Asbestos Management Plan

California State University, Chico

Department of Environmental Health and Safety
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1.0 Overview and Objectives

Asbestos-containing materials (ACM) were used widely in the construction industry. While the use of ACM in new building systems has ceased for most major applications, the presence of ACM in older building systems is still widespread. At CSU, Chico, ACM can be found in numerous buildings in pipe insulation, sprayed-on fireproofing, wall skim coats, joint compound, roofing and flooring materials. This ACM does not pose a health hazard if left intact. Nevertheless, activities that have the potential to disturb ACM must be carefully managed to prevent fibers from becoming airborne and creating an inhalation hazard.

The purpose of this plan is to describe a program for preventing exposure to asbestos in campus buildings. The principal elements of this program involve requirements and responsibilities for surveys, training and certification of workers, employee notifications, proper work procedures for activities that have the potential to disturb ACM, and proper disposal of asbestos wastes.

2.0 Definitions

These definitions describe the types of asbestos-containing materials that are regulated under California Code of Regulations, Title 8, Sections 341.6 and 1529, and the National Emission Standard for Asbestos as implemented by the California Air Resources Board.

Abatement - Procedures beyond a special operations and maintenance program to control fiber release from asbestos-containing materials. Includes removal, encapsulation, enclosure, repair.

ACGIH - American Conference of Governmental Industrial Hygienists.

Aggressive Method - Removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

AHERA - Asbestos Hazard Emergency Response Act

AIHA - American Industrial Hygiene Association.

Air Filtration Device - See "Pressure Differential Unit."

Airlock - A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways separated by a distance of at least three (3) feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

Air Monitoring - The process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure normally utilized for asbestos follows the NIOSH Standard Analytical Method for Asbestos in Air Method 7400. For clearance air monitoring, electron microscopy methods may be utilized for lower detection limit and specific fiber identification.

Air Sampling Professional - The professional contracted or employed by the University to supervise and/or conduct air monitoring and analysis schemes. This individual may also function as the Asbestos Project Manager, if qualified. Supervision of air sampling and evaluation of results should be performed by an individual certified in the Comprehensive Practice of Industrial Hygiene (C.I.H.) or having specialized experience in air sampling for asbestos. Other acceptable Air Sampling Professionals include Environmental Engineers, Architects, Chemists and Environmental Scientists or others with equivalent experience in asbestos air monitoring.

Ambient Air - The air outside the buildings and structures or the air as it normally exists in a space prior to abatement.

Amended Water - Water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

ANSI - American National Standards Institute.

Asbestos - Means the asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite grunerite (amosite), anthophyllite, actinolite, and tremolite.

Asbestos-Containing Material (ACM) - Cal/OSHA - Material composed of asbestos of any type and in an amount greater than one-tenth of one percent (0.1%) either alone or mixed with fibrous or non-fibrous materials. Environmental Protection Agency (EPA) - Asbestos-containing materials with more than one percent asbestos.

Asbestos-Containing Construction Material (ACCM) - any manufactured construction material that contains more than one tenth of one percent asbestos by weight.

Asbestos-Containing Waste Material - Asbestos-containing material or asbestos-contaminated objects requiring disposal.

ASTM - American Society for Testing and Materials.

Authorized Person - Any person authorized by the employer and required by work duties to be present in regulated areas. This includes any representative of a regulatory or other agency having jurisdiction over the work being performed.

Cal/OSHA - California Division of Occupational Safety and Health.

Category I Non-friable ACM - Is asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos.

Category II Non-friable ACM - Is any material, excluding Category I non-friable ACM, containing more than one percent asbestos, which is non-friable.

Certified Industrial Hygienist (CIH) - An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

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

Class II Asbestos Work - Means activities involving the 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 - Means repair and maintenance of operations, where “ACM”, including TSI and surfacing ACM and Presumed Asbestos Containing Material (PACM), is likely to be disturbed.

Class IV Asbestos Work - Means 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.

Clean Room - An uncontaminated area or room which is a part of the worker decontamination enclosure system with provisions for storage of workers' street clothes and clean protective equipment.

Competent Person - Means, in addition to one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminated them, one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminated them: in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR part 763) for supervisor, or its equivalent and for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2).

