the location of the ACM, and to advise them to avoid contacting it.

A Competent Person is required to be on-site during all maintenance and removal activities.

Level A

Level A work is an OSHA Class IV activity, where an ACM surfacing treatment is contacted but not disturbed, and a negative exposure assessment (NEA) has been made. Careful handling, wet methods, HEPA vacuums, prompt clean up and disposal, and awareness training for workers are required. Respiratory protection is not required by OSHA for this level of work, but is an option that the designer should consider. No area protection is required for this level of work.

An OSHA Competent person must make a determination that the exposed surfacing ACM is in good condition and that contact with the material without disturbance will not cause an exposure to a worker that is above the PEL.

For work above ceilings or a similarly inaccessible space an OSHA Competent Person must make a determination that the exposed surfacing is in good condition, and that there is no ACM debris or dust on top of the ceiling tiles or elsewhere in the plenum where it might be disturbed.

Level B

Level B work is an OSHA Class III activity on an ACM surfacing treatment where the material is disturbed and a negative exposure assessment has been made. Level B work practices should be used for work that can be accomplished without generating airborne fiber levels in the breathing zone of workers that are above the PEL, that does not spread visible dust and debris from the ACM, and that is accomplished without TSI or surfacing ACM being drilled, cut, abraded, sanded, chipped, broken or sawed. The “disturbance” of the ACM in this instance is usually the removal of a small quantity of material to permit repair or maintenance work, or penetration by a fastener. OSHA requires respiratory protection for work that disturbs surfacing treatments even if the PEL is not exceeded. Drop cloths are not required by OSHA, but are a practical necessity for this type of work.

WARNING

The Level B work practices in this manual cannot be used until a negative exposure assessment has been made. Level B work practices are performed without an enclosure. OSHA does not allow work that disturbs surfacing ACM to be performed outside of an enclosure unless a negative exposure assessment has been made.

Level C

Level C work is an OSHA Class III activity on an ACM surface treatment where the work includes drilling, cutting, abrading, sanding, chipping, breaking, or sawing; or there is no negative exposure assessment (the PEL may be exceeded). In this instance careful handling, wetting, and use of HEPA vacuums is not sufficient to prevent the escape of airborne fibers, dust and debris, and some sort of enclosure is needed to protect the environment. **Note:** that a mini-enclosure protects the environment, but requires that work be performed in a contaminated environment and as such may actually increase the exposure to workers. Glovebags reduce exposures to both workers and the environment. Workers need to be protected with respirators, protective clothing and decontamination procedures. OSHA requires respiratory protection, an enclosure and other worker protection measures for this type of work.

If level C work is infrequently encountered, it is best to limit this type of work to outside abatement contractors who have workers accustomed to working in environments with elevated asbestos levels.

Work Practices

Careful work practices should be the primary means used to prevent releases of asbestos fibers during O&M work. Such practices include control measures such as careful handling, wetting and local exhaust using HEPA vacuums that control or collect fibers at the source. The goal of all asbestos O&M work should be to prevent any exposure to the worker, prevent unnecessary contamination of the work area, drop

cloths, mini-enclosures and other secondary control devices. *Mini-enclosures should never be used to excuse sloppy work or creation of “bigger” messes.*

Some work practices in this manual call for wet ACM to be scraped directly into the nozzle of a HEPA vacuum or to even use the nozzle as a tool to remove wetted ACM. This is very effective in controlling the release of airborne fibers or ACM debris. To use this type of procedure a HEPA vacuum that can handle wet waste (wet/dry vacuum) and that has enough capacity to hold waste generated during removal operation should be used. Sucking ACM down a HEPA vacuum hose has a tendency to leave residue on the inside of the hose. This is acceptable if workers seal the hose before turning off the vacuum as routine procedure. There should be a periodic washing out of the hose with amended water. This can serve to add extra water to the collected waste at the time the HEPA vacuum is emptied.

Limits

The amount of ACM disturbed is limited to:

- Level A work should generate no waste at all.
- Level B activities should be limited to work that will disturb a very small amount of material.
- Level C work should be limited to situations where the amount of waste generated is not greater in size than the OSHA limit on Class III work (operation will generate no more waste than will fit into one 60” by 60” glovebag or disposal bag). *It is standard industry practice not to fill these bags more than one-third full, to allow for proper sealing and to guard against breakage.*

Section 2 Worker General Procedures

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	Critical Barriers
W6	Putting on Respirators and Performing Fit Checks
W7	Putting on Protective Clothing
W8	Beginning and Conducting Air Monitoring
W9	Wet Wiping, HEPA Vacuuming and Steam Cleaning
W10	Polyethylene Drop Cloth
W11	Packaging and Labeling Waste
W12	Applying Lockdown Encapsulant
W13	Cleaning Tools, Equipment and Work Area
W14	Decontaminating Waste
W15	Worker Decontamination and Removal of Protective Clothing and Respirators
W16	Visual Inspection and Completing Air Monitoring
W17	Waste Transportation, Storage and Disposal
W18	Glovebag Removal
W19	Disposal of Contaminated Water
W20	Mini-enclosures

Level A Checklist
Level B Checklist
Level C Checklist

W-1 Tools, Equipment and Materials

Tools and Equipment

- Utility knife
- Ground fault circuit interrupters, extension cords and adapters
- Lockout tags
- Temporary work lights
- Ladder or scaffold for elevated work
- Wet wipes or bucket with clean water for wet wiping
- Smoke test bulb and tubes
- Bone saw
- Wire cutters
- Tin snips
- Safety glasses

Abatement Equipment and Materials

- Polyethylene sheeting
- Duct tape
- Disposal bags with labels
- High Efficiency Particulate Air (HEPA) vacuum with hose, attachments
- Respirators (if required)
- Disposable coveralls (if required)
- Disposable towels or wet wipes
- Asbestos barrier tape
- Warning signs
- Garden sprayer with amended water or removal encapsulant
See general procedure W2.
- Aerosol cans or garden sprayer with lockdown encapsulant
- Air monitoring pumps, cassettes and calibration equipment
- Frame for mini-enclosure or prefabricated mini-enclosure
- Negative pressure machine as required for size of enclosure
- Glovebags (if required)

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. Containers of amended water or removal encapsulant shall 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 prior to the start of an O&M activity.

W-3 Lockout and Tagout of HVAC and Electrical Systems

Any electrical systems that might be worked on or affected by O&M activities shall be locked and tagged out with electrical lockout locks and tags at the circuit breaker panel or disconnect switch. Affected systems include systems that could create electrical hazards during O&M activities that involve water.

HVAC systems in a work area, systems that serve a work area or systems that will be worked on shall be shut down during O&M activities. Level A activities usually do not require HVAC shut down unless the work will occur on a system or a disturbance of asbestos will occur. Any air-handling systems (supply, return and exhaust) required to be shut down shall be locked and tagged out with electrical lockout locks and tags at the circuit breaker panel or disconnect switch.

W-4 Securing Work Area

When asbestos fibers might be released, work areas should be vacated and secured by scheduling, locking doors or other means. If this is not feasible, access to the work area should be restricted with a visual barrier (such as by barrier tape) around the perimeter of the work area.

Do not block access to any emergency exits, during asbestos removal activities, post the required OSHA "Danger Contains Asbestos Fibers" 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 "Construction Area Keep Out" 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 asbestos warning signs.

W-5 Critical Barriers

Completely separate the Work Area from other portions of the building, and the outside by closing all openings with a layer of 6 mil plastic sheeting, or by sealing cracks leading out of Work Area with duct tape.

Individually seal all ventilation openings (supply and exhaust), lighting fixtures, clocks, doorways, windows, convectors and speakers, and other openings into the Work Area with a double layer of 6 mil plastic sheeting, or by sealing cracks with double layer of duct tape. Maintain seal until all work including Project Decontamination is completed. Take care in sealing of lighting fixtures to avoid melting or burning of sheeting.

Provide sheet plastic barriers at least 6 mil in thickness as required to seal openings completely from the Work Area into adjacent areas. Seal the perimeter of all sheet plastic barriers with duct tape or spray cement.

W-6 Putting on Respirators and Performing Fit Checks

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure check or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

Face Piece Positive and/or Negative Pressure Checks

- *Positive pressure check.* Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.
- *Negative pressure check.* Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

W-7 Putting on Protective Clothing

Protective clothing for workers typically consists of disposable coveralls, gloves and boots. Coveralls shall have hoods and booties attached. They shall provide complete coverage of the body with the exception of hands and face. Do not modify coveralls.

Protective Clothing Options

Note: Protective clothing (such as DuPont Tyvek or Kimberly-Clark CleanGuard) DO NOT prevent asbestos fibers from penetrating the material. If street clothing is worn under protective clothing, it may become contaminated!

Level A & B

If level A or B work is to be performed and the potential for exposure to asbestos-containing dust and debris is low and localized, use:

- ✓ One disposable coverall with no street clothes, or
- ✓ One disposable coverall over street clothes

LEVEL C

Level C work is to be performed inside of a mini-enclosure and if potential for exposure to asbestos-containing dust and debris is moderate or dispersed, use:

- ✓ Two disposable coveralls with no street clothes, or
- ✓ If street clothes are required, two coveralls should be worn over the street clothes. Preferably the street clothes should be removed before the start of work.

Whenever possible, street clothes should be removed in a changing area before protective clothing is put on. Protective clothing should be put on after respirators and taken off before the respirator. The coverall hood shall cover respirator straps.

Workers are required 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 or other non-slip footwear is to be worn for all activities. (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 or working on scaffold.

W-8 Beginning & Conducting Air Monitoring During Work

Practices

Air monitoring during O&M activities consists 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 (29 CFR 1926.1101 Appendix A). All air monitoring work should be conducted by a trained person assigned by the APM.

The air monitor person should calibrate, adjust, and record the flow rate of all air monitoring pumps to be used before and after air monitoring for an O&M activity. General procedure W16 covers visual inspections and the completion of air monitoring at the end of the work.

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. Remove the cassette cap, 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 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 as well as measure any area contamination. Attach sampling cassettes to the hoses from the pumps and attach the cassettes to the top of tripod stands or other stable structures (do not use the pump as a stand due to its vibrations) 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, productive work shall be stopped, the area cleaned and additional engineering controls implemented.

W-9 Wet Wiping, HEPA Vacuuming, and Steam Cleaning

These work practices are used either to pre-clean the work area prior to start of work, or for cleaning surfaces as part of a work procedure.

Pre-cleaning of work areas prior to the start of work is done to remove accumulated debris and dust that could be disturbed during the work. Pre-cleaning 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. Pre-cleaning might reduce the extent of cleaning required after the work and for clearances.

Note: EPA has determined in a research study that HEPA vacuuming and steam cleaning of carpets does not completely remove asbestos contamination.

The following work procedures are to be used for cleaning when required in a Work Practice.

Wet Wiping

- Immerse disposable towel in bucket containing amended water.
- Wring out towel and fold into quarters.
- 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.
- Repeat the above step until all faces of towel have been used. Obtain a clean towel if more wiping is needed.
- Dispose of used towels in disposal bags.

- Dispose of contaminated water as required by applicable regulations - See General Procedure W19.

HEPA Vacuuming

For floors, use a floor attachment with adjustable floor-to-attachment height. For furniture, fabrics or other surfaces use an upholstery attachment or brush attachment.

- Vacuum hard or smooth surfaces with attachment about 1/16" (2 mm) above the surface.
- Vacuum carpet or fabrics with attachment just touching the surface.
- Vacuum all surfaces in parallel passes with each pass overlapping the previous one by one-half the width of the attachment.
- Once surfaces are cleaned in one direction, clean a second time at right angles to the first cleaning.
- Use crevice brush or other tools to clean irregularly shaped surfaces.

Steam Cleaning Carpet

- Steam clean carpet using carpet tool.
- Steam clean all surfaces in parallel passes with each pass overlapping the previous one by one-half the width of the attachment.
- Once surfaces are cleaned in one direction, clean a second time at right angles to the first cleaning.
- Water from cleaning process should be treated in accordance with applicable regulations - See General Procedure W19.

W-10 Polyethylene Drop Cloth

Preparing a work area with a drop cloth requires that a single layer of 6mil polyethylene sheeting 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 sheeting 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. Non-slip foot coverings are recommended where drop cloths are used. Drop cloths should be thoroughly cleaned if they are moved from one spot to another or reused in the same work area. Do not move the drop cloth from one work area to another to avoid the possibility of contamination.

Note: that the use of a drop cloth introduces potential slip hazards in the work area.

W-11 Packaging and Labeling Waste

Asbestos-containing waste material shall be adequately wet in accordance with the NESHAP requirements (40 CFR 61.150). Pre-labeled asbestos disposal bags can be used for asbestos waste disposal where possible. Disposal bags shall 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.

Although not a federal regulatory requirement, asbestos waste shall be placed into second disposal bag and sealed as described above.

Asbestos waste that does not fit into disposal bags should be wrapped leak-tight in two layers of 6 mil polyethylene sheet. Each layer should be sealed tightly with duct tape. Label outer layer as required by regulations.

Sharp objects that might puncture polyethylene (such as floor tile) can be placed into cardboard boxes before wrapping in two layers of 6 mil polyethylene.

All waste shall be labeled as required by federal, state and local regulations. Federal regulations requiring labeling of waste include OSHA regulations 29 CFR 1910.1200, 1910.1001 and 1926.1101, EPA's NESHAP regulation 40 CFR 61.150, and the Department of Transportation's Hazardous Materials Regulations 49 CFR 171 and 180. Review current labeling requirements with APM. The OSHA requirements apply regardless of the amount of waste or measured exposure levels (see 29 CFR 1926.1101(k)).

Label Requirements Include:

Occupational Safety and Health Administration
29 CFR 1926. 1101(k)(8) requirement:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

Department of Transportation (DOT)
DOT's shipping paper and marking format:

RQ	Reportable Quantity, if 1 lb or more friable asbestos.
WASTE	For waste material.
ASBESTOS	Shipping name; for domestic transportation only.
MIXTURE	For asbestos mixed with a binder or filler, etc.
9	Class 9, Miscellaneous Hazardous Materials, includes asbestos.
NA2212	North America, for domestic transportation only.
PGIII	Packing Group, for domestic transportation only.
x lb	Total quantity of material describe, may abbreviate unit.

NESHAP Requirement

NESHAP requires that readily visible and legible warning labels be used on waste containers or wrapped materials. 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.

Leak tight containers are required for all asbestos containing waste material.

W-12 Applying Lockdown Encapsulant

A lockdown encapsulant shall be applied to areas where ACM is removed. Lockdown encapsulant used should be tested per 1978 Battelle/EPA report "Tests for the Evaluation of Encapsulant for Friable Asbestos-Containing Materials". Encapsulant 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 also need to be compatible with any materials that will be installed over the encapsulant. Avoid getting encapsulant on or in HVAC units, HEPA vacuums, and negative pressure machines.

Note that many lockdown encapsulants will act as an adhesive and could be objectionable on some surfaces when dry.

Lockdown is typically applied using a garden sprayer. It should be applied in accordance with the manufacturers' recommendations in two light coats sprayed from opposite directions to seal all portions of surfaces including any exposed edges of remaining ACM.

Do not apply lockdown encapsulant on fireproofing or to steel that is going to be fireproofed, without prior approval from the APM.

The use of spray fireproofing is based on full-scale fire endurance tests of fireproofed steel. Anything that differs from the tested assembly voids the test, and could result in a fireproofing failure. Fireproofing is a non-combustible insulator of steel. Coating it or saturating it with an encapsulant could render it combustible and could reduce its insulating properties. This could cause the fireproofing to fail and as such voids the fire rating. The introduction of an encapsulant between the fireproofing and the steel could cause the fireproofing to fail. The bond of the fireproofing to the steel could be weakened causing the fireproofing to fall off, or the encapsulant could soften and allow the fireproofing to fall off during a fire. Unless the encapsulant has been tested and approved for use by the manufacturer of the fireproofing used, its use will void the fire rating of the fireproofing material.

W-13 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. Tools and equipment to be reused that has been placed in a disposal bag and properly labeled must be stored in a secure area.

Do not open bags containing contaminated tools, or open equipment such as a HEPA vacuum, except during another O&M activity where a full body covering and a respirator are required and in a designated work area. HEPA vacuum hoses must 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 all surfaces in the area. HEPA vacuuming and wet wiping shall be performed as described in General Procedure W9.

W-14 Decontaminating Waste Packaging

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 W9. 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-15 Worker Decontamination, Removal of Protective Clothing and Respirators

Level B Requirements

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 into a disposal bag and label as ACM waste if contaminated. Remove respirator and follow procedures specified in Respiratory Protection Program for cleaning and storing respirator. Dispose of respirator filters as ACM or close inlet with duct tape.

Level C Requirements

WHERE WORK IS PERFORMED INSIDE A MINI-ENCLOSURE OR OTHER PHYSICAL BARRIER.

Removal of Protective Clothing If A Mini-Enclosure and Change Room is Provided.

HEPA vacuum all parts of protective clothing while inside the work area enclosure.

When two disposable coveralls are used, remove outer coveralls in work area while continuing to wear the respirator. 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.

When only one set of disposable coveralls is worn, remove in change room while continuing to wear the respirator. 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 face piece and face. Place disposable towels into a waste disposal bag. Remove respirator and follow procedures specified in Respiratory Protection Program for cleaning and storing the respirator. Dispose of respirator filters as ACM or close inlet with duct tape. Put street clothes on and exit change room.

Removal of Protective Clothing if an Enclosure or Mini-Enclosure is used in conjunction with a separate Shower Facility

HEPA vacuum all parts of protective clothing while inside work area enclosure. Remove outer coveralls in work area while leaving respirator in place. Fold coveralls inside out as they are removed. Move to change room. Wash hands and wet wipe face and respirator, HEPA vacuum protective clothing. Put on a clean set of protective coveralls over the coveralls already being worn to prevent any ACM debris or dust that may be on the coverall from falling off on the way to the shower. 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 asbestos waste bag. These street clothes shall then be disposed of as ACM waste.

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. Remove respirator and follow procedures specified in Respiratory Protection Program for cleaning and storing respirator. Dispose of respirator filters as ACM or close inlet with duct tape.

W-16 Visual Inspection and Completing Air Monitoring

Visual Inspection

Conduct a visual inspection prior to the start of clearance air sampling. The person performing the inspection can be a person carrying a contractor supervisor certification/license if authorized by the APM. Verify that there is no debris or residue from removed ACM and that all visible dust or debris in the work area has been cleaned up. If visible residue, dust or debris remains, it must be cleaned up using wet wiping and/or HEPA vacuuming before clearance sampling is started. Perform the visual inspection using procedures approved for use in the facility by the APM. If you have not been trained in visual inspection procedures notify the APM. The EPA's Purple Book and the American Society for Testing and Materials (ASTM) "Standard Practice for Visual Inspection of Asbestos Abatement Projects" (Document E1368-90) provide visual inspection procedures that might be helpful in developing O&M inspection procedures.

Air Samples

Complete air monitoring work in accordance with Air Monitoring Program and requirements noted on a Work Authorization Form. Verify that removal areas have been encapsulated (locked down), that the work area, tools, and equipment have been cleaned, and that the area has passed a visual inspection. When air sampling cassettes are retrieved, the air monitoring person should record the stop time for the samples and check and record the flow rate of the air monitoring pumps. When sample results are received, compare results to Air Monitoring Program criteria for work release or clearance. Work area sample results that exceed the criteria, shall be re-cleaned, re-inspected, and have additional air samples collected. If samples are equal to or below release criteria, tear down work can proceed. Collect air sampling pumps and equipment from work area and other locations when air sampling work is completed.

W-17 Waste Transportation, Storage and Disposal

Transport asbestos waste from O&M activities to an area designated by the APM. Workers transporting waste shall follow Respiratory Protection Program recommendations concerning respirator requirements for transporting asbestos waste. Do not drag packaged waste. All waste shall be lifted and carried, or transported in wheeled carts. Packaged waste shall be placed, not thrown or dropped, into vehicles and storage areas.

All asbestos waste shall be stored in a secured, locked area. Signage in accordance with NESHAP shall be posted at the storage area and on vehicles used to transport asbestos containing waste. When asbestos waste in the storage area is taken to a landfill, it shall be transported in accordance with all applicable federal, state and local regulations. Asbestos waste shipment records shall be completed in accordance with the requirements in NESHAP Section 61.150.

The workers conducting the O&M activity should fill out Part 1 of the waste tracking form included in Appendix D and the waste is stored or taken to a landfill, the form should be turned over to the APM to complete Part 2 and retain. NESHAP waste shipment records must also be completed and filed with waste disposal records.

W-18 Glovebag Removal

Remove asbestos-containing material inside a glove bag according to the following procedures. Glovebags shall be used only once and shall not be moved to another location to perform additional removal work, or reused in any way. Use only 60" X 60" standard glovebags. Do not use glovebags on surfaces or equipment that is over 130°F. If you encounter a situation that requires a special type or size of glovebag, or if hot surfaces are involved, notify the APM.

Other types of prefabricated removal enclosures include a "glovebox" type enclosure. Glovebags might be used with a framework for O&M work on flat areas such as surfacing materials. Workers shall obtain information regarding requirements for glovebag use from the APM.

Significant asbestos exposures can result from the improper use of glovebags!

Personal air monitoring is required on all glovebag removal projects.

W18A Glovebag Removal

Check area where the work will be performed. If damaged ACM is present (broken lagging, hanging, etc.), wrap in polyethylene and cover polyethylene with strips of duct tape for reinforcement. Place one layer of duct tape around the removal area where the glove bag will be attached. Also protect any damaged ACM outside the glovebag area that could be disturbed during the work.

- ✓ Slit top of the glove bag open (if necessary) and cut down the sides to accommodate the removal area.
- ✓ Place necessary tools into pouch located inside glove bag (or into a sleeve turned inside out). Tools needed typically include: scraper, bone saw, utility knife, disposable towels, nylon brush, abrasive pads, wire cutters, tin snips and pre-wetted lag cloth. Cut lag cloth to sizes needed to cover any ACM that will remain after glovebag work is completed.
- ✓ Place one or more strips of duct tape along the edge of the open top slit of glove bag for reinforcement.
- ✓ Place the glove bag around area to be worked. Provide 8-12" (200-300 mm) of space inside glovebag between removal surface and glovebag for working room. Secure glovebag to duct tape previously installed around removal area.
- ✓ Use smoke tube and aspirator bulb to test seal. Place tube into water sleeve (two-inch [50 mm] opening to glove bag) squeezing bulb and filling bag with visible smoke. Remove smoke tube and twist water sleeve closed. While holding the water sleeve tightly, gently squeeze glove bag and look for smoke leaking out, (especially at the top and ends of the glove bag). If leaks are found, tape closed using duct tape and re-test.

- ✓ If a negative pressure glovebag with a supporting framework and HEPA filtered makeup air port is being used, attach hose from an operating HEPA vacuum to glovebag to provide negative pressure in glovebag. Follow equipment manufacturer's instructions on use of negative pressure equipment.
- ✓ Insert wand from garden sprayer with amended water through water sleeve. Duct tape water sleeve tightly around the wand to prevent leakage.
- ✓ Insert hands into glove arms and wet ACM where work is required. Perform work as needed. Caution: If bag is overloaded with tools or other materials the bag may break.
- ✓ Remove any metal jacketing or covering over the area where removal is required using tin snips and/or wire cutters. Fold in any sharp edges to avoid cutting the bag. Pierce any painted coverings to permit water to soak into the ACM.
- ✓ Adequately wet material to be worked on with amended water and allow to soak in. Wet adequately to penetrate and soak material through to substrate.
- ✓ Cut insulation section to be removed using a bone saw or utility knife. Use caution to avoid cutting glovebag. Lift glovebag away from cutting area if necessary.
- ✓ Throughout this process, spray amended water or removal encapsulant on the cutting area to keep dust to a minimum.
- ✓ Remove insulation using scraper or other tools. Place pieces in bottom of bag without dropping. Rinse all tools with amended water inside the bag and place back into pouch or a sleeve of the glovebag turned inside out.
- ✓ Using nylon brush, scrub pads, disposable towels and amended water, scrub and wipe down the removal area.
- ✓ Seal exposed ACM around removal area using pre-wetted lag cloth or a bridging encapsulant. Encapsulate removal area with an appropriate lockdown encapsulant. Use suitable high temperature encapsulant for hot piping.
- ✓ Wash down inside of glovebag with amended water and wipe as necessary to move all debris and residue to lower part of glovebag (below where bag will be twisted and cut).
- ✓ Remove water wand from water sleeve, twist water sleeve closed and seal with duct tape.
- ✓ From outside the bag, pull the tool pouch or sleeve away from the bag and twist pouch to seal it from rest of bag. Place duct tape over twisted portion and then cut the tool bag from the glove bag, cutting through the twisted/taped section.
- ✓ Contaminated tools might then be placed directly into another glove bag without cleaning. Alternatively, tool pouch with the tools can be placed in a bucket of water, opened underwater, and tools cleaned and dried. Discard disposable towels and nylon brush with asbestos waste. Dispose of contaminated water as set forth in General Procedure W19.
- ✓ Evacuate air from glovebag using HEPA vacuum. With HEPA vacuum operating and removed insulation in the bottom of the bag, twist the bag several times and tape it to keep the material in the bottom during removal of the glove bag from the removal area.
- ✓ Slip a 6 mil disposal bag over the glove bag (still attached to removal area). With the hose of an operating HEPA vacuum inserted in the upper part of glovebag, remove tape or cut bag and open the top of the glove bag and fold it down into disposal bag.

W18B Use of a Glovebag with Self-Supporting Frame

Glovebags on self-supporting frames can be used for some O&M activities on surfacing materials, and might be able to be adapted for other types of ACM. The general procedures for using these units are as follows:

- ✓ Construct a rectangular or square frame of 1 ½" diameter PVC or ABS pipe. Supporting legs can be made of lengths of pipe and fittings as needed to achieve the required height. Proprietary frames with telescoping legs are available.
- ✓ To install glovebag on the frame, fold top edge of bag over the frame sides and extend the open edge of the bag at least 10" beyond the frame. Secure the open edges to the rest of the bag using duct tape. Place tools and supplies needed (procedure W18A) in tool pouch inside glovebag.
- ✓ Place frame and glovebag assembly below work location so that frame is close to, but not touching, ACM. Location and proximity of frame to ACM should allow for some movement without disturbing ACM during the work.
- ✓ Insert wand of garden sprayer with amended water into bag and seal in place.
- ✓ Cut hole in glovebag for negative pressure equipment hose. Negative pressure equipment could be a HEPA vacuum or small negative pressure machine. Install hose and seal in place. A pre-filter might be needed to prevent any gross ACM debris from being drawn into the negative pressure device.
- ✓ Install a hose from an operating HEPA vacuum into the bag in a position where it can be used during the work. Turn on negative pressure device and smoke test all sides of glovebag frame unit to verify that negative pressure is present. If sufficient negative pressure is not present, reduce clearance between ACM and frame (if possible), or add additional negative pressure device(s).
- ✓ Insert hands into glove arms and wet ACM where work is required. Perform work as needed. Caution: If bag is overloaded with tools or other materials, bag might break or release from frame.
- ✓ HEPA vacuum and wet wipe tools and inside of bag. Adequately wet any ACM debris in glovebag.
- ✓ Slowly lower frame to allow tools to be removed from bag.
- ✓ Gently remove glovebag from frame and twist to form a neck. Evacuate air from bag using HEPA vacuum and tape bag closed.
- ✓ Remove garden sprayer wand, negative pressure device hose, and HEPA vacuum hose and seal holes with duct tape.
- ✓ Place glovebag into a labeled 6 mil asbestos disposal bag and seal bag.

W-19 Disposal of Contaminated Water

Contaminated water from O&M activities should be disposed of in accordance with all applicable federal, state and local regulations. Filtering might be required. If filtering is required, water shall be filtered through a 5 micron (max) water filter before discharging into a sanitary sewer system. If a filter unit is not available at the work location, contaminated water can be put into leak-tight 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.

W-20 Mini-Enclosures

Note: 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 shall be the primary means of fiber control during O&M work. Mini-enclosures are intended to protect the environment, workers are protected by work procedures and engineering controls that prevent elevated airborne fiber levels, and by respiratory protection, protective clothing, decontamination procedures and other worker protection methods. State or local codes might require that fire retardant polyethylene sheeting be used for asbestos related work.

Preparation of work areas for O&M activities may involve the use of a mini-enclosure. Other techniques, such as the use of a glovebag taped over a self-supporting framework might be used as a substitute for a mini-enclosure where appropriate. For small amounts of removal work where an enclosure is desired or needed, a glovebag may be used in lieu of a full mini-enclosure e.g. removing a small amount of fireproofing, or cutting a hole in asbestos-containing plaster.

A mini-enclosure is a polyethylene enclosure around a work area. Mini-enclosures are sealed enclosures used to protect the facility environment 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. As noted above, careful work practices should be the primary means of fiber control during the work in order to prevent gross contamination of the mini-enclosure.

It is sometimes appropriate to extend mini-enclosures above ceilings, such as by using polyethylene sheet and framing taped together to provide enclosure around the work area. The mini-enclosure should not contact ACM covered surfaces. The construction will vary depending on whether the enclosure will be attached to pipes, conduit, metal hangers, or some other form of existing construction.

Two workers shall 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 7 foot change room, with curtain doorways, attached to the mini-enclosure for changing and removing protective clothing.

If an entire room will be enclosed for performing work, the framework is usually not necessary, unless wall surfaces will be damaged by tape used to support polyethylene sheeting.

If the work to be performed is in an elevated location, the enclosure (and change room if used) should be erected on a scaffold platform large enough to support the enclosure, change room, and a step off area outside the enclosure.

Refer to OSHA regulations 29 CFR 1910.28 and 29 CFR 1926.451 concerning scaffold requirements. Any ladders and/or scaffolds used must be built and used in conformance with the OSHA construction standards, and applicable state and local standards.

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 overlapping sheets of polyethylene. Attach sheets to framework at top and one side. A sheet of polyethylene approximately 5 feet by 5 feet or larger should be installed on the floor outside the change room for use as a step off area and as a place to put decontaminated materials removed from the work area.

Mini-enclosures should be constructed with a ceiling of polyethylene if work will not be performed above the enclosure. If work is to be performed above the enclosure and the ceiling is not ACM, the enclosure should extend to and be sealed to the ceiling or grid system. If the enclosure is below an ACM finished surface, use one of the following methods:

If ACM cannot be contacted, the enclosure should be separated from the ceiling by a narrow space.

If ACM will withstand contact without damage and is in good condition, foam tape (1" or thicker) can be placed on the top edge of the enclosure. Gently lift enclosure into place until sufficient contact is made to provide a seal to the surface.

After enclosure is in place, check for, and clean up any debris generated by enclosure installation.

Mini-enclosures should be set up with a negative pressure system as described below to reduce the possibility of fibers being released from the enclosure and to filter the air inside the enclosure.

Negative Pressure System and HEPA Filtered Local Exhaust Ventilation

Mini-enclosures should be provided with a negative pressure system 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 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. Larger enclosures might require a small negative pressure machine (HEPA filtered fan unit) to achieve a negative pressure inside the 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 if possible. 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. A work practice is provided for changing filters in HEPA vacuums and negative pressure machines (HEPA filtered exhaust fans) when needed. Filters should not be changed without following these work practices.

When HEPA filtered local exhaust ventilation is used in a work practice, this can be in addition to, or in place of, a negative pressure system. A HEPA filtered local exhaust ventilation system might replace a negative pressure system if the ventilation system provides adequate negative pressure in the work area. Some work practices use HEPA filtered local exhaust ventilation for fiber control where an enclosure is not used. A HEPA ventilation system can use a HEPA vacuum or negative pressure machine. The hose attached to the HEPA unit should be kept as close as possible to the location where ACM might be, or is, disturbed.

Level A Worker Checklist

Level A work may contact ACM but not disturb it. If you encounter damaged ACM, or if the work could damage the ACM, stop work and notify your supervisor.