Containment - Isolation of the work area from the rest of the building to prevent escape of asbestos fibers.

Contractor - The individual and/or legal entity and its subcontractors and employees of the contractor and subcontractor awarded the contract.

Contractor/Supervisor - See Competent Person.

Critical barrier - One or more layers of plastic sealed over all opening into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

Curtained Doorway - A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms, typically constructed by placing two overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. Other effective designs are permissible.

DOP - Dioctylphthalate particles, a testing agent for efficiency of filters.

Decontamination Enclosure System - A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of workers and equipment. This unit shall be constructed with at least two layers of 6 mil poly for the floors, walls, and ceiling. The floor of the dirty room shall consist of two layers of 6 mil poly plus a third layer of poly, 4 mil or thicker, to be used as a removable drop layer. Drop layer is to be removed as needed, at least daily.

Demolition - The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

Disturbance - Means activities that disrupt the matrix of Asbestos Containing Material (ACM) or Presumed Asbestos Containing Material (PACM), crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized

glovebag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glovebag or waste bag which shall not exceed 60 inches in length and width.

Dust or Debris - When present either in a contained or regulated area, or in the vicinity of damaged asbestos-containing materials shall be considered asbestos-containing residue.

Encapsulant - A liquid material which can be applied to asbestos-containing material which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).

EPA - U.S. Environmental Protection Agency.

Equipment Decontamination Enclosure System - That portion of a decontamination enclosure system designed for controlled transfer of materials and equipment into or out of the work area, typically consisting of a washroom and holding area.

Equipment Room - A contaminated area or room which is part of the worker decontamination enclosure system with provisions for storage of contaminated clothing and equipment.

Facility - Any institutional, commercial or industrial structure, installation, or building.

Facility Component - Any pipe, duct, boiler, tank, reactor, turbine, or furnace at or in a facility or any structural member or a facility.

Fed OSHA or OSHA - Federal Occupational Safety and Health Administration.

Fiber - A particulate form of asbestos, 5 micrometers or longer, with a length to diameter ratio of at least 3 to 1.

Fixed Object - A piece of equipment or furniture in the work area which cannot be removed from the work area.

Friable Asbestos Material - Asbestos-containing material which can be crumbled to dust when dry, under hand pressure.

Glovebag Technique - A method with limited applications for removing small amounts of friable asbestos-containing materials from ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces. The glovebag assembly is a manufactured or fabricated device consisting of a glovebag (typically constructed of 6 mil transparent polyethylene or polyvinylchloride plastic), two inward projecting long sleeves, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. All workers who are permitted to use the glovebag technique must be highly trained, experienced and skilled in this method. All techniques and procedures employed by the contractor shall be approved by the asbestos project manager.

HVAC - Heating, ventilation and air conditioning system.

HEPA Filter - A “high efficiency particulate air” filter capable of trapping and retaining at least 99.97 percent of all mono dispersed particles of 0.3 micrometers in diameter.

HEPA Vacuum - A vacuum system equipped with HEPA filtration.

Holding Area - A chamber or airlock between the shower and clean or dirty rooms.

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

Lock-down - To mist the air and to wet surfaces with an agent designed to bind asbestos fibers together.

Magnehelic Gauge - Instrument for measuring the static air-pressure differential across a barrier.

Manometer - A device which contains a magnehelic gauge and provides a visible reading of existing pressure. Commonly used to record the differential in pressure of the interior of a containment in relation to the area outside of a containment.

Mini-Enclosures - Mini-enclosures may be used where glovebag setups are not feasible. Mini-enclosures shall be constructed of 6 mil polyethylene (attached with tape and/or glue to walls and floors) and shall be small enough for only one worker who can enter the enclosure one time, complete the asbestos related work activity, pass out the containerized debris/waste and exit. The worker shall have available a change room contiguous to the work area where he can clean his coveralls prior to leaving the area, and which will act as a transition between the enclosed and unenclosed areas.

Monitoring - May include:

a) Visual inspection for the presence of visible emissions; or
b) Air monitoring performed in accordance with accepted methods;
c) Core samples of encapsulated or bridged materials.
d) Bulk sampling of soil during and following abatement.
e) Sampling substrata following abatement.

Movable Object - An unattached piece of equipment or furniture in the work area which can be removed from the work area.

NESHAP - National Emissions Standards for Hazardous Air Pollutants (40 CFR Part 61, Nov. 20, 1990.)

NIOSH - National Institute for Occupational Safety and Health CDC-NIOSH.

NVLAP - National Voluntary Laboratory Accreditation Program.

Negative Air Unit - See “Pressure Differential Unit.”

Non-Friable Asbestos-Containing Material - any material containing more than one percent asbestos, that, when dry, cannot be crumbled, pulverized or reduced to a powder by hand pressure.

Outside Air - The air outside buildings and structures.

PACM - “presumed asbestos-containing material”. “Presumed Asbestos Containing Material” means thermal system insulation and surfacing material found in buildings constructed no later than 1980.

PCM - Phase contrast microscopy according to NIOSH Method 7400.

Plasticize - See "Poly".

Poly - Polyethylene sheeting.

Pressure Differential Unit (PDU) - A portable exhaust system equipped with HEPA filtration and capable of maintaining a constant low velocity air flow into contaminated areas from adjacent uncontaminated areas. Air intake must have a filter on it which can be changed within a containment.

Presumed Asbestos-Containing Material (PACM) - thermal system insulation and surfacing material found in buildings constructed no later than 1980. These materials are assumed to contain asbestos unless data rebuts the classification.

Regulated Area - An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit. Additionally “Regulated Area” means any measure used to restrict access to an area where personnel impacting asbestos-containing materials are required to wear respiratory protection and/or protective clothing by the project specifications regardless of airborne asbestos concentration levels.

Regulated Asbestos-Containing Material (RACM) is any friable material, any Category I non-friable ACM which has become friable, any Category I non-friable ACM which will be or has been subjected to sanding, grinding, cutting, or abrading, any Class II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to a powder by the forces expected to act on the material in the course of demolition or renovation operations.

Regulations - shall include but not be limited to:

a. U.S. Environmental Protection Agency Regulations for Asbestos (Title 40, Code of Federal Regulations, Part 61, Subparts A & B.)

b. U.S. Environmental Protection Agency, Office of Toxic Substances, Asbestos-Containing Materials in School Buildings, A Guidance Document, Parts 1 & 2.

c. Title 8, Chapter 4, Subchapters 1 through 21, California Administrative Code, General Industry Safety orders, Section 5208 "Asbestos" or the applicable sections of the Federal Asbestos Regulations. Cal/OSHA Construction Safety Orders, Section 1529.

d. "Asbestos Hazard Emergency Response Act", U. S. Environmental Protection Agency, 40 CFR, Part 763. Final Rule and Notice.

e. Applicable local county Air Pollution Control Districts and Air Quality Management Districts.

Removal - All operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

Renovation - The modifying of any existing structure, or portion thereof. Operations in which load-supporting structural members are wrecked or taken out are excluded.

Repair - The overhauling, rebuilding, reconstruction, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

Shower Room - A room between the clean room and the equipment room in the decontamination enclosure with hot and cold or warm running water controllable at the tap and suitably arranged for complete showering during decontamination.

Staging Area - Either the holding area or some area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.

Strip - To take off friable asbestos materials from any part of a facility.

Structural Member - Any load-supporting member of a facility, such as beams and load-supporting walls or any non-load-supporting member, such as ceilings and non-load supporting walls.

Surfactant - A chemical wetting agent added to water to improve penetration.

Surfacing Material - Any 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).

TEM - Transmission Electron Microscopy according to AHERA specifications for Level II analysis.

TSI - “Thermal System Insulation” Any material applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

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

Waste Transfer Airlock - A decontamination system utilized for transferring containerized waste from inside to outside of the work area.

Wet Cleaning - The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other utensils which have been dampened with water and afterwards thoroughly decontaminated or disposed of as asbestos contaminated waste.

Work Area - Designated rooms, spaces, or areas of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A contained work area is a work area which has been sealed, plasticized, and equipped with a decontamination enclosure system. A non-contained work area is an isolated or controlled-access work area which has not been plasticized nor equipped with a decontamination enclosure system.

3.0 Responsibilities

3.1 Facilities Management and Services (FMS):

1. Coordinating with the Chancellor's Office the encumbrance of funds, when available, and the administration of contracts for asbestos abatement projects.