Pre-Work Activities

- ✓ Obtain and review copies from a Supervisor or the Asbestos Program Manager of:
- ✓ Completed Maintenance Work Authorization Form
- ✓ Work practice(s) to be used including personal protective equipment options
- ✓ Work Notification(s) (as applicable)
- ✓ Schedule for work
- ✓ Review work practices and General Procedure W1 and any other general procedures used in work practice.
- ✓ Inspect work area for visible dust or debris. If present, stop work and notify APM.
- ✓ Obtain recommended tools, equipment and materials as described in General Procedure W1, work practice(s) item 2, and Maintenance Work Authorization Form.
- ✓ Move tools, equipment and materials to work area.
- ✓ Shut off and lock out any HVAC or electrical systems to be worked on.

- ✓ If required on Maintenance Work Authorization Form, put on respirators and perform fit checks - See General Procedure W6.

Work Practices

- ✓ Always use wet methods, HEPA vacuums, prompt clean-up and disposal of waste.
- ✓ Prohibited practices: Do not dry clean-up dust and debris, or use compressed air or high-speed abrasive saws.
- ✓ Perform work per steps in work practice(s).

Clean-Up and Tear-Down

- ✓ Remove lockout tags and locks. Restart any HVAC/electrical system(s) that were shut off.
- ✓ Return tools, equipment and remaining materials to storage area.
- ✓ Notify Asbestos Program Manager or Supervisor that work is completed & return documents to APM.

Level B Worker Checklist

Level B is work that may disturb ACM, but where the OSHA PEL is not exceeded and release of ACM, dust and debris is confined to the immediate location of the disturbance.

Pre-Work Activities

- ✓ Obtain and review copies from a Supervisor or the Asbestos Program Manager of:
- ✓ Completed Maintenance Work Authorization Form
- ✓ Work practice(s) to be used including personal protective equipment options
- ✓ Work Notification(s) (as applicable)
- ✓ Schedule for work
- ✓ Review work practices and referenced general procedures used in work practice(s).
- ✓ Obtain recommended tools, equipment and materials - See General Procedure W1 and work practice(s) item 2.
- ✓ Obtain required respirators as listed on Maintenance Work Authorization Form.
- ✓ Move tools, equipment and materials to work area.
- ✓ Shut off and lock out HVAC and electrical systems serving work area - See General Procedure W3.
- ✓ Vacate and secure work area, such as by locking doors and/or setting up temporary barriers - See General Procedure W4.
- ✓ Put on respirators and perform fit checks - See General Procedure W6.
- ✓ Put on protective clothing - See General Procedure W7.
- ✓ Begin personal air monitoring (if required) – See General Procedure W8.
- ✓ Pre-clean work area if visible dust or debris is present – See General Procedure W9.

Work Area

- ✓ Set up work area as required by work practice - See General Procedure W10.

Work Practices

- ✓ Always use wet methods, HEPA vacuums, prompt clean-up and disposal of waste.
- ✓ Prohibited practices: Do not dry clean-up dust and debris, or use compressed air or high-speed abrasive saws.
- ✓ Perform work per steps in work practice(s).

Clean-Up and Tear-Down

- ✓ Package and label asbestos waste for disposal - See General Procedure W11.
- ✓ Apply lockdown encapsulant, where required, using garden sprayer, to surfaces where ACM was removed or disturbed - See General Procedure W12.
- ✓ Clean tools, equipment and work area using wet wiping and HEPA vacuuming as appropriate and return tools and equipment to outside work area – See General Procedure W13.
- ✓ Decontaminate packaged waste & move waste to outside work area – See General Procedure W14.
- ✓ Workers decontaminate and remove protective clothing and respirators. If contaminated, dispose of protective clothing as ACM – See General Procedure W15.
- ✓ Complete visual inspection. Complete air monitoring work – See General Procedure W16.
- ✓ If feasible, get APM or designee to complete Evaluation of Work Form.
- ✓ Transport waste to designated asbestos waste storage area – See General Procedure W17.
- ✓ Remove drop cloth, clean with HEPA/wet methods or properly dispose of as contaminated.
- ✓ Return decontaminated tools, equipment and remaining materials to storage area.
- ✓ Remove lockout tags and restart HVAC/electrical system(s).
- ✓ Restore normal accessibility to work area.
- ✓ Notify Asbestos Program Manager or Supervisor that work is completed & return documents to APM.

Level C Worker Checklist

Level C is work where ACM is disturbed and the PEL may be exceeded or ACM, dust, and/or debris may be scattered beyond the immediate location of the disturbance. Level C work must take place in an enclosure (glovebag or mini-enclosure).

Pre-Work Activities

- ✓ Obtain and review copies from a Supervisor or the Asbestos Program Manager of:
Completed Maintenance Work Authorization Form
- ✓ Schedule for work
- ✓ Review work practices and referenced general procedures used in work practice(s).
- ✓ Obtain recommended tools, equipment and materials – See General Procedure W1 and work practice(s) item 2.
- ✓ Obtain required respirators as listed on Maintenance Work Authorization Form.
- ✓ Move tools, equipment and materials to work area.

- ✓ Shut off and lock out HVAC and electrical systems serving work area – See General Procedure W3.
- ✓ Secure the work area, such as by locking doors and/or setting up temporary barriers - See General Procedure W4.
- ✓ Put on respirators and perform fit checks - See General Procedure W6.
- ✓ Put on protective clothing - See General Procedure W7.
- ✓ Begin personal air monitoring (if required) - See General Procedure W8.
- ✓ Pre-clean work area if visible dust or debris is present – See General Procedure W9.

Work Area

- ✓ Set up work area and decontamination facilities as required by work practices – See General Procedures W5, W10, W18, and W20.

Work Practices

- ✓ Always use wet methods, HEPA vacuums, prompt clean-up and disposal of waste
- ✓ Prohibited practices: Do not dry clean-up dust and debris, or use compressed air or high-speed abrasive saws.
- ✓ Perform work per steps in work practice(s).

Clean-Up and Tear-Down

- ✓ Package and label asbestos waste for disposal - See General Procedure W11.
- ✓ Apply lockdown encapsulant, where required, using garden sprayer, to surfaces where ACM was removed or disturbed - See General Procedure W12.
- ✓ Clean tools, equipment and work area using wet wiping and HEPA vacuuming as appropriate and return tools and equipment to outside work area – See General Procedure W13.

Section 3 Surfacing Materials Work Practices

Code	Levels	Description
S1	A B C	Moving one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM
S2	A B	Attach component to an ACM finished surface that is above a ceiling
S3	C	Remove a small amount of ACM surfacing above a ceiling
S4	B C	Work in ceiling plenum space where exposed surfacing ACM is present
S5	A B C	Install wiring in plenum space where exposed surfacing ACM is present
S6	B C	Attach item to ceiling finished with ACM
S7	A B C	Repair or replace item in surface finished with ACM
S8	B C	Cut or drill hole in surfacing ACM
S9	A B	Replace bulbs in light fixture attached to or in surface finished with ACM
S10	A	Clean room with exposed surfaces finished with ACM
S11	B C	Repair damaged surfacing ACM
S12	A B C	Accessing through an ACM finished surface
S13	A B C	Painting surfacing ACM

S1. Summary

Moving one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.

Summary

These work practices cover situations where access is needed into a plenum above a non-asbestos-containing ceiling, which is installed below exposed surfacing ACM. If debris and/or dust have fallen from the ACM and have collected on top of ceiling tiles, it could be disturbed when a tile is lifted out. This disturbance could release asbestos into the air. If the tile impacts ACM when it is lifted this could release debris, dust and airborne asbestos. The work practices are intended to prevent these disturbances. Different levels of work practice will be needed depending upon the amount of debris and dust that is on top of the ceiling.

Examples

- Level A Move a non-ACM ceiling panel to make observations above a lay-in ceiling below exposed surfacing ACM in good condition, where a competent person has determined that there is no ACM dust or debris on top of the ceiling tiles.
- Level B Move or replace non-ACM ceiling panels in a lay-in ceiling below exposed surfacing ACM in good or fair condition where there may be dust or debris on top of the ceiling tile.
- Level C Move non-ACM ceiling panels to access plenum area where plenum space contains exposed surfacing or other ACM in poor condition and there is ACM dust and debris present on top of ceiling.

Related Work Practices

- S 2 Attach item to an ACM finished surface that is above a ceiling.
- S 3 Work in ceiling plenum space where exposed surfacing ACM is present.
- S 4 Install wiring in plenum space where exposed surfacing ACM is present.
- M 2 Remove asbestos-containing ceiling panels in lay-in ceiling system.
- M 4 Remove asbestos-containing ceiling tiles in spline ceiling system.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S1. Level A

Moving one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Move a non-ACM ceiling panel to make observations above a lay-in ceiling below exposed surfacing ACM in good condition, where a competent person has determined that there is no ACM dust or debris on top of the ceiling tiles.

Notes

The space above the ceiling is a controlled area. Do not enter this area, or disturb ceiling tiles unless authorized.

Do not enter the space above the ceiling using this work practice unless you know that there is no ACM debris on top of ceiling. If you do not know if there is debris on top of the ceiling then use Level B procedures to open ceiling.

Work Practice

- ✓ Perform Pre-work activities on Level A Worker Checklist.
- ✓ See General Procedure W1 for standard tools, equipment and materials list.
- ✓ Place ladder or scaffold in work area.
- ✓ Carefully lift up ceiling panel. If wires, ducts, conduit, etc. obstruct lifting, move to another panel. Keep panel as flat as possible while lifting panel. Lift panel slightly above grid system and slowly slide panel to one side, leaving panel on top of an adjacent panel.
- ✓ Wet wipe or HEPA vacuum the underside of the panel that was moved. Carefully replace ceiling panel and complete applicable steps on Level A Worker Checklist to complete work.

S1. Level B

Move one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Move or replace a non-ACM ceiling panel in a lay-in ceiling below exposed surfacing ACM in good or fair condition where there may be a small amount of debris or dust on top of the ceiling tile.

Notes

The space above the ceiling is a controlled area. Do not enter this area, or disturb ceiling tiles unless you have been authorized by Facilities Management Services. Use this work practice where there is debris or dust on top of the ceiling tiles, but the ceiling can be opened using the procedures in this work practice without generating visible dust or debris from material on top of the ceiling.

Do not use this procedure if more than a very small amount of debris will be disturbed. If more than a very small amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B Worker Checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Tools and materials needed for work on ceiling
 - HEPA vacuum with a long enough hose to sit on the floor with the nozzle being used above the ceiling.
- ✓ Prepare work area with drop cloth. See General Procedure W10.
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit check.
- ✓ HEPA vacuum around edges of all panels to be removed.
- ✓ While holding nozzle of HEPA vacuum in vicinity slowly lift one edge of center ceiling panel. Immediately HEPA vacuum space at lifted edge. Lift entire panel straight up and HEPA vacuum all four sides.
- ✓ Place panel on top of adjacent ceiling.
- ✓ Working in the space above the ceiling, HEPA vacuum both sides of the ceiling panel first removed and hand it down into a 6 mil polyethylene bag for storage.
- ✓ Remove loose material hanging from the friable ACM with the suction from the HEPA vacuum.
- ✓ Pass wand of operating HEPA vacuum through air between ACM and top of ceiling.
- ✓ HEPA vacuum the tops of all ceiling panels that are in reach.
- ✓ Carefully HEPA vacuum the crack between the suspension system and ceiling panels from the top for all ceiling panels within reach.

- ✓ Remove ceiling panels as required while constantly HEPA vacuuming all four edges of panel and suspension system.
- ✓ Working in space above ceiling HEPA vacuum both sides on each panel removed and hand each down into a 6 mil (0.15 mm) polyethylene bag.
- ✓ Maintain HEPA vacuum in operation with nozzle above ceiling and exhaust at floor for the entire time that the ceiling is open and work is being done above the ceiling.
- ✓ When above-ceiling work is complete, replace ceiling panels.
- ✓ HEPA vacuum worker's head, arm, and shoulders before climbing down from ceiling.
- ✓ HEPA vacuum ladder while climbing down.
- ✓ While standing on plastic sheet thoroughly HEPA vacuum ladder and pass it to person standing off sheet.
- ✓ Complete applicable steps on Level B Worker Checklist.

Note: The operation of the HEPA vacuum is intended to clean the air in the location of the work. As such the nozzle should be kept above the ceiling as much as possible and the canister on the floor. Climb to a position that permits access to the top of the ceiling adjacent to the removed panel.

S1. Level C

Moving one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Move non-ACM ceiling panels to access plenum area where plenum space contains exposed surfacing or other ACM in poor condition and there is ACM dust or debris present on top of ceiling panels.

Notes

The space above the ceiling is a controlled area. Do not enter this area, or disturb ceiling tiles unless authorized by Facilities Management Services.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will fit comfortably into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Tools and materials needed for work on ceiling
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for vacuuming areas above ceiling.
- ✓ Put on respirator and perform fit test, and put on protective clothing. Enter enclosure.
- ✓ Carefully lift up ceiling panel while HEPA vacuuming around edges of panel. Keep panel as flat as possible while lifting panel. Lift panel slightly above grid system and slowly slide panel to one side, leaving panel on top of an adjacent panel. Remove any ACM debris and dust from the top of the ceiling panel or adjacent panels with the HEPA vacuum. Maintain nozzle of HEPA vacuum in operation above plane of the ceiling at all times that the ceiling is open.
- ✓ Lightly mist plenum space and top side of ceiling where work will occur. Use garden sprayer with amended water.
- ✓ Pick up any bulk debris on top of ceiling panels where work will occur and place into asbestos waste disposal bags.
- ✓ HEPA vacuum ceiling suspension system and top side of ceiling where work will occur.
- ✓ Wet wipe or HEPA vacuum the underside of the panel which was moved. Carefully replace ceiling panel and perform clean-up and tear-down steps on Level C Worker Checklist to complete work.

S2. Summary

Attach component to an ACM finished surface above a ceiling.

Summary

This work practice covers the procedures for attaching components to an ACM finished surface that is located above a ceiling.

Note: Components shall not be attached directly to a covering of spray-applied fireproofing that has been applied to a steel beam.

Examples

- Level A Mount a “rosettes” with bedding adhesive to the surface material above a suspended ceiling. Attach device to “rosettes.”
- Level B Clamp a bracket onto the flange of a beam that is covered with spray applied asbestos-containing fireproofing.

Related Work Practices

- S1 Moving one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.
- S5 Attach component to ceiling finished with ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S2. Level A

Attach component to an ACM finished surface above a ceiling.

Example

The following is an example of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Mount a “rosettes” with bedding adhesive to the surface of material above a suspended ceiling if a competent person determines that the material will support the load of the device being installed. Attach device to “rosettes.”

Notes

Components shall not be attached directly to a covering of spray-applied fireproofing that has been applied to a steel beam.

The ceiling is a controlled system. Do not contact or work on ceiling unless authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.

- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Put bedding adhesive on bottom of rosette and press against ceiling.
- ✓ Install device by attaching to rosette.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

S2. Level B

Attach component to an ACM finished surface above a ceiling.

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Clamp a bracket onto the flange of a beam that is covered with spray applied asbestos-containing fireproofing.

Brackets shall not be clamped through asbestos-containing fire proofing; therefore this work practice has been deleted. Fire proofing must be removed to attach brackets directly to the steel beam.

S3. Summary

Remove a small amount of ACM surfacing above a ceiling

Summary

This work practice covers the procedures for removing a small amount of asbestos-containing fireproofing on structural steel above a ceiling.

Examples

Level C Remove up to one square foot of fireproofing from structural steel above a ceiling panel to attach a bracket.

Removing ACM fireproofing from a beam to permit new structural steel reinforcing and bracing to be welded in place to reinforce a floor below

Related Work Practices

S1 Moving one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.

S8 Cut a hole in surfacing ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for this level B activity is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S3. Level C

Remove a small amount of ACM surfacing above a ceiling

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove up to one square foot of fireproofing from structural steel above a ceiling to attach a bracket.
- Removing ACM fireproofing from a beam to permit new structural steel reinforcing and bracing to be welded in place to reinforce a floor under a new file room.

Notes

Do not use this procedure if more material will be removed than will fit into one 60" by 60" disposal bag so the bag will close easily. If more than this amount of material is involved, stop work, close ceiling and notify your supervisor.

The space above the ceiling is a controlled area. Do not enter this area, or disturb ceiling tiles unless authorized by Facility Management Services. Coordinate work with proper O & M work practice for accessing type of ceiling present in work area. See Work Practices S1, M2, or M4.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
- ✓ Tools as needed from the lists in General Procedure W1

- Scraper 2-3” wide stiff blade
- Stiff nylon bristle brushes
- Maintenance item(s) to be attached to surface
- Replacement fireproofing patching material
- ✓ Turn off and lock-out HVAC system if the material is located in a common plenum.
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum outside of the enclosure but with hose extending inside for vacuuming areas above the ceiling.
- ✓ Wet fireproofing that is to be removed with amended water. Allow water to soak through fireproofing to substrate. Apply more water as required to saturate fireproofing that is to be removed.
- ✓ Scrape wetted fireproofing from steel. Hold a pan, lined with an asbestos waste disposal bag, immediately under area being scraped to catch debris. If dry fireproofing is encountered, stop scraping, re-wet and allow water to soak in. Remove all wetted material. Promptly place removed fireproofing in a second asbestos waste disposal bag. Spray pan with amended water and wet wipe to remove any fireproofing debris or residue.
- ✓ After fireproofing is removed, wet surface of steel with amended water and wet wipe surface with paper towels. Wet wipe until all residue is removed. After all residue is removed wet wipe surface with clean water without surfactant.
- ✓ HEPA vacuum surface of steel and edge of remaining fireproofing.
- ✓ Perform work as necessary to attach bracket to steel.
- ✓ Replace removed fireproofing with new fireproofing patching material. Install fireproofing patch material in accordance with facility’s fireproofing repair work practices, and manufacturer’s instructions.
- ✓ Carefully install item on bracket without disturbing fireproofing material.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

Work Practices for new structural steel reinforcing and bracing to be welded in place are the same as above and include the following:

- ✓ Remove sufficient materials to permit installation of new structural steel reinforcement and braces. Remove sufficient material, from both sides of beam as necessary, in areas of steel that will be heated sufficiently by the welding to cause delamination of fireproofing.
- ✓ Remove paint on the steel in locations where welding is to occur, or where paint may be overheated or burned during welding. Use paint removal procedures from the facility’s Lead Based Paint O&M program, unless you know that paint has been tested and found to be lead-free. If you have not been trained and equipped to remove lead based paint, stop work and notify your supervisor.
- ✓ Install new structural steel.

- ✓ If the original steel installations was painted, repaint those areas from which paint has been removed a primer approved for use with the patching fireproofing material.
- ✓ Do not spray encapsulant on fireproofing or steel to which fireproofing is to be applied without specific authorization from your supervisor. An inappropriate encapsulant could cause the fireproofing to fail and result in a life threatening situation.
- ✓ Install new fireproofing in areas where fireproofing was removed and on all new steel work. Install fireproofing in thickness as indicated on work order. Follow manufacturer's directions for correct application of fireproofing.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

S4. Summary

Work in ceiling plenum space where exposed surfacing ACM is present.

Summary

This work practice covers situations where work must be performed in a ceiling plenum space that has exposed surfacing ACM.

Use of these procedures is limited to a situation where the amount of waste generated is not greater in size than the OSHA limit on Class III work (operation will generate no more waste than will fit into one 60" by 60" glovebag or disposal bag). It is standard industry practice not to fill these bags more than one-third full, to allow for proper sealing and to guard against breakage.

Examples

Work above a ceiling where there is ACM fireproofing could result in contact with of disturbance of ACM. Maintenance of an HVAC mixing box is used an example to illustrate the use of these work practices.

Level B Work above ceilings where there is ACM surfacing material but it is in good condition and can be avoided during the work, and there is no ACM dust or debris on the mixing box. Controls are needed to insure that a disturbance of the ACM does not occur. This can be accomplished by designating the area above the ceiling as a controlled area, and allowing access to only those who have been given awareness training. The awareness training needs to inform workers of the locations and need to avoid contact with the ACM. Examples of this type of work are:

Replace HVAC mixing box: above ceiling, below asbestos-containing fireproofing in good condition, where there is no ACM dust or debris on the mixing box or any of the systems in the area of the work. The fireproofing is near to the mixing box and may be contacted during the work.

Open or close one valve above the ceiling where exposed fireproofing in good condition is present.

Inspect HVAC mixing box below asbestos-containing fireproofing in good condition.

Work above ceilings where there is ACM surfacing material that is in good condition and can be avoided during the work, but there is some loose ACM debris on top of the mixing box. This debris needs to be removed before the box is worked on. This can be accomplished by picking up the ACM with a HEPA vacuum and then wet wiping the surface. The workers performing this work need to have at least O&M training. A negative exposure assessment has to be made to demonstrate that airborne fiber levels during the work remain below the PELs. The types of work in this category include:

Replace HVAC mixing box: above ceiling, below asbestos-containing fireproofing in good condition. There is dust or debris from surfacing ACM is present on top of box, that is accessible and easily removed.

Install new conduit (attached to existing supports) in plenum space where exposed fireproofing in good condition is present.

Repair leak in non-ACM insulated water line above ceiling where exposed surfacing ACM is present.

Maintain HVAC mixing box below asbestos-containing fireproofing in good condition.

Level C

This example pre-supposes that the situation is more difficult, and the top of the unit is inaccessible so that overspray cannot be removed before the unit is removed. It is assumed that overspray and debris will be dropped as the unit is maneuvered down out of the ceiling. This work practice requires that the wetting of fireproofing overspray. This is acceptable as this is not part of the fireproofing life safety system. Training as abatement workers is more adequate for those performing Level C work in a mini-enclosure where exposure to elevated asbestos levels and the need for a wet decontamination is possible.

Use of this procedure is limited to a situation where the amount of waste generated is not greater in size than the OSHA limit on Class III work (operation will generate no more waste than will fit into one 60" by 60" glovebag or disposal bag).

Replace HVAC mixing box above ceiling where the equipment, duct, hangers, and surrounding conduit and piping are covered with loose ACM fireproofing overspray, debris and bounce back. Material on top of mixing box is inaccessible and cannot be removed before box is lowered.

Overspray on surrounding systems will be dislodged if not removed before work is performed on the mixing box.

Related Work Practices

- S1 Moving one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.
- S2 Attach component to an ACM finished surface that is above a ceiling.
- S4 Install wiring in plenum space where ACM is present.
- M19 Remove HVAC filters in unit serving plenum space with exposed ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for this level B activity is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S4. Level B

Work in ceiling plenum space where exposed surfacing ACM is present.

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace HVAC mixing box: above ceiling, below asbestos-containing fireproofing in good condition, where there is no ACM dust or debris on the mixing box or any of the systems in the area of the work. The fireproofing is near to the mixing box and may be contacted during the work.
- Replace HVAC mixing box: above ceiling, below asbestos-containing fireproofing in good condition. There is a small amount of dust or debris from surfacing ACM is present on top of box that is accessible and easily removed.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The space above the ceiling is a controlled area. Do not enter this area, or disturb ceiling tiles unless you have been authorized by Facilities Management Services. Coordinate work with proper O & M work practice for accessing type of ceiling present in work area. See Work Practices S2, M2, or M4.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Maintenance item(s) required to perform work in plenum space.
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth
- ✓ Obtain access above ceiling using appropriate O & M work practice.
- ✓ Pick up any bulk debris within reach on top of ceiling and place into disposal bags.
- ✓ Remove debris from top of mixing box with HEPA vacuum. Thoroughly wet wipe surface to remove all residue of ACM.
- ✓ HEPA vacuum top side of ceiling within reach from access area.
- ✓ HEPA vacuum and wet-wipe surfaces that will be contacted or item to be maintained or repaired.
- ✓ Perform maintenance work required and clean-up and tear-down steps on Level B checklist to complete work.

S4. Level C

Work in ceiling plenum space where exposed surfacing ACM is present.

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace HVAC mixing box above ceiling where the equipment, duct, hangers, and surrounding conduit and piping are covered with loose ACM fireproofing overspray, debris and bounce back. Material on top of mixing box is inaccessible and cannot be removed before box is lowered. Overspray on surrounding systems will be dislodged if not removed before work is performed on the mixing box.

Notes

The space above the ceiling is a controlled area. Do not enter this area, or disturb ceiling tiles unless authorized by Facilities Management Services.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Coordinate work with proper O & M work practice for accessing type of ceiling present in work area. See Work Practices S1, M2, or M4.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Maintenance item(s) required to perform work in plenum space.
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum located outside of the enclosure with hose and nozzle extended inside the enclosure for vacuuming areas above ceiling.
- ✓ Turn off and lock out HVAC system if located in a common plenum.
- ✓ Put on respirator and perform fit test, put on protective clothing.
- ✓ Enter enclosure and obtain access through ceiling using appropriate O&M work practice.
- ✓ HEPA vacuum top side of ceiling within reach from access area, and HEPA vacuum and wet-wipe item to be repaired or replaced.
- ✓ Extend mini-enclosure above ceiling, if feasible, using polyethylene sheet and framing taped together to provide an enclosure around the work area without contacting ACM covered surface. Vary construction of the extended mini-enclosure depending on the existing construction above the ceiling. Polyethylene and framing may be secured to pipes, conduit, and metal hangers if they are not covered with ACM. If an extended mini-enclosure is not feasible, mist area above ceiling and lay a polyethylene drop cloth below the area where work will occur. If a drop cloth cannot be used, suspend polyethylene below the immediate work area to catch ACM that may fall.
- ✓ Remove accessible overspray on mixing box, duct work, hangers, conduit, etc. that may be disturbed by the work. Remove overspray by dampening with amended water and collecting with the nozzle of the HEPA vacuum where possible. In locations that the material cannot be collected directly with the HEPA vacuum, wet thoroughly with amended water and manually collect into an asbestos waste disposal bag. After bulk overspray is removed, wet newly exposed areas and use scraper and nylon brush to remove remaining visible residual ACM. Thoroughly wet wipe surface to remove all residue of ACM. Allow surfaces to dry and spray with an asbestos lock-down encapsulant.

- ✓ Remove sufficient materials to permit installation of new hangers. Adequately wet area of surfacing to be removed using garden sprayer containing amended water and allow water to soak in for several minutes. Wet, removal area frequently during removal of bulk material and residual material. Using scraper with HEPA vacuum within several inches of removal area, scrape off ACM to at least 3” beyond area where item will be attached. When bulk material is removed, wet newly exposed areas and use scraper and nylon brush to remove remaining visible residual ACM. Place removed ACM into disposal bags. Thoroughly wet wipe exposed surface to remove all residue of ACM.
- ✓ Perform maintenance work required.
- ✓ Replace removed fireproofing with new fireproofing patching material. Install fireproofing patch material in accordance with facility’s fireproofing repair work practices, and manufacturer’s instructions.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

S5. Summary

Install wiring in plenum space where exposed surfacing ACM is present

Summary

This work practice covers situations where wiring and/or conduit are being installed in a ceiling plenum space that has exposed surfacing ACM. The procedures assume that the ACM will not intentionally be disturbed during the work.

Routinely, the installation of computer and telephone cables is done without removing enough ceiling tile. Consequently, the cable is dragged long distances on top of the ceiling, rattling the ceiling. This vibration shakes the ceiling’s hanging system, and may vibrate the fireproofing overhead. Depending upon the extent of overspray that has coated the hangers, and how well it bonded, a worker can shake this over-sprayed fireproofing loose, without ever touching the material, simply by causing the ceiling to vibrate. If the surface upon which the fireproofing is sprayed is “bouncy” this vibration can disturb the fireproofing itself.

Use of these procedures is limited to situation where the amount of waste generated is not greater in size than the OSHA limit on Class III work (operation will generate no more waste than will fit into one 60” by 60” glovebag or disposal bag).

Examples

Level A During design of the O&M procedure, a Competent Person (as defined by OSHA) must make a determination that the exposed surfacing ACM is in good condition and that there is no dust or debris on top of the ceiling tiles that could cause an exposure to a worker that is above the PEL. Installing new plenum rated computer or telephone cables that will lay on top of ceiling, where the ACM surface material is in good condition and

well out of reach of the work, and there is no ACM dust and/or debris on top of ceiling tiles

Level B Installing new plenum rated computer or telephone cables that will lay on top of ceiling, where there is a small amount of dust or debris from ACM surfacing treatment or other ACM material on top of the ceiling tiles or if the ACM surfacing material is close enough to the work that it could be disturbed.

Level C Installing new plenum rated computer or telephone cables that will lay on top of ceiling, where there is considerable ACM debris on top of the ceiling tiles or the ACM surfacing material is near enough to the work that it is inevitably going to be disturbed and abraded by the cable installation in a manner that could release asbestos fibers or visible dust and debris into the air.

Related Work Practices

- S1 Moving one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.
- S2 Attach component to an ACM finished surface that is above a ceiling.
- S3 Work in ceiling plenum space where exposed surfacing ACM is present.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S5. Level A

Install wiring in plenum space where exposed surfacing ACM is present.

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Installing new plenum rated computer or telephone cables that will lay on top of ceiling, where the ACM surface material is in good condition and well out of reach of the work, and there is no ACM dust and/or debris on top of ceiling tiles.

Notes

The space above the ceiling is a controlled area. Do not enter this area, or disturb ceiling tiles unless authorized by Facilities Management Services.

Coordinate work with proper O & M work practice for accessing type of ceiling present in work area. See Work Practices S1, M2, or M4.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Wiring and related tools
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Obtain access through ceiling using appropriate O & M work practice.
- ✓ Observe top of ceiling in direction that cables are to be run. Determine conditions at the next location where access above the ceiling is required to determine the level of work practice required for entry. If there is any ACM debris or dust on top of ceiling tiles use level B work procedures, and locate the next ceiling access so that all parts of the ceiling top can be cleaned.
- ✓ Open enough ceiling tile that the cables can be passed by hand from opening to opening.
- ✓ Install cable(s) by passing leading end of cable(s) from opening to opening. **DO NOT TOSS CABLES OR ANY OTHER OBJECT ABOVE THE CEILING.**
- ✓ Run wiring as required. Do not contact exposed ACM surfacing and minimize disturbance of ceiling system and other components above ceiling while running wiring.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

S5. Level B

Install wiring in plenum space where exposed surfacing ACM is present.

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Installing new plenum rated computer or telephone cables that will lay on top of ceiling, where there is a small amount of dust or debris from ACM surfacing treatment or other ACM material on top of the ceiling tiles or if the ACM surfacing material is close enough to the work that it could be disturbed.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The space above the ceiling is a controlled area. Do not enter this area, or disturb ceiling tiles unless you have been authorized by Facilities Management Services.

Coordinate work with proper O & M work practice for accessing type of ceiling present in work area. See Work Practices S1, M2, or M4.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Wiring and related tools
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Prepare work area with drop cloth. See General Procedure W10 “Polyethylene Drop Cloth” Set up multiple work areas if needed.
- ✓ Install a continuous drop cloth under area where cabling is to be run. Secure continuous drop cloth in place to minimize slipping hazards.
- ✓ Install a second drop cloth at each ceiling opening on top of the continuous drop cloth. Secure drop cloths in place to minimize slipping hazards.
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Obtain access through ceiling using appropriate O & M work practice.
- ✓ HEPA vacuum top side of ceiling within reach from access area.
- ✓ Observe top of ceiling in direction that cables are to be run. Determine conditions at the next location where access above the ceiling is required to determine the level of work practice required for entry. Locate the next ceiling access so that all parts of the ceiling top can be cleaned.
- ✓ Remove any ACM debris in the path to be followed by cables. If there is any ACM debris remove with a HEPA vacuum. Spray a lock back encapsulant on ceiling tile tops wherever debris is removed.
- ✓ Open enough ceiling tile that the cables can be passed by hand from opening to opening.
- ✓ Install cable(s) by passing leading end of cable(s) from opening to opening. **DO NOT TOSS CABLES OR ANY OTHER OBJECT ABOVE THE CEILING.**
- ✓ Run wiring as required by passing the cable from opening to opening. Do not drag cable across ceiling. Do not drag cables from floor up into ceiling plenum. Do not contact exposed ACM surfacing above ceiling. Minimize disturbance of ceiling system and other components above ceiling while running wiring.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

S5. Level C

Install wiring in plenum space where exposed surfacing ACM is present.