2. Developing removal and re-insulation specifications for asbestos abatement contracts.

3. Acting as project manager for asbestos abatement contracts.

4. Soliciting technical assistance from Environmental Health and Safety in regards to specification development, the planning phase of asbestos projects, and evaluating the credentials of prospective contractors.

5. Maintaining a cadre of trained personnel who are capable of performing Class III asbestos work in support of the campus operations and maintenance program.

6. Transmitting records of laboratory results related to airborne asbestos surveys, including those performed during abatement projects, to Environmental Health and Safety for evaluation and retention.

7. Coordinating with Environmental Health and Safety and maintaining a comprehensive operations and maintenance program that provides for locating, identifying, maintaining and/or abating friable and non-friable asbestos-containing material.

3.2 Environmental Health and Safety (EHS):

1. Coordinating asbestos-related matters not directly associated with abatement projects. This includes employee notification efforts and handling inquiries from employees on potential exposure in the workplace or classroom.

2. Developing and maintaining the CSU, Chico Asbestos Management Plan, including Standard Operating Procedure for Cal/OSHA Class III asbestos work and an Annual Campus Wide Asbestos Notification.

3. Maintaining an up-to-date inventory of all known locations of friable and non-friable ACM in CSU, Chico buildings.

4. Providing technical assistance to FMS in specification development, the planning phase of asbestos projects, evaluating credentials of contractors, and developing and implementing site monitoring activities before, during, and after abatement operations.

5. Performing bulk asbestos sampling, and evaluating, recording, and maintaining laboratory results for all surveys that are not associated with a specific abatement project.

6. Receiving, recording and evaluating laboratory results related to airborne asbestos surveys, including those performed during abatement projects.

7. In conjunction with the project manager, providing initial inspection of asbestos abatement project set-up, including the containment barrier, airlock assembly, decontamination facilities, and worker protection program.

8. Providing technical assistance to the project manager as requested prior to and during asbestos abatement projects.

9. Providing hazard awareness training to workers who may encounter asbestos hazards in the workplace.

10. Providing training and consultation on the use of personal protective clothing and equipment by asbestos workers.

11. Coordinating the medical surveillance of asbestos workers.

12. Ensuring that asbestos contractors notify the appropriate regulatory agencies, e.g., Air Quality Management District, Cal/OSHA, Environmental Protection Agency.

3.3 Project Managers:

Ensuring that contractors whose work may involve disturbing or coming into contact with asbestos-containing materials in CSU, Chico buildings are notified of the conditions that may be encountered before any such work is started. This may be done by referring the contractor to Environmental Health and Safety for consultation.

3.4 Directors of Auxiliaries:

1. Ensuring that all asbestos-related work performed on state-owned buildings is performed in accordance with this procedure.

2. Ensuring that personnel under their supervision are notified, in accordance with Section 3.2.2 of this procedure, regarding the known existence of asbestos in buildings.

3. Ensuring that operations and maintenance programs are implemented that meet or exceed procedures outlined in this document for their buildings.

4.0 Work Practices

Introduction

Chico State University had decided to include as part of the work tasks by some employees limited removal of small quantities of friable and non-friable asbestos containing materials. Non-friable materials include, but are not limited to, vinyl floor tiles and associated mastic, window putty or glazing, acoustical ceiling tiles attached to substrates with mastic, roofing materials, mastics, cove base with mastic, drywall and joint compound (where the asbestos is only in the joint compound), and other materials not typically considered friable. Until 2012, Chico State University has chosen not to conduct Class III work on friable materials. Changes in policy by management and recent training for Class III work now allows limited removal of TSI and surfacing materials under Cal/OSHA definitions of this type of asbestos removal.

The quantity of friable and non-friable asbestos containing materials allowed to be removed by University employees is limited to that which can fit into a standard asbestos waste bag. Attached to this document is a description of the amount of waste material that can reasonably be placed into a standard 6 mil plastic waste bag for asbestos materials. A standard asbestos waste bag is 60" x 60" in size. The quantity of waste material that can reasonably fit into a standard asbestos waste bag has been determined by Federal OSHA (OSHA) to be one third to one half full. This determination was presented by OSHA in memo on August 23, 1996. Since one waste bag has become the standard volume of waste material determined by Cal/OSHA that delineates the amount of asbestos material that can be removed between Class I and Class III operations, this “one waste bag” volume is a reasonable approach to use as the limitation of the University in defining the amount of asbestos related work it chooses to perform.

Therefore, it is reasonable for the University to choose the OSHA definition of one waste bag as the defining amount of material to be removed by its employees under Class II related work. The volume of waste is thereby being limited to that amount of non-friable asbestos materials that can fill a standard asbestos waste bag one third to one half full. The work performed is not limited to linear feet or square feet, since depending upon the type of non-friable asbestos removed, the linear footage would vary greatly. The limit of friable surfacing and TSI material that can be removed under Class III asbestos work is one glovebag for TSI and one waste bag for surfacing materials.

4.1 Materials and Equipment

All poly shall be flame-retardant.

Disposal bags shall be constructed of 6 mil poly with labels required by OSHA, DOHS, and Toxic Substance Control regulations.

Surfactant (wetting agent) shall be used whenever possible to aide in the wetting of asbestos materials. If a manufactured product is used, it shall be mixed as specified by manufacturer.

Pressure differential units must be equipped with HEPA filtration and operated in accordance with ANSI Z9.2-79 and EPA guidance document EPA 560/5-83-002 Guidance for Controlling Friable Asbestos-Containing Materials in Buildings, Appendix F: Recommended Specifications

and Operating Procedures for the Use of Negative Pressure Systems for Asbestos Abatement, shall be utilized so as to meet the requirements of asbestos work practices.

All vacuums utilized for work related to asbestos must be equipped with HEPA filters.

All respirators shall be NIOSH-approved and additional parts must be on hand for immediate replacement of defective parts.

Full body disposable protective clothing, including head, body, and foot coverings consisting of material impenetrable by asbestos fibers (Tyvek or equivalent) shall be utilized during all clean up, repair, and removal work.

Rubber dustpans and rubber squeegees shall be utilized for cleanup of all asbestos-containing debris.

4.2 Respiratory Protection

All respiratory protection shall be worn in accordance with the University's written respiratory protection program, which includes all items as required by OSHA and outlined in these work practices and procedures.

Workers shall at a minimum; wear personally issued and individually identified respirators equipped with P-100 (HEPA) filters approved by NIOSH in the designated work area and/or whenever a potential exposure to asbestos exists.

Workers must perform positive and negative respirator seal checks each time a respirator is put on, whenever the respirator design so permits. If powered air purifying respirators are utilized they shall be tested for adequate flow as specified by the manufacturer.

At a minimum, workers shall have on file a qualitative fit test in accordance with procedures detailed in the Cal/OSHA requirements (Section 5144) for all respirators to be used. Documentation of the fit test results shall be maintained for each individual required to wear a respirator and for each respirator worn by the worker. These tests shall be conducted annually at a minimum.

No one wearing a beard shall be permitted to don a respirator and enter the work area unless it is the hood-type with no facial contact at the sealing surfaces of the respirator.

Use of any respirator must be in compliance with the manufacturer's instructions for proper use and care of that product.

Respiratory protection utilized by all University personnel while performing asbestos related work shall comply with Cal/OSHA Section 5144 (Respiratory Protection). The following list of respirators and their associated "protection factors" shall be the criteria for the selection of respiratory protection.

Respirator Selection	Protection Factor
Half-mask air purifying respirator equipped with HEPA filter.	10
Full-face air purifying respirator equipped with HEPA filter.	50
Full-face, powered air purifying respirators equipped with HEPA filter.	1000

Whenever powered-air-purifying respirator (PAPR) protection is used a sufficient supply of replacement batteries and HEPA filter cartridges shall be provided to the workers. At least one spare fully charged battery must be available on-site for each PAPR in use.

During encapsulation operations or usage of other organic base aerosols (e.g. spray glue, expanding foam, etc.) workers shall utilize combination organic vapor/HEPA filter respirator cartridges.

4.3 Workplace Entry and Exit Procedures

All workers and authorized personnel shall enter a regulated area through the designated entry point.

All personnel who enter the regulated work area must sign the entry log. This log shall have space for the workers name, unique identification number, time in, time out, and be identified with the project name, date, and location.