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Installing new plenum rated computer or telephone cables that will lay on top of ceiling, where there is considerable ACM debris on top of the ceiling tiles or the ACM surfacing material is near enough to the work that it is inevitably going to be contacted and disturbed by the cable installation in a manner that could release asbestos fibers or visible dust and debris into the air.

Notes

The space above the ceiling is a controlled area. Do not enter this area, or disturb ceiling tiles unless authorized by Facilities Management Services.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Coordinate this work with proper O & M work practice for accessing type of ceiling present in work area. See Work Practices S1, M2, or M4.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Wiring and related tools
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure." Set up multiple enclosures if needed.
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum outside of the enclosure with the hose and nozzle extending inside enclosure for vacuuming areas above ceiling.

- ✓ Turn off and lock-out HVAC system if located in a common plenum.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and obtain access through ceiling using appropriate O & M work practice.
- ✓ HEPA vacuum top side of ceiling within reach from access hole.
- ✓ Observe top of ceiling in direction that cables are to be run. Determine conditions at the next location where access above the ceiling is required to determine the level of work practice required for entry. If there is any ACM debris or dust on top of ceiling tiles use level B work procedures as a minimum. If the ACM fireproofing is likely to be disturbed during cable installation then use Level C procedures. Locate the next ceiling access so that disturbance of ACM fireproofing occurs in a mini-enclosure and so that all parts of the ceiling top can be cleaned.
- ✓ Prior to installation of cable past ACM: Mist any fireproofing that is to be disturbed with amended water, and install a drop cloth at ceiling level to catch debris from fireproofing. During cable installation hold the HEPA vacuum nozzle under the point of disturbance, if possible. Wet wipe cable after it is run past ACM. Run complete length of cable needed and coil on other side of ACM. Saturate any debris on drop cloth with amended water and mist the air between the ACM and the drop cloth. Fold drop cloth with debris inside and place in an asbestos waste disposal bag. Clean up any other debris and place in an asbestos disposal bag.
- ✓ Remove any ACM debris in the path to be followed by cables. If there is any ACM debris remove with a HEPA vacuum. Spray a lock-down encapsulant on ceiling tile tops wherever debris is removed.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

S6. Summary

Attach item to ceiling finished with ACM

Summary

This work practice describes the work required to attach an item to a ceiling finished with surfacing ACM, such as acoustical plaster or a decorative sprayed-on surface texture material.

Use of this procedure is limited to situation where the amount of waste generated is not greater in size than the OSHA limit on Class III work (operation will generate no more waste than will fit into one 60" by 60" glovebag or disposal bag).

Examples

Level B Mount a "rosettes" with bedding adhesive to the surface of a suspended acoustical plaster ceiling. Attach device to "rosettes."

Attach a battery-powered smoke detector to a suspended acoustical plaster ceiling with two toggle bolts.

Attach track lighting to an ACM finished ceiling where experience has proven a minimal disturbance will occur.

- Level C Remove a small amount of acoustical plaster using a glove box or frame mounted glovebag, to permit the installation of a junction box.
- Install smoke detector in suspended acoustical plaster ceiling by cutting a 2" X 4" hole and installing a junction box.
- Attach track lighting system to ACM finished ceiling.
- Install exposed conduit, junction boxes and light fixtures to ACM finished ceiling.
- Attach new folding door to acoustical plaster where structural modifications are not needed for support.

Related Work Practices

- S1 Move one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.
- S2 Attach component to an ACM finished surface that is above a ceiling.
- S8 Cut or drill a hole in Surfacing ACM.
- S9 Replace bulbs in light fixture attached to or in surface finished with ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

OSHA requires that during Class III (O&M) operations that involve, "drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing materials, the employer shall use impermeable dropcloths, and shall isolate the operation using mini-enclosures or glove bag systems or another isolation method." This work practice relies on the HEPA exhausted collar on the drill as, "another isolation method."

S6. Level B-1

Attach item to ceiling finished with ACM

Example

The following is an example of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Mount a “rosettes” with bedding adhesive to the surface of an acoustical plaster ceiling. Attach device to “rosettes.”

Notes

The ceiling is a controlled system. Do not contact or work on ceiling unless authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Put bedding adhesive on bottom of rosette and press against ceiling.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

S6. Level B-2

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Attach a battery-powered smoke detector to a suspended acoustical plaster ceiling with two toggle bolts.

Notes

The ceiling is a controlled system. Do not contact or work on ceiling unless authorized by Facilities Management Services.

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:

- Tools as needed from the lists in General Procedure W1
- Item to be installed on ceiling and related tools
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Wet area on ceiling where item will be attached using garden sprayer with amended water.
- ✓ Drill holes through ceiling with one of the following procedures:
 - Drill hole with drill equipped with dust collection collar attached to a HEPA vacuum. Maintain HEPA vacuum in operation during entire process of drilling holes.
 - Using hand tools and HEPA vacuum near attachment location, or power tools with attached HEPA vacuum, attach item to ceiling. If small holes are being drilled (less than ¼”), drill through a wet sponge or shaving cream to control fiber release.
 - Scrape away surfacing to at least ½” beyond where hole is needed. Keep the hose of an operating HEPA vacuum within 6” and below area where scraping is occurring. Adequately wet scraping area and any dust or debris generated. Drill hole through substrate after ACM is removed.
- ✓ Immediately place all debris into asbestos waste disposal bags.
- ✓ Spray holes with a clear penetrating encapsulant to stabilize disturbed edges.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

S6. Level C

Attach item to ceiling finished with ACM

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove a small amount of acoustical plaster using a glove box or frame mounted glovebag, to permit the installation of a junction box.
- Install smoke detector in suspended acoustical plaster ceiling by cutting a 2” X 4” hole and installing a junction box.

Notes

Fixtures shall not be attached directly to asbestos-containing acoustical ceiling materials.

The ceiling is a controlled system. Do not contact or disturb ceiling unless authorized by Facilities Management Services.

Do not use power tools inside glovebags.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice (Frame Supported Glovebag)

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Item to be attached to ceiling and related tools
 - Glovebags
 - Frame to support glovebag or glove box
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Set-up frame supported glovebag using Worker General Procedure W18 "Glovebag Removal." Place tools, equipment and materials needed into glovebag.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Thoroughly wet material to be removed with amended water.
- ✓ Using a small scraper remove acoustical plaster from scratch coat to a point 1/2" back from opening required for junction box.
- ✓ After acoustical plaster is removed wet surface of scratch coat and remove all residue with a stiff nylon brush. After all visible residue has been removed, remove 1/16" from surface of scratch coat
- ✓ Spray scratch coat and edges of acoustical plaster with clear penetrating encapsulant.
- ✓ Perform clean-up and tear-down steps on Level C checklist, leave drop cloth in place.
- ✓ Mark location for junction box installation. Drill starter holes in opposite corners.
- ✓ Cut through scratch coat and wire lath between starter holes with pneumatic shear, or heavy tin snips. Keep scratch coat dampened with amended water during cutting.
- ✓ Install old-work junction box.
- ✓ Dispose of all non-asbestos waste as normal construction debris, do not place in asbestos waste disposal bag.
- ✓ Clean any debris from drop cloth. Fold drop cloth toward center and dispose of as normal construction debris, do not place in asbestos disposal bag.

Work Practice (mini-enclosure)

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Item to be installed in ceiling and related tools
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum outside enclosure with hose and nozzle extending inside enclosure for vacuuming areas above ceiling.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and wet area on ceiling where item will be installed using garden sprayer with amended water. Allow amended water to sink in. Add additional water until area to be removed is saturated.
- ✓ Using a small scraper remove acoustical plaster from scratch coat to a point ½” back from opening required for junction box. Hold a pan immediately under area to catch debris while scraping.
- ✓ After acoustical plaster is removed wet surface of scratch coat and remove all residue with a stiff nylon brush. After all visible residue has been removed, remove 1/16” from surface of scratch coat
- ✓ Spray scratch coat and edges of acoustical plaster with clear penetrating encapsulant.
- ✓ Mark location for junction box installation. Drill starter holes in opposite corners with drill equipped with dust collection collar attached to an operating HEPA vacuum.
- ✓ Cut through scratch coat and wire lath between starter holes with pneumatic shear, or heavy tin snips. Keep scratch coat dampened with amended water during cutting.
- ✓ Install old-work junction box.
- ✓ Immediately put all asbestos waste and debris in an asbestos waste disposal bag.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

S7. Summary

Repair or replace item in surface finished with ACM

Summary

This work practice covers the procedures for repairing or replacing an item that is installed in or attached to a surface finished with ACM, such as an acoustical plaster ceiling or fireproofed deck or beam.

Examples

- Level A Replace diffuser that is completely surrounded by the metal frame of a light fixture recessed in a ceiling finished with ACM acoustical plaster, where the diffuser can be removed without any disturbance of ACM.
- Level B Removal of a light fixture that is recessed in a ceiling finished with ACM acoustical plaster, where the light fixture has an escutcheon so that it can be unfastened and dropped out.
- Level C Removal of a light fixture that is recessed in a ceiling finished with ACM acoustical plaster, where the fixture frame is integral with the ceiling and plaster must be removed and cut to free the fixture.

Related Work Practices

- S1 Moving one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.
- S5 Attach item to ceiling finished with ACM.
- S8 Cut or drill a hole in Surfacing ACM.
- S9 Replace bulbs in light fixture attached to or in surface finished with ACM.
- S11 Repair damaged surfacing ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S7. Level A

Repair or replace item in surface finished with ACM

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace diffuser that is completely surrounded by the metal frame of a light fixture recessed in a ceiling finished with ACM acoustical plaster, where the diffuser can be removed without any disturbance of ACM.

Notes

The ceiling is a controlled system. Do not contact or disturb ceiling unless authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Repair and/or replacement parts and tools as needed.
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Carefully open diffuser without touching the ACM acoustical plaster ceiling. Unhook diffuser from light fixture and remove. Do not touch ACM or rattle light fixture.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

S7. Level B

Repair or replace item in surface finished with ACM

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Removal of a light fixture that is recessed in a ceiling finished with ACM acoustical plaster, where the light fixture has an escutcheon so that it can be unfastened and dropped out.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The ceiling is a controlled system. Do not contact or disturb ceiling unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Repair and/or replacement parts and tools as needed
- ✓ Complete Worker General Procedure W4 “Secure Work Area”

- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed in work area or on drop cloth.
- ✓ Turn off and lock-out any electrical hazards associated with the removal of the fixture.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Lightly mist area of ACM acoustical plaster around frame of light fixture using garden sprayer containing amended distilled water and allow water to soak in for several minutes.
- ✓ Completely remove screws holding light fixture in place, while holding fixture so that it does not move.
- ✓ Gradually lower one side of fixture while removing any loose ceiling material with a HEPA vacuum. Lower other side while continuing with HEPA vacuum. Use HEPA vacuum to remove any ceiling material as fixture is lowered from the ceiling. Disconnect wire from fixture and coil above ceiling so that it does not contact the acoustical plaster.
- ✓ HEPA vacuum and then wet wipe all surfaces of light fixture.
- ✓ Collect any surfacing debris from repair/replacement work using HEPA vacuum.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

S7. Level C

Repair or replace item in surface finished with ACM

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Removal of a light fixture that is recessed in a ceiling finished with ACM acoustical plaster, where the fixture frame is integral with the ceiling and plaster must be removed and cut to free the fixture.

Notes

The ceiling is a controlled system. Do not contact or disturb ceiling unless authorized by Facilities Management Services.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Repair and/or replacement parts and tools as needed
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum outside of enclosure with hose and nozzle extending inside enclosure for use during the work.
- ✓ Turn off and lock-out any electrical hazards associated with the removal of the fixture.
- ✓ Put on respirator and perform fit test, and put on protective clothing. Enter enclosure.
- ✓ Wet area of surfacing within 6" of light fixture using garden sprayer containing amended water and allow water to soak in for several minutes. Apply additional water as necessary until acoustical plaster is saturated in area adjacent to light fixture.
- ✓ Using a small scraper, carefully remove wetted ACM acoustical finish down to scratch coat for 2" on all sides of light fixture. Hold a pan immediately under scraping area to catch debris. At frequent intervals place ACM debris in asbestos disposal bag and spray with amended water.
- ✓ After all acoustical plaster is removed, wet scratch coat and remove any residue with a stiff nylon brush. Hold pan under brushing area to catch any debris. After all visible residue is removed, wet surface and scrape off 1/16" of scratch coat into pan. Frequently empty pan into asbestos disposal bag.
- ✓ Drill a starter hole at each corner of fixture using a drill equipped with a dust collection collar attached to an operating HEPA vacuum.
- ✓ Use a pneumatic shear or large tin snips to cut through scratch coat and wire lath on all sides of light fixture.
- ✓ Drop down light fixture, disconnect electrical and coil above ceiling. Wrap cut edged on light fixture with duct tape. Double bag in asbestos waste disposal bag and dispose of as asbestos waste.
- ✓ Collect any surfacing debris from repair/replacement work using HEPA vacuum.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

S8. Summary

Cut or drill hole in surfacing ACM

Summary

This work practice covers the work required to cut or drill a hole through surfacing ACM, such as acoustical plaster or fireproofing. If possible, ACM should be removed before holes are drilled. If holes are drilled in an ACM wall surface with a cavity behind the wall, labels or record keeping information should note that ACM might be present in the cavity.

Examples

- Level B Drill a hole through asbestos-containing decorative texture finish.
- Level C Drill or cut hole for pipe or duct chase using tools with or without HEPA filtered dust collection in an enclosure.
- Install new conduit through fireproofed metal deck.

Related Work Practices

- S1 Move one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM.
- S2 Attach component to an ACM finished surface that is above a ceiling.
- S6 Attach item to ceiling finished with ACM.
- S7 Repair or replace item in surface finished with ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S8. Level C-1

Cut or drill hole in surfacing ACM

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Drill a hole through a substrate after removing an asbestos-containing decorative texture finish.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The ceiling is a controlled system. Do not contact or disturb ceiling unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Scraper (if used)
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed onto drop cloth. If access above ceiling is required, obtain access using appropriate O & M work practice.
- ✓ Install polyethylene sheet below location of work to catch any falling debris.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Drill a hole through a substrate after removing an asbestos-containing decorative texture finish using the following procedures:
 - Adequately wet area where hole is to be drilled. Adequately wet the ACM and allow amended water to soak into material so that ACM is completely wet through to substrate in the spot where ACM it to be removed.
 - If the surface is coated with paint, mist surface and scarify paint sufficiently for ACM to be wetted. Remove paint by peeling or scraping off as necessary. Wet surface of exposed ACM. Allow amended water to soak into material so that ACM is adequately wet through to the substrate in spot where ACM it to be removed.
 - Remove ACM surfacing material using one of the following procedures:
 - Scrape away surfacing material to at least ½” beyond where the hole is needed. Hold a pan immediately under area to catch debris while scraping. If any dry ACM is encountered stop scraping and wet ACM. Maintain scraping area and any dust or debris generated wet at all times.
 - Scrape away surfacing material to at least ½” beyond where the hole is needed. Scrape material directly into the nozzle of an operating HEPA vacuum or use nozzle of HEPA vacuum directly as tool to remove ACM. Continuously maintain HEPA vacuum nozzle within 6” of where work is occurring. If any dry ACM is encountered stop scraping and wet ACM. Maintain scraping area and any dust or debris generated wet at all times.

- After acoustical plaster is removed wet surface of substrate and remove all residue with a stiff nylon brush. Remove water and residue from surface with paper towels. Immediately dispose of towels in an asbestos waste disposal bag. Repeat brushing and paper towel process three (3) times. If substrate is a scratch coat, wet substrate and scrape off 1/16" of scratch coat to remove any residual ACM that may be trapped in the texture of the scratch coat.
- Spray substrate and edges of acoustical plaster with clear penetrating encapsulant.
- Drill hole through substrate after ACM is removed.
- ✓ If hole is being drilled through a surface, such as acoustical plaster, where back side is inaccessible, place HEPA vacuum hose near or through the hole and run for several minutes to clean air on the backside of the surface.
- ✓ If hole is being drilled through a surface, such as a suspended ceiling, where the back side is inaccessible, place HEPA vacuum hose near or through hole and run for several minutes to collect any airborne dust air on backside of surface.
- ✓ If hole is drilled from top side of deck, adequately wet ACM on underside and install polyethylene sheet or enclosure below ACM on underside that will catch any falling debris, including material from the hole (such as a concrete cylinder). Drill a hole through surface. Adequately wet drilling area while drilling. Wet any debris on drop cloth or in the enclosure on the under-side, package up debris and drop-cloth/enclosure and dispose of as ACM.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

S8. Level C-2

Cut or drill hole in surfacing ACM

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Drill or cut a hole for pipe or duct chase using tools with HEPA filtered dust collection in an enclosure.
- Install conduit through fireproofed metal deck.

Notes

The ceiling is a controlled system. Do not contact or disturb ceiling unless authorized by Facilities Management Services

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have

been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

All holes cut into materials must be completed from the top side of the project area when using amended water. When cutting holes from the bottom side of the project area a local exhaust system must be used to capture ACM.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Scraper
 - Hand or power drill or saw with HEPA vacuum attachment.
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for use during the work. If access above a ceiling is required, obtain access using the appropriate O & M work practice. If surface to be drilled is above a ceiling, extend enclosure (if feasible) to within approximately 1/2" of surfacing ACM.

Cut Hole through a Wall

- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Inside of mini-enclosure, install polyethylene sheet below removal location to catch any falling debris.
- ✓ Adequately wet area where hole is to be cut.
- ✓ Remove ACM from entire area of hole and to at least 1/2" beyond where the hole is needed. Keep the hose of an operating HEPA vacuum within 6" of where scraping is occurring. Adequately wet, any dust or debris generated. Cut hole through scraped area after ACM is removed.
- ✓ Drill small holes using a drill with dust collection collar attached to a HEPA vacuum. Maintain HEPA vacuum in operation during entire process of drilling holes.

Core Drill Through Deck

- ✓ Install mini-enclosure on top of deck. Set up core drill inside mini-enclosure.
 - Core drill must be connected with or to a ground fault circuit interrupter (GFCI).

- ✓ Install drop cloth and local enclosure (such as a frame supported glove-bag) on underside of deck.
- ✓ Arrange pan to support local enclosure, use pan large enough to contain falling water and debris if sheet plastic of local enclosure tears. Support pan to accommodate weight of water and debris including concrete cylinder cored out of deck.
- ✓ Wet ACM on underside of deck with amended water.
- ✓ Core drill hole through Deck. Wet drilling area during operation so that site of drilling is continuously wet.
- ✓ After hole is complete, remove core drill and wash down hole to remove any residue of fireproofing.
- ✓ Fill enclosure with sufficient absorbent to soak up any loose water.
- ✓ Fold up local enclosure with debris and place in asbestos waste disposal bag.
- ✓ Wet wipe interior of pan.
- ✓ If hole is drilled from underside of deck, install mini-enclosure below deck, and install local enclosure on floor above.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

S9. Summary

Replace bulbs in light fixture attached to or in surface finished with ACM

Summary

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 the ACM if the fixtures are moved during maintenance work. In instances where the ACM will be neither contacted or disturbed a work practice level is not assigned, but sufficient control must be exercised to ensure that the material is not inadvertently disturbed. The ACM surfacing material is a controlled system which may be contacted only by authorized personnel. Awareness training is required for workers who could contact the material.

- | | |
|---------|--|
| Level A | The work is Level A, if the material is going to be contacted during the work, but not disturbed. |
| Level B | Some acoustic materials are very fragile so that a small amount of debris may be released due to contact, or there may be ACM debris inside or on top of a light fixture. Replacing bulbs in these situations is Level B work. |

Examples

- | | |
|---------|--|
| Level A | Replace bulbs in recessed or pendant mount light fixtures attached to an asbestos-containing decorative texture finish or acoustical plaster ceiling |
|---------|--|

where the material may be contacted, but it is unlikely that any debris will be released.

Replace bulbs in fixtures mounted on fireproofed surface where the material may be contacted, but it is unlikely that any material will be released.

Level B This work practice is appropriate for situations where the surfacing treatments may be disturbed during re-lamping knocking off a small amount of debris, or will be contacted and is so fragile that the contact may knock off a small amount of debris. If the release of debris is unlikely, then Level A procedure could be used. The ceiling should be designated as a controlled system that is to be contacted only by those with at a minimum of awareness training.

Replace bulbs in light fixtures recessed in an asbestos-containing decorative texture finish or acoustical plaster ceiling where the material is likely to be contacted and release of a small amount of debris is likely.

Replace bulbs in recessed fixtures where ACM surfacing material debris is visible inside the fixture.

Replace bulbs in pendant mount fixture where ACM debris is present inside or on top of fixture.

Related Work Practices

S5 Attach item to ceiling finished with ACM.
S11 Repair damaged surfacing ACM.

Worker Recommendations

One worker is usually sufficient. Two or more workers may be needed to increase efficiency or for additional health and safety considerations. A person with air monitoring training might be required. This person can be a worker.

S9. Level A

Replace bulbs in light fixture attached to or in surface finished with ACM

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace bulbs in recessed or pendant mount light fixtures attached to an asbestos-containing decorative texture finish or acoustical plaster ceiling where the material may be contacted, but it is unlikely that any debris will be released.
- Replace bulbs in fixtures mounted on fireproofed surface where the material may be contacted, but it is unlikely that any material will be released.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The ceiling is a controlled system. Do not contact or disturb ceiling unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Replacement bulbs
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Carefully replace light bulbs without jarring fixture or releasing debris. Clean-up any dust or debris generated using HEPA vacuum. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

S9. Level B

Replace bulbs in light fixture attached to or in surface finished with ACM

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace bulbs in light fixtures recessed in an asbestos-containing decorative texture finish or acoustical plaster ceiling where the material is likely to be contacted and release of a small amount of debris is likely.
- Replace bulbs in fixtures mounted on fireproofed surface where the material is likely to be contacted and a small amount of debris is likely to be released.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The ceiling is a controlled system. Do not contact or disturb ceiling unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Replacement bulbs
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Carefully replace light bulbs without jarring fixture. Clean-up any dust or debris generated using HEPA vacuum. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

S10. Summary

Clean room with exposed surfaces finished with ACM

Summary

This work practice covers the procedures for cleaning a room with exposed surfaces finished with ACM. This room has been predetermined to not be contaminated or has previously been cleaned. However, debris could be released from the material by contact with occupants during normal occupation of the space. This work practice is intended to collect any debris that may have been released before it can accumulate. This is not the procedure to use if a fiber release has occurred. See related work practices below.

Examples

- Level A Routine cleaning in room with spray-applied acoustical plaster on walls or ceilings where there is no visible dust or debris.
 Routine cleaning in mechanical room with exposed fireproofing in good condition where there is no visible dust or debris.

Related Work Practices

S11	Repair damaged surfacing ACM.
T6	Repair damaged thermal system insulation on a pipe.
R7	Clean resilient asbestos flooring.
M20	Clean up debris from minor fiber release.

Worker Recommendations

One worker.

S10. Level A

Clean room with exposed surfaces finished with ACM

Example

The following is an example of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Routine cleaning in room with spray applied acoustical plaster on walls or ceilings where there is no visible debris.
- Routine cleaning in mechanical room with exposed fireproofing in good condition where there is no visible debris.

Notes

If any debris from ACM is found in an area to be cleaned, notify the APM or your supervisor. The APM will need to determine whether this work practice is appropriate or if more stringent practices are needed.

Work Practice

- ✓ Tools, equipment and materials:
 - Standard cleaning equipment and materials
- ✓ Clean area using standard cleaning methods. Avoid contact with any ACM materials that could be damaged during cleaning.
- ✓ Do not clean up asbestos debris. If asbestos debris is found in a space, stop cleaning work in that space and notify your supervisor.
- ✓ The following precautions should be observed when working around the ACM:
- ✓ Do not bump ACM with vacuum cleaners, broom handles, mop handles or similar objects. Do not exhaust vacuum cleaners toward ACM.

Do not brush ACM surfaces with a broom or similar objects to remove cobwebs or other items attached to ACM.

S11. Summary

Repair damaged surfacing ACM

Summary

This work practice covers the procedures for repairing small amounts of damaged surfacing ACM, such as acoustical plaster or fireproofing. The procedure assumes that the damage is in isolated areas not greater in size than the OSHA limit on Class III work (operation will generate no more waste than can be contained in one 60" by 60" glovebag or disposal bag). It is standard industry practice not to fill these bags more than one-third full, to allow for proper sealing and to guard against breakage.

Examples

Level B Repair small hole in acoustical plaster ceiling or wall without disturbing surrounding plaster.
Repair small gouged area in asbestos-containing decorative texture finish without disturbing surrounding finish.

Repair gouge marks in acoustical plaster ceiling where a small amount of damaged ACM is present.
Repair small area of delaminated acoustical plaster in good condition.

Level C Install fire rated enclosure over small area of damaged fireproofing.
Trowel-on fireproofing to repair small water damaged area.
Repair a small area of delaminated plaster in fair condition.

Related Work Practices

S2 Attach component to an ACM finished surface that is above a ceiling.
S6 Attach item to ceiling finished with ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S11. Level B-1

Repair damaged surfacing ACM

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repair small hole in asbestos-containing acoustical plaster ceiling or wall without disturbing surrounding plaster.
- Repair small gouged area in asbestos-containing decorative texture finish without disturbing surrounding finish.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The ceiling is a controlled system. Do not contact or disturb ceiling unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Non-ACM caulking materials & tools
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Repair damaged area using non-ACM caulking without disturbing ACM. Do not scrape or sand existing ceiling.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

S11. Level B-2

Repair damaged surfacing ACM

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repair gouge marks in an asbestos-containing acoustical plaster ceiling where a small amount of damaged ACM is present.

- Repair small area of delaminated asbestos-containing acoustical plaster in good condition.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The ceiling is a controlled system. Do not contact or disturb ceiling unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Small stiff-bladed scraper
 - Non-ACM repair materials & tools
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Mist any damaged surfacing using garden sprayer containing amended water and allow water to soak in for several minutes.
- ✓ With HEPA vacuum within several inches of damaged area, remove any loose material by hand or with scraper. Collect material in asbestos waste 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.
- ✓ Repair damaged area using non-ACM materials.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

S12. Summary

Accessing through an ACM finished surface

Summary

This work practice covers the procedures for opening access doors (such as those used in a wall or ceiling to access valves or dampers) in ACM finished surfaces such as acoustical plaster or fireproofing.

Level A work practices should only be used in situations where the ACM surface material is in good condition and will be contacted but not disturbed by the work.

Level B should be used for work that can be accomplished without generating airborne fiber levels in the breathing zone of workers that are above the PEL, and without spreading visible dust and debris from the ACM.

Level C work practices should be used where airborne fiber levels may exceed the PEL, or ACM dust and debris may be spread. The procedure assumes that the damage is in isolated areas not greater in size than the OSHA limit on Class III work (operation will generate no more waste than will fit into one 60" by 60" glovebag or disposal bag).

Examples

- Level A Open access door in asbestos-containing acoustical plaster ceiling that has been opened before. Ceiling or wall is in good condition and debris is not likely on door.
- Level B Open access door in asbestos-containing acoustical plaster ceiling where ACM is in fair condition and may be disturbed.
- Open access door that has asbestos-containing surfacing material on the flanges that will be disturbed when door is opened.
- Level C Open access door in acoustical plaster or fireproofed surface where ACM is in poor condition or a significant amount of ACM debris may be present on back side of door.

Related Work Practices

- S6 Attach item to ceiling finished with ACM.
- S7 Repair or replace item in surface finished with ACM.
- S8 Cut or drill hole in Surfacing ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S12. Level A

Accessing through an ACM finished surface

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Open access door in acoustical plaster ceiling or wall that has been opened before. Ceiling or wall is in good condition and access door can be opened without disturbing ACM.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The ceiling is a controlled system. Do not contact or disturb ceiling unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Unlatch door and open carefully. Avoid contact with ACM, be careful not to disturb ACM during the process of opening access door.
- ✓ Perform maintenance work required above or behind access door and slowly close door until it is secured in place.
- ✓ Complete applicable steps on Level A checklist to complete work.

S12. Level B

Accessing through an ACM finished surface

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Open access door in acoustical plaster ceiling where ACM is in fair condition and may be disturbed.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The ceiling is a controlled system. Do not contact or disturb ceiling unless you have been authorized by facility management.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Sponge
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Prepare work area with drop cloth. See General Procedure W10.
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Unlatch door and open door ¼” to ½” [6mm to 13mm]. HEPA vacuum around edges of door. Slowly open door and HEPA vacuum any debris on door or any ACM disturbed while opening door.
- ✓ Perform maintenance work required above or behind access door and then slowly close door until it is secured in place.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

S12. Level C

Accessing through an ACM finished surface

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Open access door that has surfacing material on flanges that will be disturbed when door is opened.
- Open access door in acoustical plaster or fireproofed surface where ACM is in poor condition or ACM debris may be present on back side of door.

Notes

The ceiling is a controlled system. Do not contact or disturb ceiling unless authorized by Facilities Management Services.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Small stiff-bladed scraper
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum outside of the enclosure with hose and nozzle extending inside the enclosure for vacuuming areas above ceiling.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and remove any ACM surfacing material that may be disturbed when the access door is opened. Remove enough material so that future use of the access door will not involve a disturbance of ACM.
- ✓ Wet any ACM on access door flanges that may be disturbed when door is opened. Wet adequately so that ACM is completely wet. Allow amended water to soak into material so that ACM is wet through to the substrate in the spot where ACM is to be removed.
- ✓ If the surface is coated with paint, mist surface and scarify paint sufficiently for ACM to be wetted. Remove paint by peeling or scraping off as necessary. Wet surface of exposed ACM. Allow amended water to soak into material so that ACM is adequately wet through to the substrate in the spot where ACM it to be removed.
- ✓ Remove ACM surfacing material using one of the following procedures:
 - Scrape away surfacing material that will be disturbed when access door is opened. Hold a pan immediately under the area to catch debris while scraping. If any dry ACM is encountered stop scraping and wet ACM. Maintain scraping area and any dust or debris generated wet at all times.
 - Scrape away surfacing material that will be disturbed with access door is opened. Scrape material directly into the nozzle of an operating HEPA vacuum or use nozzle of HEPA vacuum directly as tool to remove ACM. Continuously maintain HEPA vacuum nozzle within 6" of where work is occurring. If any dry ACM is encountered stop scraping and wet ACM. Maintain scraping area and any dust or debris generated wet at all times.

- ✓ After ACM surfacing is removed wet surface of substrate and remove all residue with a stiff nylon brush. Remove water and residue from surface with paper towels. Immediately dispose of towels in an asbestos waste disposal bag. Repeat brushing and paper towel process three (3) times. If substrate is a scratch coat, wet substrate and scrape off 1/16" of scratch coat to remove any residual ACM that may be trapped in the texture of the scratch coat.
- ✓ Spray substrate and edges of acoustical plaster with clear penetrating encapsulant.
- ✓ Perform maintenance work required above or behind access door.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

S13. Summary

Painting Surfacing ACM.

Summary

Painting a previously painted surface is Level A work because the surfacing material is contacted but not disturbed. The individuals performing this work should at a minimum have O&M training. Painting an unpainted surface where the OSHA PEL will not be exceeded or where the surface is strong enough that dust or debris will not be released is Level B work. If the work will result in airborne fiber levels above the PEL or if dust and/or debris will be released the work is Level C.

Depending upon the type, condition and friability of the ACM, this work may need to be treated as an abatement activity instead of O&M work.

Examples

- | | |
|---------|---|
| Level A | Repaint previously painted asbestos-containing acoustical plaster in good condition. No preparation of the surface is required. |
| Level B | Paint asbestos-containing decorative texture finish that has not been previously painted. |
| Level C | Paint asbestos-containing acoustical plaster that has not been previously painted.
Paint asbestos-containing fireproofing. |

Related Work Practices

S11 Repair damaged surfacing ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level

C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

S13. Level A

Painting surfacing ACM.

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repaint previously painted asbestos-containing acoustical plaster in good condition. No preparation of the surface is required.

Notes

The ceiling is a controlled system. Do not contact or disturb ceiling unless authorized by Facilities Management Services.

Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Paint, rollers or low pressure airless sprayer, and other painting equipment.
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Prepare work area with drop cloth. See General Procedure W10.
- ✓ Place tools, equipment and materials needed on drop cloth.
- ✓ Paint ceiling using sprayer or rollers. If rollers are used, try to contact each area of the ceiling only once to avoid damage to ACM.
- ✓ 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.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

S13. Level B

Painting surfacing ACM.

Example

The following is an example of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Paint asbestos-containing decorative texture finish that has not been previously painted.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

The ceiling is a controlled system. Do not contact or disturb ceiling unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Paint, rollers or low pressure airless sprayer, and other painting equipment
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Paint ceiling using a roller only. Try to contact each area of the ceiling only once to avoid damage to ACM.
- ✓ 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.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

S13. Level C

Painting surfacing ACM.

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

Paint asbestos-containing acoustical plaster that has not been previously painted.

Paint asbestos-containing fireproofing.

Notes

The ceiling is a controlled system. Do not contact or disturb ceiling unless authorized by Facilities Management Services.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - Tools as needed from the lists in General Procedure W1
 - Paint, and rollers or low pressure airless sprayer, and other painting equipment.
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Erect mini-enclosure (or enclose entire room) and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and paint ceiling as follows:
 - ✓ For acoustical plaster, use rollers or sprayer. If rollers are used, try to contact each area of the ceiling only once to avoid damage to ACM.
 - ✓ For fireproofing, use a high volume low pressure airless sprayer only.
- ✓ When painting is completed, wet drop cloth with amended water, roll up and dispose of as ACM. Use HEPA vacuum and/or wet-wiping to clean up any dust or debris under drop cloth. Dispose of rollers as ACM.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

Section 4 Thermal Systems Insulation (TSI) Work Practices

Code	Levels	Description
T1	B C	Remove asbestos-containing insulation on exposed pipe for maintenance work
T2	B C	Remove asbestos-containing insulation on pipe above ceiling for maintenance work
T3	B C	Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work
T4	B C	Remove asbestos-containing insulation on pipe in occupied area for maintenance work
T5	A B C	Repair damaged asbestos-containing insulation on a pipe
T6	B C	Repair damaged asbestos-containing insulation on a boiler, duct or flue
T7	B C	Install device in or access surface of asbestos-containing insulation on a pipe, boiler, duct or flue
T8	B C	Remove asbestos-containing duct insulation above ceiling for maintenance work
T9	B C	Remove asbestos-containing insulation inside HVAC unit for maintenance work
T10	B C	Clean up asbestos-containing debris in crawlspace or tunnel

T1. Summary

Remove asbestos-containing insulation on exposed pipe for maintenance work.

Summary

This work practice covers the procedures for removing small amounts of asbestos-containing insulation on an exposed pipe in an unoccupied area such as a boiler or mechanical room. The procedure assumes that the pipe insulation is accessible from a ladder or scaffold less than 10 feet (3 m) in height.

Examples

Level B	Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact.
Level C Glove-bag	Removal of 1 standard glovebag of insulation in good condition to make a new connection to an existing pipe. Removal of insulation in good condition from a fitting to replace a valve.
Level C Mini-enclosure	Removal of a section of pipe insulation in poor condition, or metal or waterproofed jacketed insulation. Removal of a section of pipe insulation that will not fit in a glovebag, or removal work on hot piping (>150°).

Related Work Practices

- T 2 Remove asbestos-containing insulation on pipe above panel ceiling for maintenance work
- T 3 Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work
- T 4 Remove asbestos-containing insulation on pipe in occupied area for maintenance work
- T 5 Repair damaged system insulation on a pipe
- T 7 Install device in asbestos-containing insulation on a or excess surface of, pipe, boiler, duct or flue

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T1. Level B

Remove asbestos-containing insulation on exposed pipe for maintenance work

Example

The following is an example of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing pipe insulation is a “Controlled System” Do not contact or disturb corrugated paper pipe insulation unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet corrugated paper insulation to be removed.
- ✓ Wait until water has soaked into the corrugated paper insulation. Add water until insulation is completely saturated
- ✓ Cut bands holding the corrugated paper insulation in place
- ✓ Slice with a razor knife at joints between sections of corrugated paper insulation and length wise at joints between clamshell halves.
- ✓ Open corrugated paper insulation clamshell and place intact into an asbestos waste disposal bag. Do not drop.
- ✓ Keep hose of an operating HEPA vacuum adjacent to the removal area during entire removal operations to capture any debris or fibers generated.
- ✓ Wet wipe surface of pipe to remove any ACM residue.
- ✓ HEPA vacuum and then wet wipe surface of HVAC unit and floor in vicinity of the work.

T1. Level C Glove-Bag

Remove asbestos-containing insulation on exposed pipe for maintenance work.

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Removal of 1 standard glovebag of insulation in good condition to make a new connection to an existing pipe.
- Removal of insulation in good condition from a fitting to replace a valve.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services.

Do not use power tools inside glovebags.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
- ✓ Glovebags
- ✓ Replacement non-ACM insulation if required
- ✓ Pipe repair materials and tools
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Place all needed tools inside of glovebag and attach glovebag to area of pipe insulation to be removed. See general procedure W18.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Remove ACM using glovebag procedures. Adequately wet removal area frequently during removal of the bulk material. Seal exposed ends of insulation before removing glovebags.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

T1. Level C Mini-Enclosure

Remove asbestos-containing insulation on exposed pipe for maintenance work.

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Removal of a section of pipe insulation in poor condition, or metal or waterproofed jacketed insulation.
- Removal of a section of pipe insulation that will not fit in a glovebag, or removal work on hot piping (>150°).

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Glovebags (if applicable)
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure." If work is on hot piping use a HEPA filtered fan unit instead of a HEPA vacuum to accomplish negative pressure in mini-enclosure. Size fan unit so that mini-enclosure is sufficiently ventilated that heat build up does not occur.
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum outside of enclosure with hose and nozzle extending inside enclosure for vacuuming areas above ceiling.

- ✓ If working on hot pipes, wear cloth coverall and use insulated gloves for handling hot piping.
- ✓ Place all needed tools inside of glovebag, and attach glovebag to area of pipe insulation to be removed.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and remove ACM using glovebag procedures. See general procedure W18. If pipe is hot or will not fit in a glovebag, set up HEPA filtered local exhaust ventilation and follow glovebag removal sequence inside of mini-enclosure.
- ✓ For hot piping only: Wear cloth coverall without paper suit. Wear insulated gloves. Do not work in area unless ventilation is sufficient to prevent heat build-up inside mini-enclosure. Do not touch pipes. Perform all work on hot pipes with tools. Do not wet pipe insulation. Do not try to use a glove-bag. Cut bands holding insulation in place. While holding the nozzle of a HEPA vacuum in the vicinity of, and where possible, below the work: slit lagging with a razor knife, open clamshell of insulation and remove from pipe. Set removed insulation aside and allow to cool and then wet with amended water and carefully place in an asbestos disposal bag. Remove any ACM residue on pipe with nozzle of HEPA vacuum and a brass wire brush. Perform required maintenance work and re-insulate pipe as soon as possible.
- ✓ If a glove-bag is not used, remove the pipe insulation using this procedure. Wet pipe lagging with amended water. Slit lagging at both ends of length of insulation to be removed with a razor knife. If pipe insulation is painted or otherwise impervious to water penetration, slit lagging with a razor knife as necessary and inject amended water into insulation with tip of sprayer nozzle. Allow water to soak in, add water until insulation is soggy. Cut bands holding insulation. Slit lagging with a razor knife, and carefully open clamshell of insulation and remove from pipe. Place removed insulation in an asbestos waste disposal bag. Wet wipe pipe to remove any ACM residue.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

T2. Summary

Remove asbestos-containing insulation on pipe above ceiling for maintenance work.

Summary

This work practice covers the procedures for removing small amounts of asbestos-containing insulation on a pipe located above a lay-in panel ceiling.

Examples

Level B Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact.

- Level C Glove-Bag Remove a section of pipe insulation above lay-in panel ceiling where insulation is in good condition, e. g. , pipe leak.
- Level C Mini-Enclosure Remove a section of pipe insulation in poor condition for fitting replacement.
Remove a section of pipe insulation in poor condition, or with metal jacket, or waterproofed to replace a section of pipe.
Remove ACM insulation which is damaged and in poor condition from steam line above non-ACM plaster ceiling.
Remove insulation in poor condition on a pipe to repair leak above a non-ACM drywall ceiling.

Related Work Practices

- S 2 Observation or work in ceiling plenum space where exposed surfacing ACM is present
- T 3 Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work
- M 11 Replace asbestos-containing ceiling panels in lay-in ceiling system.
- M 12 Replace asbestos containing ceiling tiles attached with adhesive
- M 13 Replace asbestos containing ceiling tiles in spline ceiling system
- M 29 Clean up debris from minor fiber release

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T2. Level B

Remove asbestos-containing insulation on pipe above ceiling for maintenance work

Example

The following is an example of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing pipe insulation is a “Controlled System” Do not contact or disturb pipe insulation unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the list in General Procedure W1
 - ✓ Razor Knife
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet insulation to be removed.
- ✓ Wait until water has soaked into insulation. Add water until insulation is completely saturated.
- ✓ Cut bands holding insulation in place
- ✓ Slice lagging with a razor knife at joints between sections of insulation and length wise at joints between clamshell halves.
- ✓ Open insulation clamshell and place intact into an asbestos waste disposal bag. Do not drop.
- ✓ Keep hose of an operating HEPA vacuum adjacent to the removal area during entire removal operations to capture any debris or fibers generated.
- ✓ Wet wipe surface of pipe to remove any ACM residue.
- ✓ HEPA vacuum and then wet wipe surface of HVAC unit and floor in vicinity of the work.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

T2. Level C Glove-Bag

Remove asbestos-containing insulation on pipe above ceiling for maintenance work

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove a section of pipe insulation above lay-in panel ceiling where insulation is in good condition, e. g. , pipe leak.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by facility management

Do not use power tools inside glovebags.

Do not use this procedure if more debris will be disturbed than will fit comfortably into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Glovebags
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Obtain access above ceiling using appropriate O & M work practice.
- ✓ Pick up any bulk debris within reach on top of ceiling and place into disposal bag. HEPA vacuum top side of ceiling within reach from access hole.
- ✓ Place all tools needed inside glovebag and attach glovebag to area where pipe insulation will be removed. See general procedure W18.
- ✓ Remove ACM using glovebag procedures. Adequately wet removal area frequently during removal of the bulk material.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

T2. Level C Mini- Enclosures

Remove asbestos-containing insulation on pipe above ceiling for maintenance

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove a section of pipe insulation in poor condition for fitting replacement.

- Remove a section of pipe insulation in poor condition, or with metal jacket, or waterproofed to replace a section of pipe.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Glovebags
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum outside of enclosure with hose and nozzle extending inside enclosure for vacuuming areas above ceiling.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and obtain access above ceiling using appropriate O & M work practice.
- ✓ Pick up any bulk debris within reach on top of ceiling and place into disposal bag.
- ✓ HEPA vacuum top side of ceiling within reach from access hole.
- ✓ If present, remove any metal jacket material over insulation to be removed.
- ✓ Place all tools needed inside glovebag and attach glovebag to area where pipe insulation will be removed. general procedure W18. Remove ACM using glovebag procedures. Adequately wet removal area frequently during removal of the bulk material.
- ✓ If a glove-bag is not used, remove the pipe insulation using this procedure. Wet pipe lagging with amended water. Slit lagging at both ends of length of insulation to be removed with a razor knife. If pipe insulation is painted or otherwise impervious to

water penetration, slit lagging with a razor knife as necessary and inject amended water into insulation with tip of sprayer nozzle. Allow water to soak in, add water until insulation is soggy. Cut bands holding insulation. Slit lagging with a razor knife, and carefully open clamshell of insulation and remove from pipe. Place removed insulation in an asbestos waste disposal bag. Wet wipe pipe to remove any ACM residue.

- ✓ Perform maintenance work and clean-up and tear-down steps on Level 3 checklist to complete work.

T3. Summary

Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work

Summary

This work practice covers the procedures for removing small amounts of asbestos-containing insulation on exposed piping in elevated locations (approximately 10 feet [3 m] or more above floor level). This procedure uses a scaffold as a work platform to reduce the safety hazards from working from a tall ladder.

Examples

- | | |
|----------------|--|
| Level B | Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact. |
| Level C | Repair small pipe leak in boiler room |
| Glove-Bag | Install new ceiling mounted hot water heating unit in warehouse space fed from existing piping. |
| Level C | Remove insulation on 12" fitting in poor condition, 15 feet above floor level to repair leak in steam line. |
| Mini-Enclosure | Remove insulation on pipe adjacent to steel grate catwalk 30 feet (9 m) above floor in boiler room. |

Related Work Practices

- | | |
|-----|---|
| T 2 | Remove asbestos-containing insulation on pipe above panel ceiling for maintenance work. |
| T 4 | Remove asbestos-containing insulation on pipe in occupied area for maintenance work. |

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A

person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T3. Level B

Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work

Example

The following is an example of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing pipe insulation is a “Controlled System” Do not contact or disturb pipe insulation unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Razor Knife
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet insulation to be removed.
- ✓ Wait until water has soaked into insulation. Add water until insulation is completely saturated
- ✓ Cut bands holding insulation in place
- ✓ Slice lagging with a razor knife at joints between sections of insulation and length wise at joints between clamshell halves.
- ✓ Open insulation clamshell and place intact into an asbestos waste disposal bag. Do not drop.

- ✓ Keep hose of an operating HEPA vacuum adjacent to the removal area during entire removal operations to capture any debris or fibers generated.
- ✓ Wet wipe surface of pipe to remove any ACM residue.
- ✓ HEPA vacuum and then wet wipe surface of HVAC unit and floor in vicinity of the work.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

T3. Level C Glove-Bag

Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repair small pipe leak in boiler room
- Install new ceiling mounted hot water heating unit in a space fed from existing piping.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services.

Do not use power tools inside glovebags.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Replacement non-ACM insulation if required
 - ✓ Pipe repair materials and tools
 - ✓ Glovebags
 - ✓ Non-slip drop cloth
- ✓ Complete Worker General Procedure W4 "Secure Work Area"

- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Erect scaffold system using proper OSHA procedures (All personnel must comply with OSHA 29 CFR 1926.451 subpart L regarding scaffolding safety and health regulations). Care should be taken not to disturb the ACM.
- ✓ Place tools, equipment and materials needed onto non-slip drop cloth on scaffold system.
- ✓ Place all tools needed inside glovebag and attach glovebag to area where pipe insulation will be removed. See general procedure W18.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Remove ACM using glovebag procedures. Adequately wet removal area frequently during removal of the bulk material.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

T3. Level C Mini-Enclosure

Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove insulation on 12" fitting in poor condition, 15 feet above floor level to repair leak in steam line.
- Remove insulation on pipe adjacent to steel grate catwalk 30 feet above floor in boiler room.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Replacement non-ACM insulation if required
 - ✓ Pipe repair materials and tools
 - ✓ Glovebags
 - ✓ Non-slip drop cloth
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Erect scaffold system using proper OSHA procedures (All personnel must comply with OSHA 29 CFR 1926.451 subpart L regarding scaffolding safety and health regulations). Care should be taken not to disturb the ACM. Erect mini-enclosure on top of scaffold system and set up negative pressure system. See general procedure W20. The top floor layer in the enclosure should be a non-slip drop cloth material. If work is on hot piping use a HEPA filtered fan unit instead of a HEPA vacuum to accomplish negative pressure in mini-enclosure. Construct a make-up air inlet so that it brings in air from outside boiler room. Size fan unit so that mini-enclosure is sufficiently ventilated that heat build up does not occur.
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum outside of enclosure with hose and nozzle extending inside enclosure for vacuuming areas above ceiling.
- ✓ If working on hot pipes, wear cloth coverall and use insulated gloves for handling hot piping.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure, place all tools needed inside glovebag and attach glovebag to area where pipe insulation will be removed. general procedure W18. Remove ACM using glovebag procedures. Adequately wet removal area frequently during removal of the bulk material.
- ✓ If a glove-bag is not used, remove the pipe insulation using this procedure. Wet pipe lagging with amended water. Slit lagging at both ends of length of insulation to be removed with a razor knife. If pipe insulation is painted or otherwise impervious to water penetration, slit lagging with a razor knife as necessary and inject amended water into insulation with tip of sprayer nozzle. Allow water to soak in, add water until insulation is soggy. Cut bands holding insulation. Slit lagging with a razor knife, and carefully open clamshell of insulation and remove from pipe. Place remove insulation in an asbestos waste disposal bag. Wet wipe pipe to remove any ACM residue.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

T4. Summary

Remove asbestos-containing insulation on pipe in occupied area for maintenance work

Summary

This work practice covers the procedures for removing small amounts of asbestos-containing pipe insulation inside a mini-enclosure located in an occupied area. This procedure assumes that maintenance work must occur immediately in an occupied area or work area is occupied 24 hours a day.

Examples

Level B Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact.

Level C Repair leak in pipe riser of occupied computer room.

Related Work Practices

T 2 Remove asbestos-containing insulation on pipe above ceiling for maintenance work

T 3 Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T4. Level B

Remove asbestos-containing insulation on pipe in occupied area for maintenance work

Example

Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing pipe insulation is a “Controlled System” Do not contact or disturb pipe insulation unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Razor Knife
 - ✓ Non-ACM replacement insulation
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet insulation to be removed.
- ✓ Wait until water has soaked into insulation. Add water until insulation is completely saturated
- ✓ Cut bands holding insulation in place
- ✓ Slice lagging with a razor knife at joints between sections of insulation and length wise at joints between clamshell halves.
- ✓ Open insulation clamshell and place intact into an asbestos waste disposal bag. Do not drop.
- ✓ Keep hose of an operating HEPA vacuum adjacent to the removal area during entire removal operations to capture any debris or fibers generated.
- ✓ Wet wipe surface of pipe to remove any ACM residue.
- ✓ HEPA vacuum and then wet wipe surface of HVAC unit and floor in vicinity of the work.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

T4. Level C

Remove asbestos-containing insulation on pipe in occupied area for maintenance work

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repair leak in pipe riser of occupied computer room.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services.

Do not use power tools inside glovebags.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Glovebags
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. If work must occur above ceiling, include a HEPA vacuum inside enclosure for vacuuming areas above ceiling.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and place all tools needed inside glovebag. If access above ceiling is required, obtain access above ceiling using O & M work practice selected (see note above step 1). Attach glovebag to area where pipe insulation will be removed. See general procedure W18.
- ✓ Remove ACM using glovebag procedures. Adequately wet removal area frequently during removal of the bulk material.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

T5. Summary

Repair damaged asbestos-containing insulation on a pipe

Summary

This work practice covers the procedures for repairing small areas of damaged asbestos-containing insulation.

Examples

- Level B Repair small area of impact damage on pipe insulation in good condition.
 Repair minor damage to insulation on a pipe fitting.
- Level C Repair a small amount of damaged pipe insulation adjacent to operating HVAC.
 Repair a small amount of delaminated pipe insulation in an occupied area.

Related Work Practices

- T 3 Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work
- M 29 Clean up debris from minor fiber release

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T5. Level B

Repair damaged asbestos-containing insulation on a pipe

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repair small area of impact damage on pipe insulation in good condition.
- Repair minor damage to insulation on a pipe fitting.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing pipe insulation is a “Controlled System” Do not contact or disturb pipe insulation unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Sponge
 - ✓ Non-ACM insulation patching material
 - ✓ Putty Knife
 - ✓ Lag cloth
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth. If access above ceiling is required, obtain access above ceiling using appropriate O & M work practice.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet area of insulation to be repaired where appropriate. HEPA vacuum damaged area to be repaired. Remove any loose debris with HEPA vacuum.
- ✓ Fill in repair area with non-ACM patching material. Dip lag cloth into water and squeeze out excess water. Apply lag cloth to area of insulation being repaired and smooth out using a wet sponge. Restore vapor barrier on cold insulation and seal off to adjacent vapor barrier surfaces.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

T5. Level C

Repair damaged asbestos-containing insulation on a pipe

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repair a small amount of damaged pipe insulation adjacent to operating HVAC.
- Repair a small amount of delaminated pipe insulation in an occupied area.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services.

Do not use power tools inside glovebags.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will fit comfortably into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
- ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Sponge
 - ✓ Non-ACM insulation patching material
 - ✓ Putty Knife
 - ✓ Lag cloth
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. If work must occur above ceiling, include a HEPA vacuum inside enclosure for vacuuming areas above ceiling.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure. If access above ceiling is required, obtain access above ceiling using appropriate O & M work practice.
- ✓ If work can be done with a glovebag method, follow procedures below:
- ✓ Install duct tape around area to be repaired.
- ✓ Place tools, equipment and other materials into glove bag. Attach glovebag to duct tape using more duct tape.
- ✓ Remove all loose or damaged insulation that is not going to be repaired using glovebag procedures. See general procedure W18.
- ✓ Remove glovebag leaving duct tape from step "a" above.
- ✓ If a glovebag method cannot be effectively utilized, follow procedures below:
- ✓ Adequately wet material at area to be repaired.
- ✓ Cut out damaged TSI, trimming edges so straight square clean edges remain. This procedure must only be performed on adequately wet material, and with a HEPA vacuum nozzle adjacent to the cutting tool so that any debris or fibers are captured by the HEPA vacuum.
- ✓ Fill in repair area with non-ACM patching material. Dip lag cloth into water and squeeze out excess water. Apply lag cloth to area of insulation being repaired and

smooth out using a wet sponge. Restore vapor barrier on cold insulation and seal off to adjacent vapor barrier surfaces.

- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

T6. Summary

Repair damaged asbestos-containing insulation on a boiler, duct or flue

Summary

This work practice covers the procedures for repairing small amounts of damaged asbestos-containing thermal systems insulation.

Examples

- Level B Repair small area of impact damaged insulation on duct or flue in good condition.
 Repair minor damage to boiler insulation around access hatch.
- Level C Repair a small area of badly damaged flue or duct insulation.
 Repair a small area of water damaged insulation on hot water tank or boiler.

Related Work Practices

- T 3 Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work
- M 29 Clean up debris from minor fiber release

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T6. Level B

Repair damaged asbestos-containing insulation on a boiler, duct or flue

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repair small area of impact damaged insulation on duct or flue in good condition.
- Repair minor damage to boiler insulation around access hatch.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing pipe, boiler, flue and equipment insulation is a “Controlled System” Do not contact or disturb these materials unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Sponge
 - ✓ Non-ACM insulation patching material
 - ✓ Putty Knife
 - ✓ Lag cloth
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth. If access above ceiling is required, obtain access above ceiling using appropriate O & M work practice.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet area of insulation to be repaired where appropriate. HEPA vacuum damaged area to be repaired and remove any loose debris.
- ✓ Fill in repair area with non-ACM patching material.
- ✓ Properly relag repaired area. Apply all lagging materials wet and insure the existing ACM material is not disturbed by lagging installation.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

T6. Level C

Repair damaged asbestos-containing insulation on a boiler, duct or flue

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repair a small area of badly damaged flue or duct insulation.
- Repair a small area of water damaged insulation on hot water tank or boiler.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services.

Do not use power tools inside glovebags.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Sponge
 - ✓ HEPA vacuum, hose and attachments
 - ✓ Putty Knife
 - ✓ Glovebags
 - ✓ Lag cloth
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. If work must occur above ceiling, include a HEPA vacuum outside of the enclosure with hose and nozzle extending inside enclosure for vacuuming areas above ceiling.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure. If access above ceiling is required, obtain access above ceiling using appropriate O & M work practice.
- ✓ If work can be done with a glovebag method, follow procedures below:
- ✓ Install duct tape around area to be repaired.
- ✓ Place tools, equipment and other materials into glove bag. Attach glovebag to duct tape using more duct tape.

- ✓ Remove all loose or damaged insulation using glovebag procedures. See general procedure W18.
- ✓ Remove glovebag leaving duct tape from step above.
- ✓ If a glovebag method cannot be effectively utilized, follow procedures below:
- ✓ Adequately wet material at area to be repaired.
- ✓ Cut out damaged TSI, trimming edges so straight square clean edges remain. This procedure must only be performed on adequately wet material, and with a HEPA vacuum nozzle adjacent to the cutting tool so that any debris or fibers are captured by the HEPA vacuum.
- ✓ Place ACM debris into asbestos waste disposal bags.
- ✓ Remove glovebag (if used) and fill in small repair areas with non-ACM patching material.
- ✓ Properly re-insulate and relag repaired area. Apply all lagging materials wet and insure the existing ACM material is not disturbed by lagging installation.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work. Leave duct tape installed in glovebag procedure in place.

T7. Summary

Install device in, or access surface of, asbestos-containing insulation on a pipe, boiler, duct or flue

Summary

This work practice covers the removal of small amounts of ACM as required to install a device (such as a temperature sensor or damper control) in, or simply to access, the surface of an ACM insulated pipe, boiler, duct or flue.

Examples

- | | |
|---------|--|
| Level B | Remove a small amount of ACM in good condition in order to install energy management system sensors and controls. |
| Level C | Drill through insulation using power tools to attach heat sensor directly on metal flue.
Remove a small amount of damaged insulation in order to attach heat sensor directly on metal flue. |

Related Work Practices

- | | |
|-----|---|
| T 1 | Remove Asbestos-containing insulation on exposed pipe for maintenance work |
| T 4 | Remove Asbestos-containing insulation on pipe in occupied area for maintenance work |
| T 5 | Repair damaged asbestos-containing insulation on a pipe |

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T7. Level B

Install device in, or access surface of, asbestos-containing insulation on a pipe, insulated boiler, duct or flue

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove a small quantity of ACM in good condition in order to install energy management system sensors and controls.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing thermal system insulation is a “Controlled System” Do not contact or disturb thermal system insulation unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Non-ACM replacement insulation or patching material (if required)
 - ✓ Device to be installed and related tools
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth. If access above ceiling is required, obtain access using appropriate O & M work practice.
- ✓ Put on respirator and perform fit test, and put on protective clothing.

- ✓ Wet insulation that is to be removed with amended water. Allow water to soak through insulation to substrate. Apply more water as required to saturate insulation that is to be removed.
- ✓ Scrape wetted insulation from equipment. Hold a pan immediately under area being scraped to catch debris. If dry insulation is encountered, stop scraping, re-wet and allow water to soak in. Remove all wetted material. Promptly place removed insulation in an asbestos waste disposal bag. Spray pan with amended water and wet wipe to remove all insulation debris and residue.
- ✓ After insulation is removed, wet surface of equipment with amended water and wet wipe surface with paper towels. Wet wipe until all residue is removed. After all residue is removed wet wipe surface with clean water without surfactant. Dispose of paper towels as asbestos waste.
- ✓ HEPA vacuum surface of equipment and edge of remaining insulation.
- ✓ Perform work as necessary to install device.
- ✓ Replace removed insulation with new insulation patching material. Install patch material in accordance with facility's repair work practices, and manufacturer's instructions.
- ✓ Restore vapor barrier on cold insulation and seal off to adjacent vapor barrier surfaces.
- ✓ Perform clean-up and tear-down steps on Level 2 checklist to complete work.

T7. Level C

Install device in, or access surface of, asbestos-containing insulation on a pipe, boiler, duct or flue

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Drill through insulation using power tools to attach heat sensor directly on metal flue.
- Remove a small area of damaged insulation in order to attach heat sensor directly on metal flue.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services.

Do not use power tools inside glovebags.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have

been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (1" wide blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Wire cutters
 - ✓ Power drill with dust collection collar attached to a HEPA vacuum.
 - ✓ Hole saw or drill bits
 - ✓ Glovebags
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure. If work must occur above ceiling, include a HEPA vacuum outside of enclosure with hose and nozzle extending inside enclosure for use during the work.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure. If access above ceiling is required, obtain access above ceiling using appropriate O & M work practice.
- ✓ Put on respirator and perform fit test, and put on protective clothing.

If work can be done with a glovebag method, follow procedures below:

- ✓ Install duct tape around area to be penetrated or removed.
- ✓ Place tools, equipment and other materials into glove bag. Attach glovebag to duct tape using more duct tape.
- ✓ Remove all loose or damaged insulation using glovebag procedures. See general procedure W18.
- ✓ Remove glovebag
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

If a glovebag method cannot be effectively utilized, follow procedures below:

- ✓ Adequately wet material at area to be penetrated or removed.
- ✓ Carefully remove or penetrate ACM using drill with dust collection collar attached to HEPA vacuum. This procedure must only be performed on adequately wet material,

and with a HEPA vacuum nozzle adjacent to the removal or penetrating tool so that any debris or fibers are captured by the HEPA vacuum.

- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

T8. Summary

Remove asbestos-containing duct insulation above ceiling for maintenance work

Summary

This work practice describes the procedures for removing small amounts of asbestos-containing duct insulation above a ceiling. Ceiling might be ACM or non-ACM. Ceiling might be plaster, drywall or lay-in.

Air conditioning supply ducts commonly carry conditioned air. After repairs, the vapor barrier on the insulation must also be repaired to avoid condensation problems.

Examples

Level B Remove small amount of damaged insulation around damper control to permit insulation repair.
Replace a Variable Air Volume (VAV) box on ACM insulated duct.

Level C Remove a small area of damaged duct insulation so that new branch lines can be tied to existing duct system for sub-divided office space.
Remove a small area of delaminating duct insulation above lay-in ceiling.
Remove a small area of delaminating duct insulation above plaster or drywall ceiling.

Related Work Practices

T 6 Repair damaged asbestos-containing insulation on a boiler, duct or flue
M 25 Remove section of asbestos-containing drywall or plaster.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T8. Level B

Remove asbestos-containing duct insulation above ceiling for maintenance work

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove small amount of damaged insulation around damper control to permit insulation repair.
- Replace a Variable Air Volume (VAV) box on ACM insulated duct.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing pipe insulation is a “Controlled System” Do not contact or disturb pipe insulation unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Non-ACM replacement duct insulation
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Obtain access above ceiling using appropriate O & M work practice.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Pick up any bulk debris within reach on top of ceiling and place into an asbestos waste disposal bag.
- ✓ HEPA vacuum top side of ceiling within reach from access hole.
- ✓ Wet insulation to be removed with amended water. Allow water to penetrate ACM. Add water until the material in the area to be removed is saturated.
- ✓ Carefully remove saturated ACM while holding nozzle in vicinity of work.
- ✓ After ACM is removed wet wipe surface of duct to remove all residue.
- ✓ After drying, spray surface dust and edges where ACM was removed with a penetrating asbestos encapsulant.
- ✓ Perform maintenance work and repair/restore insulation. Restore vapor barrier on cold insulation and seal off to adjacent vapor barrier surfaces.
- ✓ Perform clean-up and tear-down steps on Level B checklist and ceiling access work practice to complete work.

T8. Level C

Remove asbestos-containing duct insulation above ceiling for maintenance work

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove a small area of damaged duct insulation so that new branch lines can be tied to existing duct system for sub-divided office space.
- Remove a small area of delaminating duct insulation above lay-in ceiling.
- Remove a small area of delaminating duct insulation above plaster or drywall ceiling.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by facility management

Do not use power tools inside glovebags.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will fit comfortably into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Non-ACM replacement duct insulation
 - ✓ Glovebags, size and configuration as required
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"

- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure for use during the work.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Obtain access above ceiling using appropriate O & M work practices.
- ✓ Pick up bulk debris within reach on top of ceiling and place into an asbestos waste disposal bag.
- ✓ HEPA vacuum top side of ceiling within reach from access hole.
- ✓ Install duct tape around area to be removed.
- ✓ Place all tools needed inside glovebag and attach glovebag to duct tape around area of duct insulation to be removed.
- ✓ Remove ACM using glovebag procedures. See general procedures W18. Adequately wet removal area frequently during removal of bulk material.
- ✓ Perform maintenance work and repair/restore insulation. Restore vapor barrier on cold insulation and seal off to adjacent vapor barrier surfaces.
- ✓ Perform clean-up and tear-down steps on Level C checklist and ceiling access work practice to complete work.

T9. Summary

Remove asbestos-containing insulation inside HVAC unit for maintenance work

Summary

This work practice describes the procedures to be used to remove small amounts off asbestos-containing duct or pipe insulation inside an HVAC unit. At the completion of work this insulation must be replace and any vapor barriers restored to avoid condensation problems.

Examples

- | | |
|---------|---|
| Level B | Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact. |
| Level C | Remove a small amount of ACM pipe insulation in poor condition inside HVAC unit.
Remove a small amount of duct insulation as required to replace flexible connector. |

Related Work Practices

- | | |
|-----|---|
| T 3 | Remove asbestos-containing insulation on exposed pipe in elevated location for maintenance work |
| T 4 | Remove asbestos-containing insulation on pipe in occupied area for maintenance work |
| T 5 | Repair damaged asbestos-containing insulation on a pipe |

T 6	Repair damaged asbestos-containing insulation on a boiler, duct or flue
M 17	Remove asbestos-containing flexible duct connector

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T9. Level B

Remove asbestos-containing insulation inside HVAC unit for maintenance work

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove no more than one 4 foot length of laminated corrugated paper pipe insulation in good condition, where the insulation can be removed intact to replace cooling or heating coil.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing pipe insulation is a “Controlled System” Do not contact or disturb pipe insulation unless you have been authorized by Facilities Management Services.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Non-ACM replacement insulation
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.

- ✓ Adequately wet insulation to be removed.
- ✓ Wait until water has soaked into insulation. Add water until insulation is completely saturated
- ✓ Cut bands holding insulation in place
- ✓ Slice lagging with a razor knife at joints between sections of insulation and length wise at joints between clamshell halves.
- ✓ Open insulation clamshell and place intact into an asbestos waste disposal bag. Do not drop.
- ✓ Keep hose of an operating HEPA vacuum adjacent to the removal area during entire removal operations to capture any debris or fibers generated.
- ✓ Wet wipe surface of pipe to remove any ACM residue.
- ✓ HEPA vacuum and then wet wipe surface of HVAC unit and floor in vicinity of the work.
- ✓ Perform maintenance work and replace/restore insulation. Restore vapor barrier on cold insulation and seal off to adjacent vapor barrier surfaces.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

T9. Level C

Remove asbestos-containing insulation inside HVAC unit for maintenance work

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

Remove a small amount of ACM pipe insulation in poor condition inside HVAC unit.
Remove a small amount of duct insulation required to replace flexible connector.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services

Do not use power tools inside glovebags.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
 - ✓ Non-ACM replacement duct insulation
 - ✓ Glovebags
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Place tools, equipment and materials needed onto drop sheet.
- ✓ Install duct tape around area to be removed.
- ✓ Place tools, equipment and other materials into glove bag. Attach glovebag to duct tape using more duct tape.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Remove all loose or damaged insulation using glovebag procedures. See general procedure W18.
- ✓ Remove glovebag leaving duct tape from step above.
- ✓ Perform maintenance work and replace/restore insulation. Restore vapor barrier on cold insulation and seal off to adjacent vapor barrier surfaces.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

T10. Summary

Clean up asbestos-containing debris in crawlspace or tunnel

Summary

This work practice describes the work required to clean up small amounts of asbestos-containing debris found in a crawlspace area or tunnel.

Crawl spaces and tunnels can be confined spaces.

Examples

- | | |
|---------|---|
| Level B | Clean up several pieces of pipe insulation debris that can be picked up in intact pieces in a crawlspace
Clean up small amount of insulation debris that can be picked up in intact pieces in a tunnel |
| Level C | Clean up of a small amount of deteriorated ACM debris that will disintegrate when picked up in a tunnel.
Clean-up of a small amount of deteriorated ACM debris that is mixed into soil in a crawl space. |

Related Work Practices

T 1	Remove asbestos-containing insulation on exposed pipe for maintenance work
T 5	Repair damaged asbestos-containing insulation on a pipe
T 6	Repair damaged asbestos-containing insulation on a boiler, duct or flue

Worker Recommendations

Two workers are required to work a confined space due to safety concerns. It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

T10. Level B

Clean up asbestos-containing debris in crawlspace or tunnel

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Clean up several pieces of pipe insulation debris in crawlspace
- Clean up small amount of insulation debris in tunnel

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless you have been authorized by Facilities Management Services. The Crawl space is a "Controlled Space." Do not enter the crawl space without authorization

The crawl space is a confined space. You must have had training in confined space entry before entering crawl space. If you have not had confined space entry training, do not enter crawl space, and notify your supervisor. If you have had Confined Space training, review confined space requirements with APM before start of work.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
- ✓ If the area where work is to be performed is a confined space, follow the facility's confined space entry procedures. These procedures are in addition to the procedures in this work practice.
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Place tools, equipment and materials needed into work area. One worker should remain outside to communicate with inside worker and handle rescue arrangements, if needed.
- ✓ Adequately wet floor area and debris in work area.
- ✓ Starting near entry to area and working toward rear of area, pick up pieces of debris and place into disposal bags.
- ✓ Adequately wet areas where debris was removed. Use HEPA vacuum to remove any remaining debris. Place debris into disposal asbestos waste bags. HEPA vacuum floor after gross debris is removed.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

T10. Level C

Clean up asbestos-containing debris in crawlspace or tunnel

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Clean up a small amount of deteriorated ACM debris that will disintegrate when picked up in a tunnel.
- Clean-up a small amount of deteriorated ACM debris that is mixed into soil in a crawl space.

Notes

Asbestos-containing pipe insulation is a controlled system. Do not contact or disturb pipe insulation unless authorized by Facilities Management Services. Crawl spaces is a controlled areas. Do not enter crawl space without authorization.

Do not use power tools inside glovebags.

These procedures involve working in an environment where there could be elevated levels of airborne asbestos. Do not attempt to use this work practice unless you have been trained as an asbestos abatement worker including training in the use of respirators and personal and area decontamination procedures.

Do not use this procedure if more debris will be disturbed than will reasonably fit into one 60" by 60" disposal bag. If more than this amount of debris is found, stop work, close ceiling and notify your supervisor.

The crawl space is a confined space. You must have had training in confined space entry before entering crawl space. If you have not had confined space entry training, do not enter crawl space, and notify your supervisor. If you have had Confined Space training, review confined space requirements with APM before start of work.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ If the area where work is to be performed is a confined space, follow the facility's confined space entry procedures. These procedures are in addition to the procedures in this work practice.
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ One worker should remain outside to communicate with inside worker and handle rescue arrangements if needed. Prepare work area with mini-enclosure (without floor) and set up negative pressure system and/or local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Place tools, equipment and materials needed into enclosure. Include a HEPA vacuum inside enclosure.
- ✓ Adequately wet floor area and debris inside enclosure.
- ✓ Starting near entry to area and working toward rear of area, pick up pieces of debris and place into disposal bags.
- ✓ Adequately wet areas where debris was removed. Use HEPA vacuum to remove any remaining debris. Place debris into asbestos waste disposal bags. HEPA vacuum floor after gross debris is removed.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

Section 5 Miscellaneous Materials Work Practices

Code	Levels	Description
M 1	A B	Clean potentially asbestos-contaminated carpet
M 2	A B C	Remove asbestos-containing ceiling panels in lay-in ceiling system
M 3	B C	Remove asbestos-containing ceiling tiles attached with adhesive
M 4	B C	Remove asbestos-containing ceiling tiles in spline ceiling system
M 5	B C	Cut or drill asbestos cement panel
M 6	A B C	Remove asbestos cement panels
M 7	A B	Remove asbestos cement cooling tower louvers
M 8	A B	Remove or replace asbestos cement roof shingles
M 9	A B	Remove and replace asbestos cement siding shingles
M 10	A B C	Remove high-temperature resistant (HTR) asbestos cement panels
M 11	A B C	Remove asbestos-containing chalk board
M 12	A B C	Remove asbestos-containing fire door and/or door hardware
M 13	A B	Remove asbestos-containing built-up roofing
M 14	A B	Remove asbestos-containing asphalt shingles
M 15	B C	Cut or drill asbestos-containing drywall, plaster or drywall compound.
M 16	B C	Remove section of asbestos-containing drywall
M 17	A B C	Remove asbestos-containing flexible duct connector
M 18	A B C	Remove asbestos-containing paper or cloth from ductwork
M 19	B	Remove filters from HVAC unit
M 20	B	Clean up debris
M 21	A B C	Replace asbestos-containing gaskets/packing
M 22	B C	Emptying and changing filter in HEPA vacuum or changing filter in HEPA fan unit
M 23	A B C	Remove asbestos-wrapped wiring
M 24	A B C	Removing asbestos-containing caulking/glazing compound
M 25	A	Clean room that has asbestos-containing dust

M1. Summary

Clean potentially asbestos-contaminated carpet.

Summary

This work practice describes the O&M procedures that can be used to substitute HEPA vacuuming of carpeting for normal vacuuming. This can be useful in situations where there could be a small periodic release from an ACM (e.g. in a room that has a soft acoustical finish that is within reach of the occupants and may be contacted upon occasion). This procedure can also be used for cleaning small areas of asbestos-contaminated carpet. If contamination is present due to a fiber release, see work practice M20.

Examples

Level A Clean potentially asbestos-contaminated carpet that has no visible contamination or analytical confirmation of asbestos contamination. ACM in room is in good condition.

Level B Clean carpet that has some visual or analytical evidence of asbestos contamination.

Related Work Practices

R 3 Install new resilient flooring or carpet over resilient asbestos flooring.
R 8 Remove carpet over resilient asbestos flooring.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. A person with air monitoring training might be required. This person can be one of the workers.

M1 Level A

Clean potentially asbestos-contaminated carpet

Example

The following is an example of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the example stop work and notify your supervisor.

- Clean potentially asbestos-contaminated carpet that has no visible contamination or analytical confirmation of asbestos contamination. ACM in room is in good condition.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
- ✓ Tools as needed from the lists in General Procedure W1
- ✓ Carpet attachment for HEPA vacuum
- ✓ HEPA vacuum carpet using carpet attachment. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Perform applicable steps on Level A checklist to complete work.

M1. Level B

Clean potentially asbestos-contaminated carpet

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Clean carpet that has some visual or analytical evidence of asbestos contamination.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ HEPA vacuum or carpet steam cleaning equipment.
- ✓ Complete Worker General Procedure W4 “Secure Work Area” Place tools, equipment and materials needed in work area. Place tools, equipment and materials needed into work area.
- ✓ Clean carpet using one of the following procedures:

- ✓ With HEPA vacuum, vacuum contaminated area in parallel passes with each pass overlapping the previous by one half the width of the wand. Vacuum the area a second time, in the same manner, in passes at right angles to the first passes.
- ✓ With steam cleaning equipment, clean carpet in accordance with manufacturer's equipment instructions. Clean in overlapping passes in one direction, and then a second time in overlapping passes at right angles to the first passes. Water from cleaning operation shall be disposed of in accordance with applicable regulations. See General Procedure W19.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

M2. Summary

Remove asbestos-containing ceiling panels in lay-in ceiling system

Summary

This work practice covers the procedure for removing a small number of asbestos-containing ceiling panels in a lay-in ceiling system, such as a 2' x 4' or 2' x 2' (600 x 1200 mm or 600 x 600 mm) suspended ceiling for O&M work. The practices assume that surfacing ACM is not present above the ceiling. If surfacing is present, see work practice S1.

Examples

- | | |
|---------|---|
| Level A | Move one or several panels in good condition that do not offer resistance to being moved, and where edges do not abrade. |
| Level B | Remove several asbestos-containing ceiling panels to perform maintenance work on or above ceiling where the panel(s) offer resistance to being moved and/or the edges are or will be abraded. |
| Level C | Remove several damaged, broken, or soiled asbestos-containing ceiling panels alone or in conjunction with maintenance work above ceiling. |

Related Work Practices

- | | |
|-----|---|
| S 1 | Move one non-asbestos-containing ceiling panel below a plenum space that has exposed surfacing ACM. |
| M 3 | Replace asbestos-containing ceiling tiles attached with adhesive. |
| M 4 | Replace asbestos-containing ceiling tiles in spline ceiling system. |

Worker Recommendation

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level

C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M2. Level A

Remove asbestos-containing ceiling panels in lay-in ceiling system

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Move one or several panels in good condition that do not offer resistance to being moved, and where edges do not abrade.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor. Coordinate work with O & M Work Practice S1 if surfacing ACM is present above ceiling.

Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Non-asbestos replacement ceiling panels, if needed.
- ✓ Complete Worker General Procedure W4 "Secure Work Area" Place tools, equipment and materials needed in work area. Set up ladder or scaffold in work area.
- ✓ If panel will be replaced, remove ceiling panel and place into disposal bag. If panel will be reinstalled, remove carefully and store for reinstallation.
- ✓ HEPA vacuum area where tile was installed and any suspension system components exposed where tile was removed.
- ✓ Perform maintenance work and reinstall existing panels or install new panels.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

M2. Level B

Remove asbestos-containing ceiling panels in lay-in ceiling system

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several asbestos-containing ceiling panels to perform maintenance work on or above ceiling where the panel(s) offer resistance to being moved and/or the edges are or will be abraded.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor. Coordinate work with O & M Work Practice S1 if surfacing ACM is present above ceiling.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Stiff nylon bristle brushes
 - ✓ Non-asbestos replacement ceiling panels, if needed
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Place tools, equipment and materials needed onto drop cloth. Set up ladder or scaffold and adequately wet ceiling panel(s), if panel(s) will be replaced.
- ✓ If panel(s) will be replaced, remove ceiling panel(s) and place into an asbestos waste disposal bag. If panel(s) will be reinstalled, remove carefully and store for reinstallation.
- ✓ HEPA vacuum area where panel(s) were installed. Wet wipe any suspension system components exposed where panel(s) were removed. Use brushes to remove any debris that is not removed by wet wiping. Place wet wipes and any debris into disposal bags.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

M2. Level C

Remove asbestos-containing ceiling panels in lay-in ceiling system

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several damaged, broken, or soiled asbestos-containing ceiling panels alone or in conjunction with maintenance work above ceiling.

Notes

Coordinate work with O & M Work Practice S1 if surfacing ACM is present above ceiling.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Stiff nylon bristle brushes
 - ✓ Non-asbestos replacement ceiling panels, if needed
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure
- ✓ Set up ladder or scaffold inside enclosure.
- ✓ Adequately wet ceiling panel(s) and remove.
- ✓ HEPA vacuum area where panel(s) were installed. Wet wipe any suspension system components exposed where panel(s) were removed. Use brushes to remove any debris that is not removed by wet wiping. Place wet wipes and any debris into asbestos waste disposal bags.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

M3. Summary

Remove asbestos-containing ceiling tiles attached with adhesive

Summary

This work practice covers the O&M procedures for removing a small number of asbestos-containing ceiling tiles attached with adhesive. These most commonly are 12”

(13 mm) tiles glued to a substrate such as gypsum board or plaster. The procedures assume that the tile adhesive does not contain asbestos.

Examples

- Level B Remove several ceiling tiles that can be removed as whole tiles without breakage. Small pieces of tile may remain attached to adhesive on ceiling.
- Level C Remove several ceiling tiles that will break during removal.
Remove several badly damaged ceiling tiles.

Related Work Practices

- M 2 Remove asbestos-containing ceiling panels in lay-in ceiling system.
M 4 Remove asbestos-containing ceiling tiles in spline ceiling system.
M 16 Remove section of asbestos-containing drywall.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M3. Level B

Remove asbestos-containing ceiling tiles attached with adhesive

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several ceiling tiles that can be removed as whole tiles without breakage. Small pieces of tile may remain attached to adhesive on ceiling.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.

- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Non-asbestos replacement ceiling panels and adhesive
 - ✓ Scraper or other tools as needed to remove tiles
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Set up ladder or scaffold on drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet ceiling tiles to be removed.
- ✓ Cut away outer ½” (13 mm) of tile on tongue and groove edges. Pry tile away from substrate to break adhesive bond, remove ceiling tiles and place into asbestos waste disposal bags.
- ✓ HEPA vacuum area where tiles were installed. Wet wipe any smooth finished components exposed where tiles were removed. Use scraper to remove any remaining adhesive or debris.
- ✓ Install new ceiling tiles and perform clean-up and tear-down steps on Level B checklist to complete work.

M3. Level C

Remove asbestos-containing ceiling tiles attached with adhesive

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several ceiling tiles that will break during removal.
- Remove several badly damaged ceiling tiles.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Non-asbestos replacement ceiling panels and adhesive
 - ✓ Scraper or other tools as needed to remove tiles
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed into enclosure.

- ✓ Enter enclosure
- ✓ Set up ladder or scaffold inside enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet ceiling tiles to be removed.
- ✓ Cut away outer ½" (13 mm) of tile on tongue and groove edges. Pry tile away from substrate to break adhesive bond, remove ceiling tiles and place into disposal bags.
- ✓ HEPA vacuum area where tiles were installed. Wet wipe any smooth finished components exposed where tiles were removed. Use scraper to remove any remaining adhesive or debris. Place wet wipes and debris into ACM disposal bags.
- ✓ Install new ceiling tiles and perform clean-up and tear-down steps on Level C checklist to complete work.

M4. Summary

Remove asbestos-containing ceiling tiles in spline ceiling system

Summary

This work practice covers the O&M procedure for removing small numbers of asbestos-containing ceiling tiles in a spline ceiling system. Procedures assume that tile adhesive does not contain asbestos.

Examples

- | | |
|---------|---|
| Level B | Remove several tiles that can be removed as whole tiles without breakage. |
| Level C | Remove several ceiling tiles that will break during removal.
Remove several badly damaged ceiling tiles. |

Related Work Practices

- | | |
|------|---|
| M 2 | Remove asbestos-containing ceiling panels in lay-in ceiling system. |
| M 3 | Remove asbestos-containing ceiling tiles attached with adhesive. |
| M 24 | Remove section of asbestos-containing drywall. |

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M4. Level B

Remove asbestos-containing ceiling tiles in spline ceiling system

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several tiles that can be removed as whole tiles without breakage.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor. Coordinate work with O & M Work Practice S1 if surfacing ACM is present above ceiling.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Non-asbestos replacement ceiling panels and straight pins
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Set up ladder or scaffold and adequately wet ceiling tiles to be removed.
- ✓ Cut away outer ½” (13 mm) of tiles on edges set on splines. Remove ceiling tiles and place into asbestos waste disposal bags.
- ✓ HEPA vacuum area where tiles were installed. Wet wipe any suspension system components exposed where tiles were removed.
- ✓ Install new tiles using pins into adjacent tiles to secure in place.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

M4. Level C

Remove asbestos-containing ceiling tiles in spline ceiling system

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several ceiling tiles that will break during removal.

- Remove several badly damaged ceiling tiles.

Notes

Coordinate work with O & M Work Practice S1 if surfacing ACM is present above ceiling.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Non-asbestos replacement ceiling panels and straight pins
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Enter enclosure
- ✓ Set up ladder or scaffold inside enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet ceiling tiles to be removed.
- ✓ Cut away outer ½” (13 mm) of tiles on edges set on spline. Remove ceiling tiles and place into asbestos waste disposal bags.
- ✓ HEPA vacuum area where tiles were installed. Wet wipe any smooth finished components exposed where tiles were removed.
- ✓ Install new tiles using pins into adjacent tiles to secure in place.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

M5. Summary

Cut or drill asbestos cement panels

Summary

This work practice covers the procedures cutting or drilling asbestos cement panels.

Examples

- | | |
|---------|---|
| Level B | Drill a few holes in an asbestos cement board to install a new electrical panel. |
| Level C | Cut or drill a few holes in an asbestos cement panel to install a vent through panel using power tools. |

Related Work Practices

- M 6 Remove asbestos cement panels.
- M 15 Cut or drill asbestos-containing drywall or drywall compound.

Worker Recommendation

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M5. Level B

Cut or drill asbestos cement panels

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Drill a few holes in an asbestos cement board to install a new electrical panel.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Hand or power drill equipped with a HEPA vacuum dust collection attachment.
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ If accessible, install a drop cloth on the back side of the panel below where hole will penetrate through panel.
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet both sides of area to be drilled using garden sprayer with amended water. Keep water away from any electrical cords or equipment.

- ✓ Drill hole using hand drill or power drill with operating HEPA vacuum attached. Wet drilling area using amended water.
- ✓ As options, the following wetting methods/controls may be used:
- ✓ For small holes, a wet sponge can be placed on both sides of the surface and the hole drilled through the sponges.
- ✓ A HEPA vacuum hose may be used near the bit of a non-HEPA equipped drill, and on the back side if accessible.
- ✓ Shaving cream can be sprayed on both sides of the drilling area to control dust and debris. Shaving cream must be wiped up and disposed of as ACM.
- ✓ Wipe debris off drill using wet disposable towels and place towels into disposal bag
- ✓ If back side was enclosed, insert wand of garden sprayer with amended water into back side enclosure and wet dust or debris. Remove back side enclosure and place into an asbestos waste disposal bag. Wet wipe surfaces that were exposed inside back side of the enclosure.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M5. Level C

Cut or drill asbestos cement panels

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Cut or drill a few holes in an asbestos cement panel to install a vent through panel using power tools.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Hand or power drill equipped with a HEPA vacuum dust collection attachment.
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ If accessible, enclose back side of panel to catch dust and debris where hole will penetrate through panel.
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.

- ✓ Enter enclosure and adequately wet both sides of area to be cut or drilled using garden sprayer with amended water. Keep water away from any electrical cords or equipment.
- ✓ Cut or drill hole(s) using saw or drill. Power tools should have an operating HEPA vacuum attached. Wet cutting area during drilling or cutting using amended water.
- ✓ As options, the following wetting methods/controls may be used:
- ✓ For small holes, a wet sponge can be placed on both sides of the surface and the hole drilled through the sponges.
- ✓ A HEPA vacuum hose may be used near the bit of a non-HEPA equipped drill, and on the back side if accessible.
- ✓ Shaving cream can be sprayed on both sides of the drilling area to control dust and debris. Shaving cream must be wiped up and disposed of as ACM.
- ✓ Remove panel piece and wet wipe debris off drill or saw using wet disposable towels and place towels and debris into disposal bag.
- ✓ If back side was enclosed, insert wand of garden sprayer with amended water into back side enclosure and wet dust or debris. Remove back side enclosure and place into an asbestos waste disposal bag. Wet wipe surfaces that were exposed inside back side of the enclosure.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

M6. Summary

Remove asbestos cement panels

Summary

This work practice covers the procedures for removing a small number of asbestos cement panels to support O&M work. This procedure can be used for asbestos cement range hoods.

Examples

- | | |
|---------|--|
| Level A | Remove several corrugated or flat asbestos cement panels that are painted or in good condition, and have fasteners that can be easily removed. |
| Level B | Remove several corrugated or flat asbestos cement panels in fair condition. |
| Level C | Remove several corrugated or flat asbestos cement panels in poor condition which have become friable and where dust or powder may be generated during removal. |

Related Work Practices

- M 5 Cut or drill asbestos cement panels.
M 12 Remove asbestos-containing fire door.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M6. Level A

Remove asbestos cement panels

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several corrugated or flat asbestos cement panels that are painted or in good condition, and have fasteners that can be easily removed.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools as needed to remove panel fasteners (slatter's ripper, nail clipper, screwdriver)
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Adequately wet panels to be removed with amended water. Remove fasteners holding panel in place. Clean fasteners if they are to be reused. Dispose of fasteners as ACM if not being reused.
- ✓ Remove panel and wrap in two (2) layers of polyethylene sheet for disposal as ACM.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level A checklist to complete work.

M6. Level B

Remove asbestos cement panels

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several corrugated or flat cement asbestos panels in fair condition.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor. If activated electrical equipment is in work area, do not wet, stop work, and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools as needed to remove panel fasteners (slatter's ripper, nail clipper, screwdriver)
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet panel(s) to be removed using garden sprayer with amended water.
- ✓ Remove fasteners holding panel in place. HEPA vacuum and wet fasteners as they are removed. Clean fasteners using water if they are to be reused. Dispose of fasteners as ACM if not being reused.
- ✓ Remove panel and wrap in two (2) layers of polyethylene sheet for disposal as ACM.
- ✓ HEPA vacuum and wet wipe surfaces to which panel was attached. HEPA vacuum and wet wipe up any dust or debris from panel removal.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M6. Level C

Remove asbestos cement panels

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several corrugated or flat asbestos cement panels in poor condition which have become friable and where dust or powder may be generated during removal.

Notes

If activated electrical equipment is in work area, do not wet, stop work, and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
- ✓ Tools as needed from the lists in General Procedure W1
- ✓ Tools as needed to remove panel fasteners (slatter's ripper, nail clipper, screwdriver)
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth"
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Enter enclosure and adequately wet panel(s) to be removed using garden sprayer with amended water.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Remove fasteners holding panel in place. HEPA vacuum and wet fasteners as they are removed. Clean fasteners using water if they are to be reused. Dispose of fasteners as ACM if not being reused.
- ✓ Remove panel and wrap in two (2) layers of polyethylene sheet for disposal as ACM. If panel breaks or chips and small debris results from removal, collect and dispose of in asbestos waste disposal bags or containers.
- ✓ HEPA vacuum and wet wipe surfaces to which panel was attached. HEPA vacuum and wet wipe up any dust or debris from panel removal.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

M7. Summary

Remove asbestos cement cooling tower louvers

Summary

This work practice covers the procedures for asbestos cement cooling tower louvers.

Examples

Level A Remove several asbestos cement cooling tower louvers in good condition.

Level B Remove several asbestos cement cooling tower louvers in poor condition, abraded or severely weathered.

Related Work Practices

M 6 Remove asbestos cement panels.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. A person with air monitoring training might be required. This person can be one of the workers.

M7. Level A

Remove asbestos cement cooling tower louvers

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several asbestos cement cooling tower louvers in good condition.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor. Turn off cooling tower fan, tag, and lock-out switch in accordance with facility's Lock-Out Tag-Out program before performing this work practice.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools as needed to remove louvers
 - ✓ Non-asbestos replacement louvers

- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Verify that cooling tower is shut off and locked out.
- ✓ Remove any fasteners holding louvers in place. HEPA vacuum and wet fasteners during removal. Clean fasteners for reuse or dispose of as ACM.
- ✓ Wet louvers with amended water. Remove louvers without breaking and place them into asbestos waste disposal bags as they are removed. If louvers are too big for a disposal bag, lay down a double sheet of 6 mil polyethylene. Stack louvers on sheet. After 6 louvers are stacked wrap in polyethylene sheet for disposal of ACM. Candy strip wrapped louvers with duct tape. Do not drop removed louvers to the ground, carry down all removed materials by the end of the shift.
- ✓ Wet wipe and/or HEPA vacuum surfaces louvers were contacting and any dust or debris from louver removal. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level A checklist to complete work.

M7. Level B

Remove asbestos cement cooling tower louvers

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several asbestos cement cooling tower louvers in poor condition.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Turn off cooling tower fan, tag, and lock-out switch in accordance with facility’s Lock-Out Tag-Out program before performing this work practice.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools as needed to remove louvers
 - ✓ Non-asbestos replacement louvers
- ✓ Complete Worker General Procedure W4 “Secure Work Area”

- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth”
- ✓ Verify that cooling tower is shut off and locked out. See General Procedure W3.
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet louvers to be removed.
- ✓ Remove any fasteners holding louvers in place. HEPA vacuum and wet fasteners during removal. Clean fasteners for reuse or dispose of as ACM.
- ✓ Remove louvers without breaking if possible and place them into asbestos waste disposal bags as they are removed. Collect any large broken pieces or chips and place into asbestos waste disposal bags. If louvers are too big for an asbestos waste disposal bag, lay down a double sheet of 6 mil polyethylene. Stack louvers on sheet. After 6 louvers are stacked wrap in polyethylene sheet for disposal. Candy strip wrapped louvers with duct tape. Do not drop removed louvers to the ground, carry down all removed materials by the end of the shift.
- ✓ Wet wipe and/or HEPA vacuum surfaces louvers were contacting and any dust or debris from louver removal. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

8. Summary

Remove or replace asbestos cement roof shingles

Summary

This work practice covers the procedures for removing or replacing a small number of asbestos cement shingles from the roof of a building to support O&M work.

Examples

- | | |
|---------|--|
| Level A | Replace or remove less than 25 square feet of intact asbestos cement roof shingles without creating visible dust, to perform patching, repair work, or install new vent or stack. |
| Level B | Replace or remove asbestos cement roof shingles where: more than 25 square feet of shingles are removed, or the shingles are damaged, or may become non-intact, or create visible dust during removal. |

Related Work Practices

- | | |
|------|--|
| M 5 | Cut or drill asbestos cement panels. |
| M 6 | Remove asbestos cement panels. |
| M 9 | Remove and replace asbestos cement siding. |
| M 13 | Remove asbestos-containing built-up roofing. |

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. A person with air monitoring training might be required. This person can be one of the workers.

M8. Level A

Remove or replace asbestos cement roof shingles

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace or remove less than 25 square feet of intact asbestos cement roof shingles without creating visible dust, to perform patching, repair work, or install new vent or stack.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor. Follow all OSHA requirements for working on flat or sloped roofs.

Complete roofing removal work before any penetrations are made in the roof deck.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
- ✓ Tools as needed from the lists in General Procedure W1
- ✓ Thin, flat sharp nail cutter
- ✓ Pry bars, slatter's ripper and/or nail clipper
- ✓ Non-slip boots for roofing work
- ✓ Safety harness
- ✓ Replacement roofing
- ✓ Hammer
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth." Drop cloth should be below removal area to catch any debris generated during removal.
- ✓ Place tools, equipment and materials needed in work area.

- ✓ If feasible, spray amended water on shingles prior to start of removal. Caution: Wetting shingles will often make them slippery and lead to slipping and falling hazards that can be particularly dangerous on sloped roofs.
- ✓ Do not cut, abrade or break shingles
- ✓ Starting at top of removal area, remove nails, or cut nails with a flat sharp nail cutter. Pry up edge of first shingle until edges can be gripped by hand. Remove shingle and place into asbestos waste disposal bags or polyethylene lined cardboard boxes and lower to ground level. Do not drop shingles to the ground. Carry disposal bags to the ground, do not drop.
- ✓ Continue removing shingles using procedure above.
- ✓ Clean up any debris or dust using HEPA vacuuming and wet wiping.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level A checklist to complete work.

M8. Level B

Remove or replace asbestos cement roof shingles

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace or remove asbestos cement roof shingles where: more than 25 square feet of shingles are removed, or the shingles are damaged, or may become non-intact, or create visible dust during removal.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Follow all OSHA requirements for working on flat or sloped roofs.

Complete roofing removal work before any penetrations are made in the roof deck.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Thin, flat sharp nail cutter
 - ✓ Pry bars, slatter's ripper and/or nail clipper
 - ✓ Non-slip boots for roofing work
 - ✓ Safety harness
 - ✓ Replacement roofing

- ✓ Hammer
- ✓ Prepare work area with barrier tape according to General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.” Drop cloth should be below removal area to catch any debris generated during removal. Seal any roof penetrations, air intakes or windows in work area with polyethylene. Do not seal over plumbing vent stacks.
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ If feasible, spray shingles with amended water prior to removal. Do not wet shingles if this will create a slipping and falling hazard. Caution: Wetting shingles will often make them slippery and lead to slipping and falling hazards that can be particularly dangerous on sloped roofs.
- ✓ Do not cut, abrade or break shingles
- ✓ Starting at top of removal area, remove nails, or cut nails with a flat sharp nail cutter. Pry up edge of first shingle until edges can be gripped by hand. Remove shingle and place into asbestos waste disposal bags or polyethylene lined cardboard boxes and lower to ground level. Do not drop shingles to the ground. Carry disposal bag to the ground, do not drop.
- ✓ Continue removing shingles using procedure above.
- ✓ Clean up any debris or dust using HEPA vacuuming and wet wiping.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M9. Summary

Remove and replace asbestos cement siding shingles

Summary

This work practice covers the procedures for removing small amounts of asbestos cement siding shingles from the exterior of a building to support O&M work.

Examples

Level A Replace or remove a small number of asbestos cement siding shingles in good condition that are loose or can be removed with minimal breakage to perform patching, repair work, or to install a new window or door.

Level B Replace or remove several asbestos cement siding shingles that are sufficiently damaged and may become friable during removal.

Related Work Practices

- M 5 Cut or drill asbestos cement panels.
- M 6 Remove cement asbestos panels.

- M 8 Remove and replace asbestos cement shingles.
M 13 Remove asbestos-containing built-up roofing.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. A person with air monitoring training might be required. This person can be one of the workers.

M9. Level A

Remove and replace asbestos cement siding shingles

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace or remove a small number of asbestos cement siding shingles in good condition that are loose or can be removed with minimal breakage to perform patching, repair work, or to install a new window or door.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Thin, flat sharp nail cutter
 - ✓ Pry bars, slatter's ripper and/or nail clipper
 - ✓ Replacement siding, if required
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth." Drop cloth should be below removal area to catch any debris generated during removal.
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Set up ladder or scaffold if needed.
- ✓ Spray shingles with amended water prior to start of removal. Maintain shingles in a wet condition throughout removal..
- ✓ Do not cut, abrade or break shingles

- ✓ Starting at top of removal area, remove nails, or cut nails with a flat sharp nail cutter. Pry up edge of first shingle until edges can be gripped by hand. Remove shingle and place into asbestos waste disposal bags or polyethylene lined cardboard boxes and lower to ground level. Do not drop shingles or disposal bag to the ground.
- ✓ Continue removing shingles using procedure above.
- ✓ Clean up any debris or dust using wet wiping or HEPA vacuum. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level A checklist to complete work.

M9. Level B

Remove and replace asbestos cement siding shingles

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace or remove several asbestos cement siding shingles that are sufficiently damaged and may become friable during removal.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Thin, flat sharp nail cutter
 - ✓ Pry bars, slatter's ripper and/or nail clipper
 - ✓ Replacement siding, if required
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Drop cloth should be below removal area to catch any debris generated during removal. Set up ladder or scaffold if needed. Seal over any penetrations, air intakes or windows in work area with polyethylene. Do not cover over exhaust vents.
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Put on respirator and perform fit test, and put on protective clothing.

- ✓ Spray shingles with amended water prior to start of removal. Maintain shingles in a wet condition throughout removal..
- ✓ Do not cut, abrade or break shingles
- ✓ Starting at top of removal area, remove nails, or cut nails with a flat sharp nail cutter. Pry up edge of first shingle until edges can be gripped by hand. Remove shingle and place into asbestos waste disposal bags or polyethylene lined cardboard boxes and lower to ground level. Do not drop shingles or disposal bag to the ground.
- ✓ Continue removing shingles using procedure above.
- ✓ Clean up any debris or dust using HEPA vacuuming and wet wiping.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M10. Summary

Remove high-temperature resistant (HTR) asbestos cement panels.

Summary

This work practice covers the procedures for removing small amounts of high temperature resistant asbestos panels for maintenance work. These panels typically have a high asbestos content.

Examples

- | | |
|---------|---|
| Level A | Remove several HTR asbestos cement panels in good condition that can be removed with no breakage. |
| Level B | Remove several HTR asbestos cement panels that are damaged and may become friable during removal. |
| Level C | Remove several HTR asbestos cement panels in poor and friable condition inside a mini-enclosure. |

Related Work Practices

- | | |
|------|--|
| M 5 | Cut or drill asbestos cement panels. |
| M 6 | Remove asbestos cement panels. |
| M 8 | Remove and replace asbestos cement shingles. |
| M 13 | Remove asbestos-containing built-up roofing. |

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M10. Level A

Remove high temperature resistant (HTR) asbestos cement panels.

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several HTR asbestos cement panels in good condition that can be removed with no breakage.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools needed to remove panels and fasteners
 - ✓ Spray encapsulant (if used)
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth." Drop cloth should be below removal area to catch any debris generated during removal.
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Set up ladder or scaffold if needed. Spray amended water on panels before starting removal. Maintain panels in a wet condition throughout removal..
- ✓ Do not cut, abrade or break panels.
- ✓ Remove fasteners securing panels in place. Wet fasteners during removal.
- ✓ Remove panels without breaking and place them into asbestos waste disposal bags as they are removed. If panels are too big for a disposal bag, lay down a double sheet of 6 mil polyethylene. Stack panels on sheet. After 6 panels are stacked wrap in polyethylene sheet for disposal. Candy strip wrapped panels with duct tape. Do not drop removed panels to the ground, carry down all removed materials by the end of the shift.
- ✓ Clean up any debris or dust using wet wiping or HEPA vacuum. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level A checklist to complete work.

M10. Level B

Remove high temperature resistant (HTR) asbestos cement panels.

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several HTR asbestos cement panels that are damaged and may become friable during removal.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools needed to remove panels and fasteners
 - ✓ Spray encapsulant (if used)
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth." Drop cloth should be below removal area to catch any debris generated during removal. Set up ladder or scaffold if needed
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Spray amended water on panels before starting removal. Maintain panels in a wet condition throughout removal.
- ✓ Do not cut, abrade or break panels.
- ✓ Remove fasteners securing panels in place. Wet fasteners during removal.
- ✓ Remove panels without breaking and place them into asbestos waste disposal bags as they are removed. If panels are too big for a disposal bag, lay down a double sheet of 6 mil polyethylene. Stack panels on sheet. After 6 panels are stacked wrap in polyethylene sheet for disposal. Candy strip wrapped panels with duct tape. Do not drop removed panels to the ground, carry down all removed materials by the end of the shift.
- ✓ Clean up any debris or dust using HEPA vacuuming and wet wiping.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M10. Level C

Remove high temperature resistant (HTR) asbestos cement panels

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove several HTR asbestos cement panels in poor and friable condition inside a mini-enclosure.

Notes

This work practice must be used in conjunction with General Procedures W1, W10 and a Level C Worker Checklist. The worker checklist includes tasks that must be performed before these work practices are begun.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools needed to remove panels and fasteners
 - ✓ Spray encapsulant (if used)
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed into enclosure. Set up ladder or scaffold if needed.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and spray panels to be removed with amended water. Maintain panel wet throughout removal
- ✓ Do not cut, abrade or break panels.
- ✓ Remove fasteners holding panels in place. Wet or HEPA vacuum fasteners during removal. Pull panel away slightly, spray amended water on back of panel, remove panel without breaking and place into asbestos waste disposal bags or polyethylene lined cardboard boxes as they are removed. If panels are too big for a disposal bag, lay down a double sheet of 6 mil polyethylene. Stack panels on sheet. After 6 panels are stacked wrap in polyethylene sheet for disposal. Candy strip wrapped panels with duct tape. Do not drop removed panels to the ground, carry down all removed materials by the end of the shift. Spray any loose or broken panel pieces with amended water and place into disposal bags.

- ✓ Clean up any debris or dust using HEPA vacuuming and wet wiping.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

M11. Summary

Remove asbestos-containing chalk board

Summary

This work practice describes the work required to remove a chalkboard that is made of asbestos-containing material.

Examples

- Level A Remove an asbestos-containing chalkboard that is non-adhered and easily removed.
- Level B Remove an asbestos-containing chalkboard that is adhered or may generate minor debris from removal.
- Level C Remove an asbestos-containing chalkboard that is in poor condition or strongly adhered to wall.

Related Work Practices

None

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M11. Level A

Remove asbestos-containing chalk board

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove an asbestos-containing chalkboard that is non-adhered and easily removed.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Stiff nylon bristle brushes
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Adequately wet chalkboard unit using garden sprayer with amended water. Spray water around sides of board and at joint between wall and top of board to wet any debris behind board.
- ✓ Remove any fasteners or moldings attaching board to wall and remove board. Some boards lift up out of a supporting tray or off of supporting clips to remove. Wrap board in two layers of polyethylene sheet for disposal. If board is adhered to wall, a Level B or C procedure should be performed.
- ✓ HEPA vacuum surface that board was attached to wall. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

M11. Level B

Remove asbestos-containing chalk board

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove an asbestos-containing chalkboard that is adhered or may generate minor debris from removal.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Stiff nylon bristle brushes
 - ✓ Crow bar and screwdrivers
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Adequately wet chalkboard unit using garden sprayer with amended water. Spray water around sides of board and at joint between wall and top of board to wet any debris behind board.
- ✓ Remove any fasteners or moldings attaching board to wall and remove board. Some boards lift up out of a supporting tray or off of supporting clips to remove. If board is adhered to wall, use screwdrivers or crow bar to remove board. Wet adhesive (using amended water) while prying board off wall. Wrap board in two layers of polyethylene sheet for disposal.
- ✓ If board was attached with adhesive, wet and scrape remaining adhesive off wall.
- ✓ Wet wipe and HEPA vacuum surface that board was attached to.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

M11. Level C

Remove asbestos-containing chalk board

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove an asbestos-containing chalkboard that is in poor condition or strongly adhered to wall.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1

- ✓ Scraper 2-3" (50-75 mm) wide stiff blade
- ✓ Stiff nylon bristle brushes
- ✓ Crow bar and screwdrivers
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure."
Enclosure must be large enough to lay board on floor and wrap for disposal.
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and adequately wet chalkboard unit using garden sprayer with amended water. Spray water around sides of board and at joint between wall and top of board to wet any debris behind board.
- ✓ Remove any fasteners or moldings attaching board to wall and remove board. Some boards lift up out of a supporting tray or off of supporting clips to remove. If board is adhered to wall use screwdrivers or crow bar to remove board. Wet adhesive using amended water while prying board off wall. Wrap board in two layers of polyethylene sheet for disposal.
- ✓ If board was attached with adhesive, wet and scrape remaining adhesive off wall.
- ✓ Wet wipe and HEPA vacuum surface that board was attached to.
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

M12. Summary

Remove asbestos-containing fire door and/or door hardware

Summary

This procedure sets forth the O&M work procedures to remove an asbestos-containing fire door or door hardware in an asbestos-containing fire door. Cutting or drilling into asbestos containing doors are included as Level C work.

Examples

Level A Remove an asbestos-containing fire door that is in good condition for replacement.

Replace a lockset or closer on asbestos-containing fire door in good condition. Lockset does not penetrate asbestos core of door.

Level B Remove an asbestos-containing fire door that is damaged.

Replace a lockset or closer on asbestos-containing fire door in poor condition. Lockset may penetrate asbestos core of door.

Level C Cut a door to install new window.

Drill a hole for new lockset through asbestos core of a door.

Related Work Practices

None.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M12. Level A

Remove asbestos-containing fire door and/or door hardware

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove an asbestos-containing fire door that is in good condition for replacement.
- Replace a lockset or closer on asbestos-containing fire door in good condition.
Lockset does not penetrate asbestos core of door.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Screwdriver and tools needed for hardware or door removal
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Place tools, equipment and materials needed in work area.
- ✓ If door is equipped with a closer, detach closer arm from door frame. Remove screws attaching closer to door. HEPA vacuum or wet clean screws, closer, and

area where closer was attached to door. Thoroughly clean closer and parts if they will be re-used. If closer will not be re-used, dispose of as ACM waste.

- ✓ Remove lockset from door using procedures used for closer. HEPA or wet wipe vacuum lockset if it will be re-used or disposed of as ACM waste. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Lay two layers of polyethylene sheet on floor for wrapping door.
- ✓ Remove hinge pins or screws attaching hinges to door frame. Lay door on polyethylene.
- ✓ If hinges are to be re-used, remove from door following procedures used for closer. If hinges are to be disposed of, leave hinges attached to door.
- ✓ Wrap door for disposal.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

M12. Level B

Remove asbestos-containing fire door and/or door hardware

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove an asbestos-containing fire door that is damaged.
- Replace a lockset or closer on asbestos-containing fire door in poor condition. Lockset may penetrate asbestos core of door.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Screwdrivers and tools needed for hardware and door removal
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Place tools, equipment and materials needed on drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Wet any damaged areas with amended water.

- ✓ If door is equipped with a closer, detach closer arm from door frame. Wet closer and area where closer is attached to door using amended water. Remove screws attaching closer to door. Wet screws during removal and area behind closer once all screws are removed. HEPA vacuum and wet wipe closer and screws if it is to be re-used. If closer and screws will not be re-used, dispose of as ACM waste.
- ✓ Remove lockset from door using procedures used for closer. HEPA vacuum lockset if it will be re-used or dispose of as ACM waste.
- ✓ Lay two layers of polyethylene sheet on floor for wrapping door.
- ✓ Remove hinge pins or screws attaching hinges to door frame. Lay door on polyethylene.
- ✓ If hinges are to be re-used, remove from door following procedures used for closer. If hinges are to be disposed of, leave hinges attached to door.
- ✓ Wrap door for disposal.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

M12. Level C

Remove asbestos-containing fire door and/or door hardware

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Cut a door to install new window. Asbestos containing doors are normally fire rated. Cutting a fire rated door to install a window is prohibited.
- Drill a hole for new lockset through asbestos core of a door.

Notes

Perform work in a mini-enclosure located at door, or remove door and take to remote mini-enclosure.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools needed to cut or drill door, with HEPA filtered dust collection attachment if possible.
 - ✓ New lockset or window
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."

- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure.” Enclosures can be installed at door location, or door can be removed and taken into an enclosure.
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Wet area where the hole will be cut or drilled.
- ✓ Cut or drill door as required. Wet cutting or drilling location during work.
- ✓ Place cut piece of door or debris from drilling into asbestos waste disposal bags. HEPA vacuum or wet wipe new hole area and clean up any debris.
- ✓ Install window or lockset and perform clean-up and tear-down steps on Level C checklist to complete work.

M13. Summary

Remove asbestos-containing built-up roofing

Summary

This work practice describes the work required to remove a small amount of asbestos-containing built-up roofing or flashing for maintenance or repair work.

Examples

- | | |
|---------|---|
| Level A | Replace or remove intact less than 25 square feet of asbestos containing built-up roofing without creating visible dust, to perform patching, repair work, or install new vent or stack. |
| Level B | Replace or remove a small area of asbestos containing built-up roofing that is damaged, may become non-intact or create visible dust during removal, or where more than 25 square feet is removed |

Related Work Practices

- | | |
|------|---|
| M 8 | Remove and replace asbestos cement roof shingles. |
| M 14 | Remove asbestos-containing asphalt shingles. |

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. A person with air monitoring training might be required. This person can be one of the workers.

M13. Level A

Remove asbestos-containing built-up roofing

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace or remove intact less than 25 square feet of asbestos containing built-up roofing without creating visible dust, to perform patching, repair work, or install new vent or stack.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor. Use fall prevention measures (including safety harnesses, a warning line system with safety monitor, and/or a motion stopping system) as required by OSHA for roofing work. Roofing removal work shall be completed before any penetrations through the roof deck are made. Coordinate work with O & M Work Practice S7 if surfacing is present on underside of deck.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Safety harness/warning line system and/or motion stopping system
 - ✓ Hook knife
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Replacement roofing materials and tools
 - ✓ Rope for lowering bags
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Cut around area to be removed using hand tools. Note that several layers may be present.
- ✓ Scrape up roofing and place into asbestos waste disposal bags. Remove any remaining roofing debris in removal area using scraper and place into disposed bags. Lower bags to ground.
- ✓ Perform maintenance/repair work and clean-up and tear-down steps on Level A checklist to complete work.

M13. Level B

Remove asbestos-containing built-up roofing

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace or remove a small area of asbestos containing built-up roofing that is damaged, may become non-intact or create visible dust during removal, or where more than 25 square feet is removed.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Use fall prevention measures (including safety harnesses, a warning line system with safety monitor, and/or a motion stopping system) as required by OSHA for roofing work.

Roofing removal work shall be completed before any penetrations through the roof deck are made. Coordinate work with O & M Work Practice S7 if surfacing ACM is present on underside of deck.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Safety harness/warning line system and/or motion stopping system
 - ✓ Hook knife
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Replacement roofing materials and tools
 - ✓ Rope for lowering bags
- ✓ Prepare work area with barrier tape according to General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth." Seal any windows, HVAC units, air intakes or other openings that could allow fibers from work area into building. Do not seal any plumbing vents in work area.
- ✓ Place tools, equipment and materials needed in work area.
- ✓ If feasible and safe, adequately wet roofing to be removed using garden sprayer with amended water. The use of wetting and amended water for roofing work should be limited for the following reasons:
 - ✓ Wet roofing can create slip hazards.
 - ✓ Roofing mastic/coal tar/bitumen will not adhere to wet surfaces.
 - ✓ Water can damage materials below the roof membrane.

- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Cut around area to be removed using hand tools. Wet cutting area using amended water. Note that several layers may be present.
- ✓ Scrape up roofing section and place into asbestos waste disposal bags. Wet and remove any roofing debris in removal area using scraper. Lower bags to ground.
- ✓ HEPA vacuum or wet wipe removal area. Use HEPA vacuum where needed to clean up ACM. It may not be appropriate or necessary to use HEPA vacuum on non-ACM.
- ✓ Perform maintenance/repair work and clean-up and tear-down steps on Level B checklist to complete work.

M14. Summary

Remove asbestos-containing asphalt shingles

Summary

This work practice describes the work required to remove a small number of asbestos-containing shingles for maintenance or repair work.

Examples

- | | |
|---------|--|
| Level A | Remove intact less than 25 square feet of asbestos containing asphalt shingles without creating visible dust, to perform patching, repair work, or install new vent or stack. |
| Level B | Replace or remove asbestos containing asphalt shingles that are damaged to the extent that they have become friable, may become non-intact or create visible dust during removal, or where more than 25 square feet is removed |

Related Work Practices

- | | |
|------|---|
| M 8 | Remove and replace asbestos cement roof shingles. |
| M 13 | Remove asbestos-containing built-up roofing. |

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. A person with air monitoring training might be required. This person can be one of the workers.

M14. Level A

Remove asbestos-containing asphalt shingles

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove intact less than 25 square feet of asbestos containing asphalt shingles without creating visible dust, to perform patching, repair work, or install new vent or stack.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Use fall prevention measures (including safety harnesses, a warning line system with safety monitor, and/or a motion stopping system) as required by OSHA for roofing work.

Roofing removal work shall be completed before any penetrations are made in the roof deck.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Garden sprayer with amended water
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Roofing repair materials (shingles, roofing cement, nails)
 - ✓ Hammer
 - ✓ Pry bar
 - ✓ Safety harness/warning line system and/or motion stopping system
 - ✓ Non-slip boots
 - ✓ Spray encapsulant (if used)
- ✓ Complete Worker General Procedure W4 "Secure Work Area."
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Slide scraper under bottom shingle and twist scraper to break shingle seal. Remove entire shingle or sections of 3-Tab type shingles. Perimeter of removal area must have clean, straight vertical cuts to allow installation of new shingles. Note that several layers may be present.
- ✓ Continue removing shingles one at a time following the steps used for the first shingle until area needed is removed. Place all shingles into asbestos waste disposal bags.
- ✓ Do not drop shingles or disposal bags to the ground.

- ✓ Pry up tabs on shingles immediately above removal area to facilitate installing new shingles.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level A checklist to complete work. Use roofing cement on tabs of existing shingles to seal them to new shingles.

M14. Level B

Remove asbestos-containing asphalt shingles

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace or remove asbestos containing asphalt shingles that are damaged to the extent that they have become friable, may become non-intact or create visible dust during removal, or where more than 25 square feet is removed. Remove asbestos-containing asphalt shingles in poor condition to repair roof leak. Shingles are damaged to the extent that they have become friable.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Use fall prevention measures (including safety harnesses, a warning line system with safety monitor, and/or a motion stopping system) as required by OSHA for roofing work.

Roofing removal work shall be completed before any penetrations are made in the roof leak.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Roofing repair materials (shingles, roofing cement, nails)
 - ✓ Hammer
 - ✓ Pry bar
 - ✓ Safety harness/warning line system and/or motion stopping system
 - ✓ Non-slip boots
 - ✓ Spray encapsulant (if used)

- ✓ Prepare work area with barrier tape according to General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.” Seal over any windows, HVAC units, air intakes or other openings that could allow fibers from work area into building. Do not seal over any plumbing vents in work area.
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ If feasible and safe, adequately wet area of shingles to be removed with amended water or encapsulant. The use of wetting and amended water for roofing work should be limited for the following reasons:
 - ✓ Wet roofing can create slip hazards.
 - ✓ Roofing mastic/coal tar/bitumen will not adhere to wet surfaces.
 - ✓ Water can damage materials below the roof membrane.
- ✓ Slide scraper under bottom shingle and twist scraper to break shingle seal. Remove entire shingle or sections of 3-Tab type shingles. Wet underside of shingles as they are removed. Perimeter of removal area must have clean, straight vertical cuts to allow installation of new shingles. Note that several layers may be present.
- ✓ Continue removing shingles one at a time following the steps used for the first shingle until area needed is removed. Place all shingles into asbestos waste disposal bags.
- ✓ Do not drop shingles of disposal bag.
- ✓ Pry up tabs on shingles immediately above removal area to facilitate installing new shingles.
- ✓ HEPA vacuum or wet wipe removal area. Use HEPA vacuum where needed to clean up ACM. It may not be appropriate or necessary to use HEPA vacuum on non-ACM.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work. Use roofing cement on tabs of existing shingles to seal them to new shingles.

M15. Summary

Cut or drill asbestos-containing drywall, plaster or drywall compound

Summary

This work practice covers the procedures for cutting or drilling of asbestos-containing drywall or plaster. Joint compounds and tape are also covered by this procedure.

Examples

Level B Install new electrical receptacle or ceiling junction box in asbestos containing drywall using hand tools.
 Drill holes to attach conduit to asbestos-containing drywall using a drill with a HEPA exhausted collar attachment.

Drill holes in asbestos-containing joint compound where drywall is non-asbestos.

Level C Install conduit or ductwork through asbestos-containing drywall using power tools.

Related Work Practices

M 5 Cut or drill asbestos cement panels.

M 6 Remove asbestos cement panels.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M15. Level B

Cut or drill asbestos-containing drywall, plaster or drywall compound

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Install new electrical receptacle or ceiling junction box in asbestos-containing drywall using hand tools.
- Drill holes to attach conduit to asbestos-containing drywall using a drill with a HEPA exhausted collar attachment.
- Drill holes in asbestos-containing joint compound where drywall is non-asbestos

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Drill or hole saw (as needed) equipped with HEPA filtered dust collection

- ✓ Maintenance work materials
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ If accessible, also install a drop cloth on back side of drywall if hole(s) will penetrate through wall.
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Mark area to be cut or drilled.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet area to be cut using garden sprayer with amended water. As alternate methods, holes can be drilled/cut through a wet sponge or shaving cream on both sides.
- ✓ Cut new hole using utility knife, hand tools or power tools with HEPA filtered dust collection. Wet the cutting area using amended water during cutting or drilling.
- ✓ Remove piece of cut drywall and place into asbestos waste disposal bag. If wet sponges were used, place sponges into asbestos waste disposal bag.
- ✓ HEPA vacuum removal area and areas accessible from hole.
- ✓ HEPA vacuum and wet wipe up any accessible dust or debris generated on back side. Wet wipe drop cloth and surfaces adjacent to area where hole was cut or drilled. Remove drop cloth and place into asbestos waste disposal bags.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M15. Level C

Cut or drill asbestos-containing drywall, plaster or drywall compound

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Install conduit or ductwork through asbestos-containing drywall using power tools.

Notes

Inside of enclosure, use Level B work practices to minimize fiber release for procedures that involve drilling, cutting, abrading, sanding, chipping, breaking or sawing.

Do not use power tools inside glovebags.

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Drill or saw (as needed) with HEPA filtered dust collection attachment
 - ✓ Maintenance work materials.
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ If back side of drywall is accessible, enclose area if hole(s) will penetrate through wall. Provide negative air in backside enclosure if possible. A glovebag may be used as an enclosure for small work areas.
- ✓ Place tools, equipment and materials needed into enclosure. Include a second HEPA vacuum outside of the enclosure with hose and nozzle extending inside enclosure for any power tools to be used for cutting or drilling.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and mark area to be cut or drilled.
- ✓ Adequately wet area to be cut using garden sprayer with amended water.
- ✓ Cut new hole using utility knife, hole saw or drill. Power tools must have an operating HEPA vacuum attached during cutting. Wet the cutting area using amended water during cutting or drilling.
- ✓ Remove piece of cut drywall and place into asbestos waste disposal bag.
- ✓ HEPA vacuum removal area and areas accessible from hole.
- ✓ If dust or debris is generated on back side, insert wand of garden sprayer into back side of enclosure and adequately wet any dust or debris present. Remove back-side enclosure, place into asbestos waste disposal bags, and wet wipe surfaces that were exposed inside enclosure.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

M16. Summary

Remove section of asbestos-containing drywall

Summary

This work practice describes the work required to remove a small area of asbestos-containing drywall, or non-ACM drywall with ACM joint compound in support of O&M work.

Examples

Level B Remove small area of asbestos-containing drywall in good condition using non-powered hand tools. Low dust Level expected.

Level C Replace damaged section of asbestos-containing drywall or drywall adhered to studs using hand tools or power tools with HEPA vacuum dust collection attachments.

Related Work Practices

M 15 Cut or drill asbestos-containing drywall or drywall compound.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M16. Level B

Remove section of asbestos-containing drywall

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove small area of asbestos-containing drywall in good condition using non-powered hand tools. Low dust Level expected.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

This work practice must be used in conjunction with General Procedures W1, W10 and a Level B Worker Checklist. The worker checklist includes tasks that must be performed before these work practices are begun.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1

- ✓ Hand tools as needed
- ✓ Pry bars
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet entire area of drywall to be removed using garden sprayer with amended water.
- ✓ Cut around perimeter of area to be removed using hand tools. Wet cutting area with amended water during cutting.
- ✓ If drywall remains attached to studs or substrate, use pry bar to pull sheet out enough so edge can be gripped with hands. Mist cavity behind drywall and back side of drywall to be removed with amended water.
- ✓ Pull sheet out so sheet folds at fastener line or sheet is pulled away from fasteners. Adequately wet fold or holes from fasteners.
- ✓ Repeat step above at other attachment points, remove drywall piece, and package for disposal.
- ✓ Remove fasteners from studs or substrate and place into disposal bags. Clean any debris left on studs or substrate using amended water and nylon brush.
- ✓ Pick up any debris and place into asbestos waste disposal bags. HEPA vacuum and wet wipe up any dust generated.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M16. Level C

Remove section of asbestos-containing drywall

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Replace damaged section of asbestos-containing drywall or drywall adhered to studs using hand tools or power tools with HEPA vacuum dust collection attachments.

Notes

Inside of enclosure, use Level B work practices to minimize fiber release for procedures that involve drilling, cutting, abrading, sanding, chipping, breaking or sawing.

Do not use power tools inside glovebags.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
- ✓ Tools as needed from the lists in General Procedure W1
- ✓ Tools as needed
- ✓ Pry bar
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ If back side of drywall is accessible, enclose and provide negative pressure for enclosure.
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and adequately wet area of drywall to be removed using garden sprayer with amended water.
- ✓ Cut around perimeter of area to be removed using utility knife. Wet cutting area during cutting.
- ✓ If drywall remains attached to studs or substrate, use pry bar to pull sheet out enough so edge can be gripped with hands. Mist cavity behind drywall, and back side of drywall to be removed with amended water.
- ✓ Pull sheet out so sheet folds at fastener line or sheet is pulled away from fasteners. Adequately wet fold or holes from fasteners.
- ✓ Repeat steps above at other attachment points, remove drywall piece, and package for disposal.
- ✓ Remove fasteners from studs or substrate and place into asbestos waste disposal bags. Clean any debris left on studs or substrate using amended water and nylon brush.
- ✓ Pick up any debris and place into asbestos waste disposal bags. HEPA vacuum and wet wipe up any dust generated.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

M17. Summary

Remove asbestos-containing flexible duct connector

Summary

This work describes the work required to remove an asbestos-containing fabric flexible duct connector.

Examples

- Level A Remove flexible duct connector in good condition with duct work.
Remove flexible duct connector in good condition where connector will not be damaged.
- Level B Remove flexible duct connector where it may be damaged during removal.
- Level C Remove flexible duct connector in poor condition.

Related Work Practices

- T 10 Remove duct insulation above lay-in ceiling for maintenance work.
T 11 Remove duct insulation above plaster or drywall ceiling for maintenance work.
- M 19 Remove contaminated filters in HVAC unit serving plenum space with exposed ACM.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M17. Level A

Remove asbestos-containing flexible duct connector

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove flexible duct connector in good condition with duct work.
- Remove flexible duct connector in good condition where connector will not be damaged.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor. Coordinate work with proper O & M work practice for removing duct insulation if needed to access fasteners attaching flexible connector in place.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Stiff nylon bristle brushes
 - ✓ Manual or power screwdriver with screwdriver bits and hex head sockets
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Turn off, lock out and tag out HVAC unit. Install critical barriers in ductwork or HVAC unit adjacent to both sides of flexible connector (if possible) according to General Procedure W5 "Critical Barriers."
- ✓ Place tools, equipment and materials needed in work area.
- ✓ If possible remove flexible connector and its mounting frame in one unit. Disassemble ductwork as necessary to remove frame. Wrap frame and connector in sheet plastic. Package for disposal as ACM waste.
- ✓ If ductwork must be cut to remove flexible connector: cover flexible connector with polyethylene on outside, and on inside, if accessible. Cut away ductwork on both sides of connector and remove ductwork section with connector in place. Package connector with ductwork for disposal as ACM.
- ✓ HEPA vacuum interior of ducts accessible at both sides where connector was installed. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Remove critical barriers if installed inside ductwork or HVAC unit.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level A checklist to complete work.

M17. Level B

Remove asbestos-containing flexible duct connector

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove flexible duct connector where it may be damaged during removal.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Coordinate work with proper O & M work practice for removing duct insulation if needed to access fasteners attaching flexible connector in place.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Stiff nylon bristle brushes
 - ✓ Manual or power screwdriver with screwdriver bits and hex head sockets
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth." Also, install critical barriers in ductwork or HVAC unit adjacent to both sides of flexible connector (if possible) according to General Practice W5 "Critical Barriers."
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet flexible connector with amended water or removal encapsulant.
- ✓ Unscrew all screws holding flexible connector in place. Place screws into asbestos waste disposal bag if they will not be reused. If screws are to be reused, clean with water and nylon brushes.
- ✓ Rewet connector and metal flanges of flexible connector and slide off of ductwork. Pull connector out of space and package for disposal as ACM.
- ✓ HEPA vacuum surfaces where flanges were attached and interior of ducts accessible at both sides where connector was installed.
- ✓ Remove critical barriers if installed inside ductwork or HVAC unit.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M17. Level C

Remove asbestos-containing flexible duct connector

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove flexible duct connector in poor condition.

Notes

Coordinate work with proper O & M work practice for removing duct insulation if needed to access fasteners attaching flexible connector in place.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Stiff nylon bristle brushes
 - ✓ Manual or power screwdriver with screwdriver bits and hex head sockets
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure" Enclosure must allow access to all screws attaching connector in place. Also install critical barriers in ductwork or HVAC unit adjacent to both sides flexible connector to be removed (if possible) according to General Procedure W5 "Critical barriers."
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet flexible connector with amended water or removal encapsulant.
- ✓ Unscrew all screws holding flexible connector in place. Place screws into asbestos waste disposal bag if they will not be reused. If screws are to be reused, clean with water and nylon brushes.
- ✓ Rewet connector and metal flanges of flexible connector and slide off of ductwork. Pull connector out of space and package for disposal as ACM.
- ✓ HEPA vacuum and wet wipe surfaces where flanges were attached and interior of ducts accessible at both sides where connector was installed.
- ✓ Remove critical barriers if installed inside ductwork or HVAC unit.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

M18. Summary

Remove asbestos-containing paper or cloth from ductwork

Summary

This work practice covers the steps required to remove small amounts of asbestos-containing paper or cloth tape sealing the seams, or covering sheet metal ductwork. This procedure can also be used to remove the tape sealing the vapor barrier/lagging over duct insulation. If vapor barrier sealing tape is removed the work practice should be revised to include replacement of the seal to avoid future condensation problems.

Examples

Level A Repair asbestos-containing ductwork taping cloth.

Level B Remove a small amount of ductwork sealing tape that is in good condition to install new duct attached to existing ducts.

Level C Replace damaged section of ductwork.

Remove asbestos-containing paper-type duct wrap in poor condition.

Related Work Practices

M 17 Remove asbestos-containing flexible duct connector.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M18. Level A

Remove asbestos-containing paper or cloth from ductwork

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Repair asbestos cloth or paper sealing tape on ductwork.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tin snips
 - ✓ Non-woven fiberglass cloth (thin felt)
 - ✓ Bridging type asbestos encapsulant.
 - ✓ Disposable rubber gloves.

- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ HEPA vacuum surface of sealing tape and duct to remove any debris or dust.
- ✓ Cut cloth to size that will extend 1” past edge of sealing tape.
- ✓ Put on rubber gloves. Dip cloth into encapsulant.
- ✓ Wrap cloth over sealing tape and smooth down with hands.
- ✓ Remove gloves and dispose of as ACM waste.
- ✓ HEPA vacuum floor and all surfaces under work site and/or wet wipe. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level A checklist to complete work.

M18. Level B

Remove asbestos-containing paper or cloth from ductwork

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove a small amount of ductwork sealing tape or paper covering that is in good condition, and can be easily removed.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools and materials needed for duct work
 - ✓ Scraper 2-3” (50-75 mm) wide stiff blade
 - ✓ Stiff nylon bristle brushes
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.

- ✓ Wet sealing tape or paper covering with amended water. Allow enough time for the water to penetrate paper. Add sufficient water to completely saturate paper.
- ✓ Cut tape or paper with a razor knife as necessary to separate it.
- ✓ Carefully lift tape or paper off of duct and place in a asbestos waste disposal bag.
- ✓ Wet wipe surface of duct to remove all debris and residue.
- ✓ HEPA vacuum and wet wipe area where tape or paper was removed perform final wet wiping using procedure in General Procedure W9 “Wet Wiping, HEPA Vacuuming and Steam Cleaning.”
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M18. Level C

Remove asbestos-containing paper or cloth from ductwork

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove sealing tape that requires scraping, wire brushing, and cleaning.
- Remove asbestos-containing paper-type duct wrap in poor condition.

Notes

Inside of enclosure, use Level B work practices to minimize fiber release for procedures that involve drilling, cutting, abrading, sanding, chipping, breaking or sawing.

Do not use power tools inside glovebags.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools and materials needed for duct work
 - ✓ Scraper 2-3” (50-75 mm) wide stiff blade
 - ✓ Stiff nylon or wire brushes
 - ✓ Glovebags (if required)
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed into enclosure.

- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure. Wet ACM that is to be removed. Allow enough time for amended water to soak into material.
- ✓ Using scraper, remove wet sealing tape or paper.
- ✓ Clean remaining visible debris off ductwork nylon/wire brushes.

Local Exhaust Ventilation: If power tools are needed to remove residue of old gasket/packing use the following procedure. DO NOT ATTEMPT TO USE THIS PROCEDURE INSIDE A GLOVEBAG.

- ✓ Attach a manufactured or job-built collection attachment to nozzle of HEPA vacuum that is large enough to capture material coming from operating the power tool.
- ✓ Install plastic drop cloth behind HEPA vacuum collection attachment.
- ✓ Wet residue with amended water.
- ✓ Remove residue with wire brush. Direct stream of removed material into HEPA vacuum attachment.
- ✓ Wet wipe and HEPA inside of attachment and surfaces from which residue was removed.
- ✓ If entire extent of the material to be removed will fit in a single glove bag and can be removed without the use of power tools, the work may be performed in a glovebag rather than using a mini-enclosure. Follow work practices in General Procedure W18 "Glovebag Removal."
- ✓ HEPA vacuum and wet wipe area where tape was removed.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

M19. Summary

Remove filters from HVAC unit

Summary

This work practice covers the procedures for removing filters in HVAC unit that may be contaminated with asbestos.

Examples

Level B Remove prefabricated slip-in type filters from HVAC unit in mechanical room.

Replace filters in HVAC unit in mechanical room with roll-type filters.

Related Work Practices

UNLV Lock-Out Tag-Out Procedure

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. A person with air monitoring training might be required. This person can be one of the workers.

M19. Level B

Remove filters from HVAC unit

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove prefabricated slip-in type filters with a heavy dust loading from HVAC unit in mechanical room.
- Replace filters in HVAC unit in mechanical room with roll-type filters.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Turn off HVAC unit fan, tag, and lock-out switch in accordance with facility's Lock-Out Tag-Out program before performing this work practice.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Replacement filters.
- ✓ Complete Worker General Procedure W4 "Secure Work Area." Verify that HVAC unit is shut off and locked out.
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Wet filters with amended water. Wet sufficiently that filter is saturated, but water is not running from filter.
- ✓ Remove filters from filter frame and place directly into asbestos waste disposal bags. Cut away exposed portions of roll type filters, and place directly into asbestos waste disposal bags.

- ✓ After all filters are removed, take off gloves and dispose of with filters. Double bag waste, dispose of as ACM waste.
- ✓ HEPA vacuum and wet wipe area where filters were installed and accessible surfaces in filter chamber.
- ✓ Install new filters. For roll type filters, roll new filter material into place and cover filter material remaining on role with sheet plastic or filter cover.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

M20. Summary

Clean up debris

Summary

This work practice describes the procedures to be used to clean debris and dust that has resulted from disturbance of an asbestos-containing material (ACM). The consequences of a material release will depend on the nature of the material and the event that caused the release. If a relatively non-friable material such as a ceiling tile were to fall out of a ceiling grid this would be a simple clean up that could probably be handled with Level A controls. If the material were a very soft and loosely consolidated acoustical material that was knocked loose by a basketball, the clean-up will be more extensive and would probably require Level B procedures.

Examples

Level B Clean up debris and dust on surfaces after a small area of surfacing ACM has fallen from a ceiling, pipe insulation or other source.

Related Work Practices

S 10 Repair damaged surfacing ACM.
 T 7 Repair damaged thermal system insulation on a boiler, duct or flue.
 M 25 Clean room that has asbestos-containing dust.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. A person with air monitoring training might be required. This person can be one of the workers.

M20. Level B

Clean up debris

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Clean up debris and dust on surfaces after a small area of surfacing ACM has fallen from a ceiling, pipe insulation or other source.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

This work practice is limited to the cleanup of a small quantity of relatively intact debris which has fallen from an architectural finish, fire-proofing, or thermal insulation on pipes, boilers or other equipment.

Coordinate work with proper O & M work practice to repair cause of fiber release.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Remove asbestos-containing debris using the following sequence:
- ✓ Shut down all ventilation into room.
- ✓ Start HEPA vacuum before entering the area.
- ✓ Use the HEPA vacuum to clean a path at least 6 feet (1.83 m) wide from the entry point of the work area to the site of the fallen material.
- ✓ Remove all small debris with the HEPA vacuum.
- ✓ Remove any dust or loose debris from the surface of larger pieces of ACM with a HEPA vacuum. Mist surface of pieces with amended water.
- ✓ Pick up such pieces and place in the bottom of a 6 mil (0.15 mm) polyethylene asbestos waste disposal bag conforming to the requirements of General Procedure W11 "Packaging and Labeling Waste." Place pieces in the bag without dropping and avoiding unnecessary disturbance and release of material. Thoroughly wet debris in bag with amended water as it is collected.
- ✓ Remove all remaining visible debris with HEPA vacuum.
- ✓ HEPA vacuum an area 3 feet (0.91 m) beyond the location in which any visible debris was found. HEPA in two directions each at right angles to the other using work procedures of work practice M1 "Cleaning Potentially Asbestos-Contaminated Carpet."
- ✓ Wet wipe any hard surfaces or objects in the area using procedures of General Procedure W9 "Wet Wiping, HEPA Vacuuming and Steam Cleaning."

- ✓ Place a 6 mil (0.15 mm) polyethylene drop cloth in accordance with General Procedure W10 “Polyethylene Drop Cloth,” immediately on top of the HEPA vacuumed area before performing any repair work on site from which fall-out occurred.
- ✓ HEPA vacuum the site from which material fell removing all loose material which can be removed by the vacuums suction.
- ✓ Repair or remove remaining material using the appropriate O&M work practice.
- ✓ HEPA vacuum ladder and/or any tools used and pass out of the work area.
- ✓ Clean and decontaminate objects in the vicinity of debris using the following procedure:
 - ✓ Perform all work of decontaminating objects wherever possible on a plastic drop sheet installed in conformance General Procedure W10 “Polyethylene Drop Cloth.”
 - ✓ HEPA vacuum all surfaces of object and immediate area before moving the object.
 - ✓ Pick-up object, if possible, and HEPA vacuum all surfaces.
 - ✓ Hand to off-sheet worker who will wet-clean object, if possible, and place in storage location.
 - ✓ Decontaminate area where object was located by HEPA vacuuming twice, in two perpendicular directions. Wet clean if necessary to remove any debris.
 - ✓ Return object to its original location.
 - ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

M21. Summary

Replace asbestos-containing gaskets/packing

Summary

This work practice describes the work required to replace ACM gaskets or ACM valve packing for O&M work. These could be applied to work on small simple gaskets in a school or office building, or highly developed and specialized gaskets in industrial applications..

The asbestos in gaskets and packing can range from simple asbestos felt or rope to composites of cement, rubber, graphite, metal or other materials.

Examples

Work practices for the following situations are provided as examples. They should be edited as required for the particular conditions in a facility.

- | | |
|---------|--|
| Level A | Remove and replace non-adhered gasket/packing that can be removed intact. |
| Level B | Remove and replace gasket/packing that is damaged or adhered to the gasket seat. |

Level C Remove and Replace a pipe flange gasket where power tools are required to remove residue of old gasket/packing.

Remove and replace a large friable door hatch gasket that is in poor condition, or other large gaskets in poor condition.

Related Work Practices

- T 1 Remove insulation on exposed pipe for maintenance work.
- T 3 Remove insulation on exposed pipe in elevated location for maintenance work.
- T 6 Repair damaged thermal system insulation on a boiler, duct or flue.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M21. Level A

Replace asbestos-containing gaskets/packing

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove and replace non-adhered gasket/packing that can be removed intact.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

If asbestos-containing thermal system insulation must be removed to permit access for gasket/packing replacement, use the appropriate work practice from Section V “Thermal Systems Insulation (TSI) Work Practices,” of this manual. Complete the Section V work practice before starting the work of this section.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:

- ✓ Tools as needed from the lists in General Procedure W1
- ✓ Tools required to access gasket
- ✓ Replacement materials
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Disassemble equipment as needed to expose entire gasket.
- ✓ Remove gasket and place into an asbestos waste disposal bag. Wet-wipe flange where gasket was installed.
- ✓ Install new gasket and reassemble equipment
- ✓ Perform applicable steps on Level A checklist to complete work.

M21. Level B

Replace asbestos-containing gaskets/packing

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove and replace gasket/packing that is damaged or adhered to the gasket seat.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

If asbestos-containing thermal system insulation must be removed to permit access for gasket/packing replacement, use the appropriate work practice from Section V “Thermal Systems Insulation (TSI) Work Practices,” of this manual. Complete the Section V work practice before starting the work of this section.

If active electrical equipment is in work area, do not wet equipment, stop work, notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools required to access and work remove gasket or packing
 - ✓ Replacement materials
- ✓ Complete Worker General Procedure W4 “Secure Work Area”

- ✓ Prepare work area with drop cloth and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ Place tools, equipment and materials needed into work area.
- ✓ If pipe is hot or cold put on protective equipment as required.
- ✓ Remove thermal system insulation (TSI) as necessary using procedures from Section V “Thermal Systems Insulation (TSI) Work Practices,” of this manual.
- ✓ Disassemble equipment as needed to expose entire gasket/packing.
- ✓ Remove gasket/packing using the following procedures:
- ✓ Use this procedure if a negative exposure assessment (NEA) has been made. If you do not know if an NEA has been made, stop work, and notify your supervisor.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Wet gasket with amended water. If wetting is not practical due to temperature of pipe or nature of pipe fill, stop work, and notify your supervisor
- ✓ Use careful handling and local exhaust ventilation with a HEPA vacuum to remove the gasket/packing.
- ✓ Carefully scrape gasket from seat while holding nozzle of HEPA vacuum in proximity to the flange or packing box. Immediately place pieces of gasket into an asbestos waste disposal bag. Try to remove gasket in as few pieces as possible.
- ✓ Promptly pick up any debris with a HEPA vacuum
- ✓ Clean residue from surface of seat using wet methods. Keep work site continuously wet.
- ✓ If power tools are needed to remove residue of old gasket/packing, stop work, and notify your supervisor. Level C work practices are to be used for this type of work.
- ✓ HEPA vacuum and wet wipe surfaces to which gasket was attached.
- ✓ Install new gasket/packing and reassemble equipment.
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

M21. Level C

Replace asbestos-containing gaskets/packing

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove and Replace a pipe flange gasket where power tools are required to remove residue of old gasket/packing.
- Remove and replace a large friable door hatch gasket that is in poor condition, or other large gaskets in poor condition.

Notes

If asbestos-containing thermal system insulation must be removed to permit access for gasket/packing replacement, use the appropriate work practice from Section V “Thermal

Systems Insulation (TSI) Work Practices,” of this manual. Complete the Section V work practice before starting the work of this section.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Tools required to access and work on remove gasket or packing
 - ✓ Replacement materials
 - ✓ Glovebag (if required)
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ Use one of the following procedures to remove gasket/packing:
- ✓ Perform work inside a glovebag. If use of a glovebag is not feasible or dangerous, the pipe is over 150°F., or if entire gasket/packing will not fit in a glovebag, stop work and notify your supervisor. Adequately wet gasket and remove gasket and debris using glovebag procedures. See General Procedure W18 “Glovebag Removal.” DO NOT USE POWER TOOLS INSIDE OF A GLOVEBAG. If scrubbing pads and nylon/wire brushes will not completely remove residue of old gasket/packing, stop work, and notify your supervisor.
- ✓ Perform work inside a mini-enclosure:
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and disassemble equipment as needed to expose entire gasket/packing.
- ✓ Wet gasket with amended water. If wetting is not practical due to temperature of pipe or nature of pipe fill, stop work, and notify your supervisor
- ✓ Use careful handling and local exhaust ventilation with a HEPA vacuum to remove the gasket/packing.
- ✓ Carefully scrape gasket from seat while holding nozzle of HEPA vacuum in proximity to the flange or packing box. Immediately place pieces of gasket in an asbestos waste disposal bag. Try to remove gasket in as few pieces as possible.
- ✓ Promptly pick up any debris with a HEPA vacuum
- ✓ Clean residue from surface of seat using wet methods. Keep work site continuously wet.
- ✓ If power tools are needed to remove residue of old gasket/packing, use local exhaust ventilation as described below.
- ✓ HEPA vacuum and wet wipe surfaces to which gasket was attached.
- ✓ Local Exhaust Ventilation: If power tools (wire brush on a drill) are needed to remove residue of old gasket/packing use the following procedure. DO NOT ATTEMPT TO USE THIS PROCEDURE INSIDE OF A GLOVEBAG.

- ✓ Attach a manufactured or job-built collection attachment to nozzle of HEPA vacuum that is large enough to capture material coming from operating wire brush.
- ✓ Install plastic drop cloth behind HEPA vacuum collection attachment.
- ✓ Wet residue with amended water.
- ✓ Remove residue with wire brush. Direct stream of removed material into HEPA vacuum attachment.
- ✓ Wet wipe and HEPA inside of attachment and surfaces from which residue was removed.
- ✓ HEPA vacuum and/or wet wipe surfaces to which gasket was attached.
- ✓ Install new gasket, reassemble equipment and perform maintenance work required.
- ✓ Clean-up and tear-down steps on Level C checklist to complete work.

M22. Summary

Emptying and changing filter in HEPA vacuum or changing filter in HEPA fan unit

Summary

This work practice covers the procedures for changing the bag, filter and/or cleaning a HEPA vacuum, or changing the filter in a HEPA filtered fan unit. The manufacturer of the HEPA vacuum owner manual should also be consulted for specific work procedures for emptying and maintenance.

Examples

- | | |
|---------|---|
| Level B | Empty HEPA vacuum bag using localized engineering controls.
Change filter in HEPA fan unit.
Change filter or bag in HEPA vacuum using a glovebag. |
| Level C | Empty bag, change filter and clean HEPA vacuum.
Change filter in a HEPA fan unit in a mini-enclosure. |

Related Work Practices

None

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M22. Level B

Emptying and changing filter in HEPA vacuum or changing filter in HEPA fan unit

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Empty HEPA vacuum bag using localized engineering controls.
- Change filter in HEPA fan unit.
- Change filter or bag in HEPA vacuum using a glovebag.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Manufacturer's instructions for unit having filter or bag replaced
 - ✓ Tools as needed to remove filter or bag
 - ✓ Replacement filters or bags
 - ✓ Glovebag and hand operated spray bottle
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Place tools, equipment and materials needed onto drop cloth, including HEPA vacuum or fan unit with filter or bag to be changed. If available, include an operable HEPA vacuum for cleaning up any dust or debris from the filter change operation.
- ✓ Use one of the following procedures for changing filter bag
- ✓ Use Glovebag to change filter or bag:
 - ✓ Insert new bag or filter, wet wiping cloths, and a hand-operated spray bottle into glovebag.
 - ✓ Seal glovebag to unit to permit access to filter or bag inside glovebag.
 - ✓ Put on respirator and perform fit test, and put on protective clothing.
 - ✓ Open unit and adequately wet filter or bag. Remove filter or bag and place in corner of glovebag. Wet wipe inside of unit.
 - ✓ Install new filter or bag. Close unit and wet wipe inside of glovebag. Put wet wipes in corner of glovebag.
 - ✓ Twist, and tape glovebag to seal bag/filter/rags from spray bottle.
 - ✓ Cut and remove glovebag from unit. Place glovebag into a asbestos waste disposal bag.
- ✓ Change filter or bag using the manufacturer's recommended work practice and the following:

- ✓ Carefully disassemble unit as needed to access filter and/or bag.
- ✓ Adequately wet filter and/or bag, remove from unit and place into an asbestos waste disposal bag.
- ✓ Using operable HEPA vacuum or wet wiping, clean area where filter or bag was installed.
- ✓ Install new filter and/or bag in unit, reassemble unit and
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work.

M22. Level C

Emptying and changing filter in HEPA vacuum or changing filter in HEPA fan unit

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Empty bag, change filter and clean HEPA vacuum.
- Change filter in HEPA fan unit in a mini-enclosure.

Notes

This procedure may be performed in an existing mini-enclosure, if available.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Manufacturer's instructions for unit having filter or bag replaced
 - ✓ Tools as needed to remove filter or bag
 - ✓ Replacement filters or bags
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure, including HEPA vacuum or fan unit with filter or bag to be changed.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and carefully disassemble unit as needed to access filter or bag. Adequately wet filter and/or bag, remove from unit and place into an asbestos waste disposal bag.
- ✓ Adequately wet any remaining debris. Pick up debris or empty debris into an asbestos waste disposal bag.

- ✓ Using operable HEPA vacuum or wet wiping, clean area where filter or bag was installed.
- ✓ Install new filter and/or bag in unit, reassemble unit and perform clean-up and tear-down steps on Level C checklist to complete work.

M23. Summary

Remove asbestos-wrapped wiring

Summary

This work practice covers the work required to remove small amounts of asbestos-wrapped electrical wiring for O&M work.

Examples

- Level A Remove wiring in good condition on single stage spotlight where the insulation is not disturbed.
- Level B Remove wiring in good condition on several stage spotlights.
Remove asbestos wrapped wiring located in underground electrical vaults where wrapping is in good condition. See APM8 “Confined Spaces,” for information regarding confined space precautions.
- Level C Remove damaged wiring in poor condition.
Remove asbestos wrapped wiring located in underground electrical vaults where wrapping is in poor condition. See APM8 regarding confined space precautions.

Related Work Practices

Confined space entry procedure if required by conditions of the job.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities. Two workers are required if work occurs in a confined space. Workers should be trained electricians with asbestos training to perform this work. If the project involves confined space entry, all workers are required to have confined space entry training.

M23. Level A

Remove asbestos-wrapped wiring

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove wiring in good condition on single stage spotlight where insulation is not disturbed.

Notes

DO NOT WET WIRING. This is a dry work procedure.

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

If work site is a confined space, use confined space entry procedures, another worker is required for these procedures. If you have not had confined space training, stop work, and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Electrician's insulated gloves
 - ✓ Screwdrivers
 - ✓ Voltmeter or circuit tester.
 - ✓ Soldering iron for soldered connections
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Verify that electrical power to wiring is shut off and locked out. Test circuits using voltmeter or Circuit tester.
- ✓ DO NOT WET WIRING.
- ✓ Open any junction boxes or equipment as needed to remove wiring back to screw terminals or soldered connections. Disconnect wire at both ends without cutting wire or otherwise disturbing insulation. Remove intact wire without disturbing insulation. Do not drag wire through conduit, or through other wires.
- ✓ Roll up wiring and place into asbestos waste disposal bags.
- ✓ HEPA vacuum any surfaces that were in contact with wiring.
- ✓ Install new wiring as necessary and perform maintenance work.
- ✓ Clean-up and tear-down steps on Level A checklist to complete work.

M23. Level B

Remove asbestos-wrapped wiring

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove wiring in good condition on several stage spotlights, where wiring must be cut.
- Remove asbestos wrapped wiring located in underground electrical vaults where wrapping is in good condition. Perform work in accordance with facility confined space program.

Notes

DO NOT WET WIRING. This is a dry work procedure.

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

If work site is a confined space, use confined space entry procedures, another worker is required for these procedures.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Electricians insulated gloves
 - ✓ Screwdrivers
 - ✓ Wire cutters
 - ✓ Voltmeter or circuit tester
 - ✓ Soldering iron for soldered connections
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Verify that electrical power to wiring is shut off and locked out. Test circuits using voltmeter or circuit tester
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ DO NOT WET WIRE.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Cut out exposed wiring to be removed. Roll up wiring and place into asbestos waste disposal bags.

- ✓ Open any junction boxes or equipment as needed to remove wiring back to screw terminals or soldered connections.
- ✓ Disconnect remaining wiring from terminals or connections. Place wiring into asbestos waste disposal bags.
- ✓ HEPA vacuum any surfaces that were in contact with wiring.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.
- ✓

M23. Level C

Remove asbestos-wrapped wiring

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove damaged wiring in poor condition.
- Remove asbestos wrapped wiring located in underground electrical vaults where wrapping is in poor condition. Perform work in accordance with facility confined space program.

Notes

DO NOT WET WIRING. This is a dry work procedure.

If work site is a confined space, use confined space entry procedures, another worker is required for these procedures.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Electricians insulated gloves
 - ✓ Screwdrivers
 - ✓ Wire cutters
 - ✓ Voltmeter or circuit tester.
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Put down drop sheet and complete Worker General Procedure W10 “Polyethylene Drop Cloth.”
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation according to General Procedure W20 “Mini-Enclosure”
- ✓ Verify that electrical power to wiring is shut off and locked out. Test circuits using voltmeter or circuit tester.

- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ DO NOT WET WIRE.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure, and cut out exposed wiring to be removed. Roll up wiring and place into asbestos waste disposal bags.
- ✓ Open any junction boxes or equipment as needed to remove wiring back to screw terminals or soldered connections.
- ✓ Cut or disconnect wiring from terminals or connections. Place wiring into asbestos waste disposal bags.
- ✓ HEPA vacuum any surfaces that were in contact with wiring and any suspect visible debris.
- ✓ Perform maintenance work
- ✓ Perform clean-up and tear-down steps on Level C checklist to complete work.

M24. Summary

Remove asbestos-containing caulking/glazing compound

Summary

This work practice describes the procedures for removing small amounts of asbestos-containing caulking compound as required for maintenance or repair work.

Examples

Level A Remove a small amount of pliable caulking compound. No sanding will be performed.

Level B Reglaze several small window panes. No sanding will be performed.
Remove small amount of dry caulking compound.

Level C Reglaze an entire window or several windows.

Related Work Practices

None

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. Two workers are required for Level C. A person with air monitoring training might be required. This person can be one of the workers. A competent person is required on all Level C work activities.

M24. Level A

Remove asbestos-containing caulking/glazing compound

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove a small amount of pliable caulking compound. No sanding will be performed.

Notes

This work practice must be used in conjunction with General Procedure W1 and a Level A Worker Checklist. The worker checklist includes tasks that must be performed before these work practices are begun.

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Using utility knife or edge of scraper, cut away caulking and place into asbestos waste disposal bags.
- ✓ Remove any residual caulking using scraper and knife and place caulking into asbestos waste disposal bags.
- ✓ HEPA vacuum and/or wet wipe areas where caulking was removed. Use Work Practice M22 if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Perform maintenance work
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

M24. Level B

Remove asbestos-containing caulking/glazing compound

Example

The following are examples of work that can be performed using the procedures of this Level B work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Reglaze several small window panes. No sanding will be performed.
- Remove small amount of dry caulking compound.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. If a negative exposure assessment (NEA) has not been made, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade
 - ✓ Stiff nylon bristle brushes
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Place tools, equipment and materials needed onto drop cloth.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter work area and adequately wet caulking to be removed using garden sprayer with amended water.
- ✓ Using utility knife or edge of scraper, cut away caulking and place into asbestos waste disposal bags.
- ✓ Remove any residual caulking using scraper, knife and nylon brushes and place caulking into asbestos waste disposal bags.
- ✓ HEPA vacuum and wet wipe areas where caulking was removed.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level B checklist to complete work.

M24. Level C

Remove asbestos-containing caulking/glazing compound

Example

The following are examples of work that can be performed using the procedures of this Level C work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Reglaze an entire window or several windows

Notes

This work practice must be used in conjunction with General Procedures W1, W10 and a Level C Worker Checklist. The worker checklist includes tasks that must be performed before these work practices are begun.

Work Practice

- ✓ Perform Pre-work activities on Level C checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper (2-3" wide stiff blade)
 - ✓ Stiff nylon bristle brushes
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Put down drop sheet and complete Worker General Procedure W10 "Polyethylene Drop Cloth."
- ✓ Erect mini-enclosure and set up negative pressure system and/or HEPA filtered local exhaust ventilation on side of window with exposed caulking compound according to General Procedure W20 "Mini-Enclosure"
- ✓ Place tools, equipment and materials needed into enclosure.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Enter enclosure and adequately wet caulking to be removed using garden sprayer with amended water.
- ✓ Using utility knife or edge of scraper, cut away caulking and place into asbestos waste disposal bags.
- ✓ Remove any residual caulking using scraper, knife and nylon brushes and place caulking into asbestos waste disposal bags.
- ✓ HEPA vacuum and wet wipe areas where caulking was removed.
- ✓ Perform maintenance work and clean-up and tear-down steps on Level C checklist to complete work.

M25. Summary

Clean room that has asbestos-containing dust

Summary

This work practice should be used for routine or special cleaning in rooms where asbestos-containing dust is present, or is assumed to be present. This is useful in situations where an ACM may be periodically disturbed (e.g. a soft acoustical finish in reach of occupants). This work practice augments normal cleaning practice by adding HEPA vacuums and wet methods. It is intended to substitute for normal cleaning practices in locations where there could be a periodic minor disturbance of an ACM. Cleaning with HEPA vacuums, wet methods and dust removal methods prevents the

accumulation of asbestos in the dust. The practices include the cleaning of furniture, fixtures, and other surfaces.

Examples

Level A Clean an office area where asbestos-containing dust may settle on furniture due to periodic disturbance of an exposed ACM.
Clean a mechanical room where dust is assumed to contain ACM from thermal systems insulation present in room.

Related Work Practices

S 9 Clean room with exposed surfaces finished with ACM
R 5 Wet strip floor wax from resilient asbestos flooring
R 6 Dry or spray buffing resilient asbestos flooring
R 7 Cleaning resilient asbestos flooring
M 20 Clean up debris from minor release

Worker Recommendations

One worker trained in special cleaning procedures. A person with air monitoring training might be required. This person can be the worker.

M25. Level A

Clean room that has asbestos-containing dust

Example

The following are examples of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Clean an office area where asbestos-containing dust may settle on the floor, furniture and horizontal surfaces due to periodic disturbance of an exposed ACM.
- Clean a mechanical room where dust is assumed to contain ACM from thermal systems insulation present in room.

Notes

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used. Verify that a negative exposure assessment (NEA) has been made. If an NEA cannot be verified, stop work and notify your supervisor. This work procedure is intended for routine or periodic cleaning of a space. If you discover visible dust or debris, or a fallout of ACM, stop work, and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Dusting materials (cloths, dusters, mops) that are damp or are treated with catatonic or anti-static dust attractant preparations.
 - ✓ Furniture polish
- ✓ Routine dusting: Using damp or treated dusting materials, clean surfaces beginning from the top of the room and working towards the floor. Do not dry dust. HEPA vacuum surfaces that are not easily cleaned with dusting materials.
- ✓ Routine vacuuming: Perform routine vacuuming with HEPA vacuums. HEPA vacuum surfaces such as drapes and fabric covered surfaces by starting at the top and working towards floor. HEPA vacuum carpet as last step after all dusting. Use Work Practice M22 “Emptying and changing Filter in HEPA Vacuum” if HEPA vacuum needs maintenance, or if bag or filter needs to be replaced.
- ✓ Routine floor cleaning: Dust mop using damp mops or treated dusting mops. Wash floors using normal mopping procedures. HEPA vacuum carpeting. Maintain resilient flooring using work practices R5, R6 and R7. Do not dry dust. Do not use vacuum a vacuum cleaner without a HEPA filter.
- ✓ Periodic cleaning: Surfaces that are not routinely cleaned are to be cleaned during periodic cleaning using wet methods or HEPA vacuums. Wet wipe smooth hard surfaces (such as blinds) or wash with paper towels or disposable cloths using work practices of General Procedure W9 “Wet Wiping, HEPA Vacuuming and Steam Cleaning.” HEPA vacuum cloth or textured surfaces. Dispose of all dirty cloths and soiled dusting materials while still damp in asbestos waste disposal bags. Apply new polish where needed using standard procedures.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work.

Section 6 Resilient Flooring Work Practices

Code	Levels	Description
R1	A B	Removal of resilient asbestos floor tiles
R2	A B	Replacement of vinyl sheet flooring with ACM backing
R3	A	Install new resilient flooring or carpet over resilient asbestos flooring.
R4	A B	Install partition over resilient asbestos flooring
R5	A	Wet strip floor wax from resilient asbestos flooring
R6	A	Dry or spray buffing resilient asbestos flooring
R7	A	Cleaning resilient asbestos flooring
R8	A B	Remove carpet over resilient asbestos flooring

R1. Summary

Removal of resilient asbestos floor tiles

Summary

This work practice covers the O&M procedures for removing small amounts of asbestos-containing floor tile and/or mastic. The work practices are based on the RFCM procedures.

Examples

Level A Replacement of several floor tiles that are loose or can be removed with minimal or no breakage, and tile and/or mastic does not become friable. Remove a small area of well-adhered tile and/or mastic that is not likely to become friable.
Remove several floor tiles and mastic to drill hole(s) in subfloor to attach object to floor or install a pipe or conduit.

Level B Remove a small area of well-adhered tile and/or mastic that is not likely to become friable.
Remove several floor tiles and mastic to drill hole(s) in subfloor to attach object to floor or install a pipe or conduit.
Replace a small area of tile that is sufficiently damaged that the tile and/or mastic will become friable during removal.
Remove a tile and mastic which may become friable during removal.
Remove several floor tiles and mastic that are sufficiently damaged that the tile and/or mastic will become friable during removal to drill hole(s) in subfloor to attach object to floor or install a pipe or conduit.

Related Work Practices

R 2 Replacement of vinyl sheet flooring with ACM backing.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. A person with air monitoring training might be required. This person can be a worker.

R1. Level A

Replacement of resilient asbestos floor tiles

Example

The following are examples of work that can be performed using the procedures of this Level A work practice.

- Replacement of several floor tiles that are loose or can be removed with minimal or no breakage, and tile and/or mastic does not become friable.

Notes

This work practice is based on the resilient floor covering manufacturers recommended work practice.

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used.

Warning: Do not sand resilient flooring. Do not use this procedure for activities that crumble, pulverize, or otherwise deteriorate resilient flooring to the extent that it is no longer bound with its matrix.

If job conditions change, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Weighted scraper with long handle
 - ✓ Scraper 2-3" wide stiff blade w/short handle
 - ✓ Commercial hand-held hot air blower or radiant heat source
 - ✓ Wet/dry type HEPA vacuum with hose and attachments with metal floor tool
 - ✓ Garden sprayer with amended water
 - ✓ Hammer
 - ✓ Crushed dry ice (if needed) - approximately 1 lb per sq.ft.
- ✓ Place tools, equipment and materials needed in work area.
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Complete Worker General Procedure W5 "Critical Barriers"

Remove Resilient Tile:

- ✓ Floor tiles must be wet before actual removal begins, unless heat will be used to remove tiles.
- ✓ Force the scraper under the exposed edge of tile.
- ✓ Continue to prying and twist the scraper as it is moved under the tile until the tile releases from the floor.
- ✓ When the tile is removed, place it, without breaking it, in asbestos waste disposal containers.
- ✓ Continue to wet mist the tiles throughout the procedure.

Dry Ice Tile Removal:

- ✓ Spread crushed dry ice over tiles to be removed.
- ✓ Let dry ice freeze mastic and release tile.
- ✓ When the tile is removed, place it, without breaking it, in asbestos waste disposal containers.

Wet Scrape Residual Adhesive:

- ✓ Moisten the adhesive with amended water.
- ✓ Place loosened adhesive residues into an asbestos waste container.
- ✓ Wet-wipe the area and all equipment used during the work.

R1. Level B

Replacement of resilient asbestos floor tiles

Example

The following are examples of work that can be performed using the procedures of this Level B work practice.

- Remove a small area of well-adhered tile and/or mastic that is not likely to become friable.
- Remove of several floor tiles and mastic to drill hole(s) in subfloor to attach object to floor or install a pipe or conduit.
- Replacement of a small area of badly damaged tiles that are sufficiently damaged that the tile and/or mastic will become friable during removal.
- Remove a tile and mastic which may become friable during removal.
- Remove several floor tiles and mastic that are sufficiently damaged that the tile and/or mastic will become friable during removal to drill hole(s) in subfloor to attach object to floor or install a pipe or conduit.

Notes

Warning: Do not sand resilient flooring. Use caution to prevent fire in the work area if heat sources are used.

If job conditions change, stop work and notify your supervisor.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist
- ✓ Tools, equipment and materials:
- ✓ Tools as needed from the lists in General Procedure W1
- ✓ Weighted scraper with long handle

- ✓ Wall scraper 2-3" wide stiff blade w/short handle
 - ✓ Commercial hand-held hot air blower or radiant heat source
 - ✓ Wet/dry type HEPA vacuum with hose and attachments with metal floor tool
 - ✓ Garden sprayer with amended water
 - ✓ Hammer
 - ✓ Crushed dry ice (if needed) - approximately 1 lb per sq.ft.
- ✓ Place tools, equipment and materials needed in work area
- ✓ Complete Worker General Procedure W4 "Secure Work Area"
- ✓ Complete Worker General Procedure W5 "Critical Barriers"

Remove Resilient Tile:

- ✓ Floor tiles must be wet before actual removal begins, unless heat will be used to remove tiles.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Force the scraper under the exposed edge of tile.
- ✓ Continue to exert a prying twisting force to the scraper as it is moved under the tile until the tile releases from the floor.
- ✓ When the tile is removed, place it, without breaking it, in asbestos waste disposal containers.
- ✓ Force the scraper through tightly-adhered areas by striking the scraper handle with a hammer using blows of moderate force while maintaining the scraper at a 25 to 30 degree angle to the floor.
- ✓ Continue to wet mist the tiles throughout the procedure.

Dry Ice Tile Removal:

- ✓ Spread crushed dry ice over tiles to be removed.
- ✓ Let dry ice freeze mastic and release tile.
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Use short-handled scraper to pry up tile.
- ✓ When the tile is removed, place it, without breaking it, in asbestos waste disposal containers.

Wet Removal of Adhesive Residue:

- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Spray the removal stripper onto the floor
- ✓ Use ensure that the area is thoroughly wet
- ✓ Allow the area to soak for 5-10 minutes
- ✓ Scrape or scrub the adhesive
- ✓ The subfloor must be kept continuously wet
- ✓ Rinse area with clear clean water using a hand sprayer
- ✓ Wet-vacuum standing water with HEPA wet/dry vacuum with a metal floor attachment

- ✓ Continue with the above steps until adhesive is completely removed in the required area.
- ✓ Place removed adhesive into an asbestos waste container.
- ✓ Allow subfloor to dry and vacuum using a vacuum equipped with a HEPA filter and metal floor attachment
- ✓ Wet-wipe and/or wash down all equipment used during the work
- ✓ Perform required clean-up and tear-down steps on Level B checklist to complete work

R2. Summary

Replacement of vinyl sheet flooring with ACM backing

Summary

This work practice covers the O&M procedures for the replacement of small amounts of vinyl sheet flooring with ACM backing. Wet scraping of residual felt is included in both Levels.

Examples

Level B Replacement of a small area of loose or perimeter-adhered vinyl sheet flooring with ACM backing.

Replacement of a small area of adhered vinyl sheet flooring with ACM backing that can be removed using non-aggressive, primarily manual methods. Some separation of backing and wear layer will occur.

Remove small amounts of resilient asbestos flooring covering to drill hole(s) in subfloor to attach object to floor or install a pipe or conduit.

Replacement of a small area of vinyl sheet flooring with ACM backing which is sufficiently damaged to be friable

Removal of a small area of vinyl sheet flooring with ACM backing which may become friable during removal. Remove small amounts of resilient asbestos flooring covering which may become friable during removal to drill hole(s) in subfloor to attach object to floor or install a pipe or conduit.

Related Work Practices

- R 1 Replacement of resilient asbestos floor tiles.
- R 3 Install new resilient flooring or carpet over resilient asbestos flooring.
- R 8 Remove carpet over resilient asbestos flooring.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level B is sufficient. A person with air monitoring training might be required. This person can be one of the workers.

R2. Level B

Replacement of vinyl sheet flooring with ACM backing

Example

The following are examples of work that can be performed using the procedures of this Level B work practice.

- Replacement of a small area of loose or perimeter-adhered vinyl sheet flooring with ACM backing
- Replacement of a small area of adhered vinyl sheet flooring with ACM backing that can be removed using non-aggressive manual methods. Some separation of backing and wear layer will occur
- Remove small amounts of resilient asbestos flooring covering to drill holes in subfloor to attach object to floor or install a pipe
- Replacement of a small amount vinyl sheet flooring with ACM backing which is sufficiently damaged to be friable
- Removal of a small amount vinyl sheet flooring with ACM backing which may become friable during removal.
- Remove small amounts of resilient asbestos flooring covering which may become friable during removal to drill hole(s) in subfloor to attach object to floor or install a pipe or conduit.

Notes

This work practice is based on the resilient floor covering manufacturers recommended work practice.

A Negative Exposure Assessment must have been made by a Competent Person before this work practice is used.

Do not sand resilient flooring.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Weighted scraper with long handle
 - ✓ Scraper 2-3" wide stiff blade w/short handle

- ✓ Commercial-type hand-held hot air blower or radiant heat source
- ✓ Wet/dry HEPA vacuum with hose and metal floor tool
- ✓ Garden sprayer with amended water
- ✓ Hammer
- ✓ Hook knife
- ✓ Place tools, equipment and materials needed in work area
- ✓ Complete Worker General Procedure W4 “Secure Work Area“

Use the following procedure to completely remove adhered resilient sheet flooring

- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Adequately wet the work area
- ✓ Slice around area to be removed
- ✓ Make a series of parallel slices, with a knife, parallel to a wall
- ✓ During the stripping process, do not stand or walk on the exposed felt
- ✓ Pry up the corner of the first strip, separating the backing layer
- ✓ As the strip is being removed, spray a constant mist of the amended water into the delamination nip point to minimize any airborne dust particles
- ✓ Peel the foam inner-layer from the floor while spraying the amended water into the delamination nip point
- ✓ When done properly, any felt remaining on the floor and on the back of the strip will be thoroughly wet
- ✓ Peel the strip either by pulling upward at an angle that permits the best separation or by rolling around a core
- ✓ If parts of the foam inner-layer remain stuck to the backing, attempt to eliminate this condition by pulling the strips loose from the opposite end
- ✓ Roll the strip tightly as it is removed
- ✓ Tie or tape securely and immediately place in an asbestos waste container for disposal
- ✓ HEPA Vacuum the exposed floor using a metal floor attachment
- ✓ Do not dry sweep
- ✓ Avoid creating dust

Some resilient flooring is not readily strippable by hand. When these conditions are encountered, a sharp stiff blade scraper may be used to assist cleavage of the wear-layer from felt.

- ✓ When all floor covering has been completely removed, let the floor dry
- ✓ HEPA vacuum up any dirt using a metal floor attachment
- ✓ Stand only in the vacuumed area as the work proceeds across the floor
- ✓ Position the HEPA vacuum so the discharge air does not blow on the floor being cleaned

Remove any residual felt remaining on the floor after removal of the wear-layer of adhered vinyl sheet flooring:

- ✓ Thoroughly wet residual felt with amended water
- ✓ Avoid excessive wetting or standing water
- ✓ Wait a few minutes to allow solution to soak into felt
- ✓ Stand on the remaining floor covering (not the felt) and use a stiff-bladed scraper to remove the wet felt
- ✓ Re-wet the felt if drying occurs or if dry felt is exposed during scraping
- ✓ Pick up the scrapings as they are removed from the floor and place in an asbestos waste container
- ✓ Wet residual felt but do not excessively soak with amended water
- ✓ As removal progresses, HEPA vacuum the area using a metal floor attachment
- ✓ After removal is complete and the floor has dried, HEPA vacuum the area using a metal floor attachment
- ✓ Perform required clean up and tear-down steps on Level A checklist to complete work

R3. Summary

Install new resilient flooring or carpet over resilient asbestos flooring

Summary

This procedure covers the work required to prepare resilient asbestos flooring for the installation of new resilient flooring or carpet. This procedure works with work practice R5 for stripping asbestos flooring and assumes that any damaged flooring has been repaired or replaced using applicable work practices such as R1 and R2.

Examples

Level A New carpet being installed over well-adhered resilient asbestos floor tile or vinyl sheet flooring with ACM backing in good condition.

Related Work Practices

- R 1 Replacement of resilient asbestos floor tiles
- R 2 Replacement of vinyl sheet flooring with ACM backing.
- R 5 Wet strip floor wax from resilient asbestos flooring
- R 6 Buffing resilient asbestos flooring
- R 7 Cleaning resilient asbestos flooring

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A is sufficient. A person with air monitoring training might be required. This person can be a worker.

R3. Level A

Install new resilient flooring or carpet over resilient asbestos flooring

Example

The following is an example of work that can be performed using the procedures of this Level A work practice.

- New carpet being installed over well-adhered resilient asbestos tile or vinyl sheet flooring with ACM backing in good condition.

Notes

This work practice must be used in conjunction with General Procedure W1 and a Level A Worker Checklist. The worker checklist includes tasks that must be performed before these work practices are begun.

Review manufacturer's recommendations concerning installation of new flooring over existing before proceeding with this work.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist
 - ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Wall scraper 2-3" wide stiff blade w/short handle
 - ✓ Place tools, equipment and materials needed in work area
 - ✓ Complete Worker General Procedure W4 "Secure Work Area"
 - ✓ HEPA vacuum area
 - ✓ Strip finish from existing floor using O&M work practice R5 "Wet Strip Wax from Resilient Asbestos Flooring"
 - ✓ Do not sand or grind flooring
 - ✓ Fill any low areas using recommended underlayment or leveling compound
 - ✓ HEPA vacuum floor using a metal floor attachment
 - ✓ Wet-wipe and/or wash down all equipment used scrape floor during the work
 - ✓ Install new flooring or carpet as recommended by manufacturer
- Perform clean-up and tear-down on Level A checklist to complete work

R4. Summary

Install partition over resilient asbestos flooring

Summary

This work practice describe the procedures for installing a wall over resilient asbestos flooring that will remain in place. If flooring will be removed for wall installation, use work practice R1 or R2.

Examples

- Level A Install partition over resilient asbestos flooring that is well adhered and in good condition.
- Level B Install partition over resilient asbestos flooring that becomes friable during the partition installation.

Related Work Practices

- R 1 Replacement of resilient asbestos floor tiles.
- R 2 Replacement of vinyl asbestos sheet flooring with ACM backing.
- R 3 Install new resilient flooring or carpet over resilient asbestos flooring.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. A person with air monitoring training might be required. This person can be a worker.

R4. Level A

Install partition over resilient asbestos flooring

Example

The following is an example of work that can be performed using the procedures of this Level A work practice.

- Install partition over resilient asbestos flooring that is well-adhered and in good condition.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist.
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Anchoring devices and equipment
 - ✓ Non-asbestos adhesive
- ✓ Place tools, equipment and materials needed in work area
- ✓ Install base plate of wall on full bed of adhesive and attach to floor using appropriate anchoring devices

- ✓ HEPA vacuum any chips or dust generated during fastening operation
- ✓ Complete installation of wall
- ✓ Perform cleanup and tear down steps on Level A checklist to complete work

R4. Level B

Install partition over resilient asbestos flooring

Example

The following is an example of work that can be performed using the procedures of this Level B work practice.

- Install partition over resilient asbestos flooring that becomes friable during the partition installation.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Anchoring devices and equipment
 - ✓ Non-asbestos adhesive
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Complete Worker General Procedure W10 “Setting Up Work Areas”
- ✓ Complete Worker General Procedure W5 “Critical Barriers”
- ✓ Place tools, equipment and materials needed onto drop cloth
- ✓ Adequately wet flooring with amended water
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Level off any minor high spots on floor using scraper
- ✓ Do not sand or grind flooring
- ✓ Remove any damaged vinyl asbestos flooring in area of work using O & M work practice R1 or R2
- ✓ Fill any low areas using recommended leveling compound
- ✓ Install base plate of wall on full bed of adhesive and attach to floor using appropriate anchoring devices
- ✓ HEPA vacuum any chips or dust generated during fastening operation
- ✓ Complete installation of wall
- ✓ Perform cleanup and tear down steps on Level B checklist to complete work

R5. Summary

Wet strip floor wax from resilient asbestos flooring

Summary

This work practice covers the procedures for stripping floor wax or finish from resilient asbestos flooring. Do not strip damaged flooring. Any loose or damaged flooring should be repaired or replaced before stripping is started. Wet stripping, if performed properly, should not cause damage to resilient flooring. If any flooring damage occurs during stripping, stop work and make repairs using applicable work practices. Do not dry strip, scrape, sand, or grind resilient asbestos flooring to remove any blemishes or imperfections.

Example

Level A Stripping floor wax or finish coat from resilient asbestos flooring that is well adhered and in good condition.

Related Work Practices

- R 1 Replacement of resilient asbestos floor tiles.
- R 3 Install new resilient flooring or carpet over resilient asbestos flooring.
- R 6 Dry or Spray Buffing resilient asbestos flooring.
- R 7 Cleaning resilient asbestos flooring.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A is sufficient. A person with air monitoring training might be required. This person can be a worker.

R5. Level A

Wet strip floor wax from resilient asbestos flooring

Example

The following is example of work that can be performed using the procedures of this Level A work practice.

- Strip floor wax or finish coat from resilient asbestos flooring that is well-adhered and in good condition.

Notes

Do not strip damaged flooring. Any loose or damaged flooring should be repaired or replaced before stripping is started.

Stripping pads should be kept wet during use and rinsed thoroughly immediately after use and prior to storage. Dispose of pads and mops, if contaminated, as ACM waste in

labeled asbestos waste disposal bags. Thoroughly rinse and clean all equipment associated with wet strip floor wax from resilient asbestos flooring project.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist
- ✓ Tools, equipment and materials:
- ✓ Tools as needed from the lists in General Procedure W1
 - ✓ "Caution - Wet Floor" signs
 - ✓ Floor stripping machine
 - ✓ Stripping Pads (least abrasive pad possible)
 - ✓ Buckets with water for rinsing
 - ✓ Mops (for stripping, rinsing and polishing)
 - ✓ Chemical stripper - recommended amount for area to be stripped
 - ✓ Floor wax or finish
 - ✓ Walk-off mats
- ✓ Place tools, equipment and materials needed in work area
- ✓ Place walk-off mats where required to prevent tracking of stripping solution
- ✓ Position "Caution - Wet Floor" signs
- ✓ After proper mixing of stripping chemical, adequately wet floor by mop applying liberal amounts of the solution
- ✓ Allow chemical to soak for amount of time recommended by manufacturer
- ✓ If areas become dry, reapply solution to keep floor "adequately wet"
- ✓ After wax or finish has softened, strip flooring using least abrasive pad and low speed setting (**300 RPM maximum**)
- ✓ Keep floor "adequately wet" during machine operation
- ✓ Do not over-strip
- ✓ Stop stripping when the old wax or finish is removed
- ✓ Work small areas at a time
- ✓ Remove dirty stripping solution with wet vacuum or "strip" mop
- ✓ With "rinse" mop, apply liberal amount of clean water to area stripped and remove water with wet vacuum or mop
- ✓ Repeat rinse procedures
- ✓ If some spots of wax or finish remain, re-strip those areas
- ✓ If new flooring will be installed over the stripped floor, do not apply wax or finish
- ✓ When applying new wax or finish, do so according to manufacturer's recommendations
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work

R6. Summary

Dry or spray buffing resilient asbestos flooring

Summary

This work practice covers the procedures for spray buffing the polish to restore gloss on resilient asbestos flooring. Do not buff damaged flooring. Any loose or damaged flooring should be repaired or replaced before buffing is started. This practice assumes that the floor has adequate coats of polish, and that the flooring itself will not be damaged or contacted by the buffing equipment. If any flooring damage occurs during buffing, stop work and make repairs using applicable work practice(s). If polish is in poor condition, use work practice R6 or R8.

Example

Level A Dry or spray buff the polish on resilient asbestos flooring to remove minor surface imperfections and restore gloss.

Related Work Practices

R 5 Strip floor wax from resilient asbestos flooring.
R 7 Cleaning resilient asbestos flooring.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A is sufficient. A person with air monitoring training might be required. This person can be a worker.

R6. Level A

Dry or spray buffing resilient asbestos flooring

Example

The following is an example of work that can be performed using the procedures of this Level A work practice.

- Dry or spray buff the polish on resilient asbestos flooring to remove minor surface imperfections and restore gloss.

Notes

Do not buff damaged flooring. Any loose or damaged flooring should be repaired or replaced before buffing is started.

Dispose of pads, if contaminated, as ACM waste in labeled disposal bags.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist
 - ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ "Caution - Wet Floor" signs
 - ✓ Floor buffing machine
 - ✓ Buffing Pads (least abrasive - tan, red, or equivalent)
 - ✓ Buckets with mop wringer
 - ✓ Mops (for damp or spot mopping)
 - ✓ Chemical cleaner
 - ✓ Hand-held scraper
 - ✓ Spray buffing compound, appropriately diluted, compatible polish and restorer chemical
 - ✓ Place tools, equipment and materials needed in work area
 - ✓ Position "Caution-Wet Floor" signs
 - ✓ Pick up any large loose debris and place into disposal bags
 - ✓ Using scraper and water, remove all foreign matter from the finished surface (do not abrade the floor tile)
 - ✓ Spot or damp mop to remove stains and spills
 - ✓ Mix chemical cleaner or restorer with water and apply according to manufacturers recommendations
 - ✓ If dry buffing will be performed, apply restorer chemical as required
 - ✓ Allow floor to dry thoroughly
 - ✓
- Spray or dry buff as appropriate:
- ✓ To spray-buff, spray small area with spray-buff solution and buff using
 - ✓ manufacturer's recommended pad or brush at recommended RPM
 - ✓ Repeat procedure until entire area is spray-buffed
 - ✓ To dry buff, buff or dry burnish with manufacturer's recommended pad or brush at recommended RPM
 - ✓ Perform applicable steps on Level A checklist to complete work

R7. Summary

Cleaning resilient asbestos flooring

Summary

This work practice covers the procedures for cleaning the polish on resilient asbestos flooring prior to buffing or application of additional polish. Do not polish loose or damaged resilient flooring. Any damage should be repaired before cleaning begins using the applicable work practices. Stop work if any damage occurs during cleaning and make repairs needed.

Example

Level A Clean or scrub resilient asbestos flooring with adequate coats of floor polish on flooring before buffing or application of additional polish.

Related Work Practices

R 5 Wet strip floor wax from resilient asbestos flooring.
R 6 Dry or spray buffing resilient asbestos flooring.

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A is sufficient. A person with air monitoring training might be required. This person can be a worker.

R7. Level A

Cleaning resilient asbestos flooring

Example

The following is an example of work that can be performed using the procedures of this Level A work practice.

- Clean or scrub resilient asbestos flooring with adequate coats of floor polish on flooring before buffing or application of additional polish

Notes

Do not polish loose or damaged resilient flooring. Any damage should be repaired before cleaning begins using the applicable work practice(s). Stop work if any damage occurs during cleaning and make repairs needed.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ "Caution - Wet Floor" signs
 - ✓ Floor scrubbing machine
 - ✓ Pads (least abrasive)
 - ✓ Buckets with mop wringer
 - ✓ Scraper 2-3" wide stiff blade
 - ✓ Mops (for scrubbing, rinsing)
 - ✓ Measuring device for mixing chemical cleaner
 - ✓ Walk-off mats
 - ✓ Chemical cleaner

- ✓ Place tools, equipment and materials needed in work area
- ✓ Place walk-off mats to prevent tracking
- ✓ Position "Caution - Wet Floor" signs
- ✓ Install polyethylene sheet on adjoining floors for protection
- ✓ Mix scrubbing chemical with water as recommended by manufacturer and apply liberal amount (do not flood) using mop
- ✓ Allow to soak for amount of time recommended by manufacturer
- ✓ Keep floor adequately wet by reapplying cleaning solution if drying occurs
- ✓ Work small areas at a time
- ✓ Using floor scrubbing machine, manufacturer's recommended pads and operating speed, clean floor to remove embedded dirt and surface marks
- ✓ Remove spent scrubbing solution with wet vacuum or mop
- ✓ Rinse area using clean mop and clean rinse water
- ✓ Remove water with wet vacuum or mop
- ✓ Damp mop area to clean up any remaining water or streaks
- ✓ Perform applicable steps on Level A checklist to complete work

R8. Summary

Remove carpet over resilient asbestos flooring

Summary

This work practice describes the procedures to be used for removing a small area of carpet installed over resilient asbestos flooring for O&M work. These procedures assume that the carpet adhesive or mastic does not contain asbestos, and that contamination is not present on the top side of the carpet.

If a large area is involved, the work might require that abatement procedures be used.

If carpet mastic contains asbestos, see Work Practice R1. Removal of well-adhered carpet can pull up resilient asbestos flooring beneath the carpet.

Examples

Level A Remove carpet that is non-adhered or weakly adhered to resilient asbestos flooring.

Level B Remove carpet adhered to good condition resilient asbestos flooring where mastic and/or a small number of tiles may be pulled up, or flooring may be pulled up without separation of backing and wear layer. Resilient flooring mastic may or may not contain asbestos.

Related Work Practices

R1 Replacement of resilient asbestos floor tiles.

- R2 Replacement of vinyl sheet flooring with ACM backing.
R3 Installation of new resilient flooring or carpet over resilient asbestos

Worker Recommendations

It is recommended that two workers are used during all asbestos related activities however one worker for Level A and B is sufficient. A person with air monitoring training might be required. This person can be a worker.

R8. Level A

Remove carpet over resilient asbestos flooring

Example

The following is an example of work that can be performed using the procedures of this Level A work practice. If job conditions vary from the examples stop work and notify your supervisor.

- Remove carpet that is non-adhered or weakly adhered to resilient asbestos flooring.

Notes

These procedures assume that the carpet adhesive or mastic does not contain asbestos, and that contamination is not present on the top side of the carpet.

If carpet mastic contains asbestos, see Work Practice R1.

Review manufacturer's recommendation concerning installation of new carpet over old flooring and/or adhesive before proceeding with this work.

If asbestos-containing adhesive must be removed, refer to wet-scraping procedures in Work Practice R1.

Work Practice

- ✓ Perform Pre-work activities on Level A checklist
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Metal straightedge for use when cutting carpet
 - ✓ Scraper 2-3" wide stiff blade
- ✓ Place tools, equipment and materials needed in work area
- ✓ Find a seam or corner where carpet removal can begin
- ✓ If no seams or corners exist, make a cut around the piece to be removed
- ✓ Cut carpet using utility knife with a new blade
- ✓ Pry up corner or seam of carpet using scraper

- ✓ Pull back a section large enough (approximately one square foot) to hang onto while removing carpet
- ✓ HEPA vacuum exposed flooring and back of carpet
- ✓ Pull carpeting back slowly and HEPA vacuum exposed flooring & back of carpet
- ✓ Remove carpet in pieces no larger than 200 square feet
- ✓ If carpet and adhesive are non-ACM, roll up carpet and dispose of as non-ACM waste
- ✓ If portions of asbestos-containing flooring remain attached to carpet backing, stop work and notify your supervisor.
- ✓ Perform clean-up and tear-down steps on Level A checklist to complete work

R8. Level B

Remove carpet over resilient asbestos flooring

Example

The following is an example of work that can be performed using this procedure. If job conditions vary from the examples stop work and notify your supervisor.

- Remove carpet adhered to good condition resilient asbestos flooring where mastic and/or a small number full tiles may be pulled up, or flooring might be pulled up without separation of backing and wear layer. Resilient flooring mastic may or may not contain asbestos.

Notes

These procedures assume that the carpet adhesive or mastic does not contain asbestos, and that contamination is not present on the top side of the carpet.

If carpet mastic contains asbestos, see Work Practice R1.

Review manufacturer's recommendation concerning installation of new carpet over old flooring and/or adhesive before proceeding with this work.

If asbestos-containing adhesive must be removed, refer to wet-scraping procedures in Work Practice R1.

Avoid foot traffic on any exposed mastic.

Work Practice

- ✓ Perform Pre-work activities on Level B checklist
- ✓ Tools, equipment and materials:
 - ✓ Tools as needed from the lists in General Procedure W1
 - ✓ Scraper 2-3" (50-75 mm) wide stiff blade

- ✓ Metal straightedge for use when cutting carpet
- ✓ Complete Worker General Procedure W4 “Secure Work Area”
- ✓ Place tools, equipment and materials needed into work area
- ✓ Find a seam or corner wherever carpet removal can begin
- ✓ If no seams or corners exist, a cut will need to be made around the piece to be removed
- ✓ Wet the areas that need to be cut using amended water
- ✓ Put on respirator and perform fit test, and put on protective clothing.
- ✓ Cut carpet using utility knife with a new blade
- ✓ Pry up corner or seam of carpet using scraper
- ✓ Pull back a section large enough (approximately one square foot) to hang onto while removing carpet
- ✓ Adequately wet flooring and adhesive exposed
- ✓ Pull carpeting back slowly and spray amended water on flooring and adhesive as they are exposed
- ✓ Remove carpet in pieces no larger than approximately 200 square feet
- ✓ If carpet and adhesive are non-ACM, roll up carpet and dispose of as non-ACM waste
- ✓ If portions of asbestos-containing flooring remain attached to carpet backing, dispose of carpet as ACM waste
- ✓ Loose vinyl asbestos flooring shall be disposed of in asbestos waste disposal bags or containers
- ✓ HEPA vacuum surface of flooring after carpet is removed
- ✓ If residual asbestos-containing adhesive or residual felt backing needs to be removed, follow wet-scraping procedures in work practice R1 or R2
- ✓ Perform clean-up and tear-down steps on Level B checklist to complete work

Definitions are found within the Asbestos Management Plan

Operations and Maintenance Work Practice Use Checklist

- ✓ Receive and review Job Request Form
- ✓ Work summary: _____
- ✓ _____
- ✓ Review or request survey data to determine whether ACM is affected.
- ✓ Complete Maintenance Work Authorization Form, including:
 - ✓ Review historical air monitoring data for work practices to be used.
 - ✓ Work Practice(s) selected for all ACM to be encountered.
 - ✓ Select personal protective equipment and decontamination requirements to be used, if needed.
 - ✓ Select appropriate materials and review potential hazards (confined spaces, scaffold use, etc.)
 - ✓ Schedule work when area is not in use or plan developed to isolate area (if necessary)
 - ✓ Federal, state and local notifications filed (if applicable).
 - ✓ Notify personnel affected by work.
 - ✓ Assign workers with appropriate level of training. Verify currency of training, fit tests, and medical surveillance.
 - ✓ Assign trained air monitoring person and determine air monitoring to be performed
- Record air monitoring requirements on Maintenance Work Authorization Form.
- ✓ Provide copies to workers/contractor of:
 - ✓ Maintenance Work Authorization Form
 - ✓ Work practice checklist for proper work level.
 - ✓ Work practice(s): _____
 - ✓ General Procedure(s)
 - ✓ Notifications
 - ✓ Schedule of work
- ✓ As practical, review work practices during work for compliance with requirements and worker general procedures.
- ✓ Complete Evaluation of Work Affecting ACM form.
- ✓ File all required records in proper files.
- ✓ Comments: _____

APPENDIX C

INITIAL EXPOSURE ASSESSMENT

Must be conducted by a competent person before the initiation of any work covered by 29 CFR 1926.1101

PROJECT _____ DATE ____/____/____

Class of work: Class I Class II Class III Class IV

Type of material: Duct/Seam Tape Drywall Removal Gaskets/Packing Cement Pipe

Shingles VAT/Mastic/Inlaid Popcorn Ceiling Pipe Insulation

Other _____

Condition of ACM: Intact Non-Intact

Type of Asbestos _____ Percent _____

Control Methods: Specific Alternative

Removal Methods: Wet Sealed/Leak-Tight Container Prompt Clean-Up Signs Labels

HEPA Vacuum Negative Pressure Enclosure Critical Barriers Full Containment

Glovebag Mini-Enclosure Hand/Non-Mechanical Mechanical/Power Tools Mastic

Solvents Hydro-Blast

Other _____

Employee Training: Awareness 16-Hour Maintenance Worker Asbestos Worker

Asbestos Supervisor

Environmental Conditions for Outdoor Work: Extreme Heat Extreme Cold High Wind

Rain Snow Other _____

Competent Person Print _____

Competent Person Signature _____