All personnel shall don appropriate respiratory protection and disposable coveralls, head covering and foot covering prior to entering a regulated work area. Eye protection and gloves shall also be worn, as appropriate. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the regulated work area.

Before leaving the work area all personnel shall remove gross contamination from the outside of respirators and protective clothing by brushing and/or wet-wiping procedures. (Small HEPA vacuums with brush attachments may be utilized for this purpose.)

Personnel shall remove all protective equipment except respirators, and deposit disposable clothing into appropriately labeled containers for disposal.

Still wearing respirators, personnel shall clean the outside of the respirators and the exposed face area with water prior to removal of respirator.

4.4 Differential Air Pressure Systems

Provide differential air pressure systems for each regulated work area which meets the needs of the project and provides adequate air movement within the containment or regulated work area.

All HEPA systems used shall be tested and certified on-site by an independent company at least one time per year. All vacuums and pressure differential units shall meet ANSI Z9.2, using testing agent. Documentation of these tests shall be kept on file. Retesting is recommended when any HEPA filters are changed.

Exhaust air shall be vented only to the exterior of the building. Such outlets shall not be near or adjacent to other building intake vents or louvers or at entrances to building. Openings made in the enclosure system to accommodate these units shall be made air-tight with tape and/or caulking as needed. They shall NOT be exhausted into occupied areas of the building. Twelve inch (12") extension ducts shall be used to reach from the work area to the outside when required. Careful installation shall be done to ensure that the ducts do not release fibers into uncontaminated building areas.

4.5 Air Sampling

Air sampling for asbestos shall follow NIOSH Method 7400. This requires using battery operated personal air sampling pumps to be worn by employees to assess exposures for compliance with Cal/OSHA standards. The flow rates of the low volume battery operated pumps are generally calibrated at about 2 liters per minute. Air sampling may also include the use of high volume air sampling pumps requiring 110 volt electricity. These pumps can be calibrated up to 15 liters per minute, although it is recommended that no more than 10 liters per minute be used. Air samples for asbestos are collected onto 25 millimeter (mm) mixed cellulose ester MC) filters with the extended cowl that are black in color.

Each filter cassette must be identified with a unique sample number that the University decides to use. It is suggested that a defined sampling identification system be used so all air sampling on different projects can be identified. For simplicity, suggestions may include using a sample number that utilizes the initials of the University with the project number or work order number followed by the sampling number. Sample numbers should be in sequential order. For example, three different samples collected on the same project may be the following: CSUC-589-01,CSUC-589-02,and CSUC-589-03.

In the above example, CSUC represents California State University Chico, and 589 represents the project number or work order number and -01, -02, -03 represent the three different air samples collected. Whatever sampling sequence is selected, it is important to decide on one sampling sequence and stick with it for consistency and ease of interpretation by the University staff. Using the work order number will also assist in tracking costs for that particular project.

Air sampling requires calibration of the air sample pump using either a pre-calibrated field rotameter, which is considered a secondary standard, or using a primary standard. It is more practical to use a pre-calibrated field rotameter to calibrate the air entering the cassette at the beginning of the air sampling period and at the conclusion of the sampling period. The flow rates must be recorded on an air sampling submittal sheet as well as the start and stop times. At the end of the sampling period, the average flow rate must be calculated by adding the start and ending flow rate and dividing by two. The average flow rate must be placed on the air sampling submittal sheet. The total time in minutes must be recorded on the third line of the air sampling submittal sheet. The total volume (vol.) of air collected must also be calculated by multiplying the average flow rate in liters per minute by the total time in minutes. This multiplication formula will cancel out the minutes in the denominator and results in volume, which are always reported in liters.

The field rotameters should be calibrated initially using a primary standard and re-calibrated on an annual basis. Records of the calibration shall be maintained in a central office decided by the Asbestos Coordinator.

4.6 Work Practices

In order to reduce airborne-fiber concentrations, use equipment capable of providing a fine spray mist to wet all asbestos-containing material with an amended water solution prior to and during the disturbance of any asbestos-containing material (ACM). Saturate the material to the substrate; however, do not allow excessive water to accumulate in the work area. Keep all removed material wet enough to prevent fiber release until it can be containerized for disposal. Wetting procedures are not equally effective on all types of asbestos-containing materials yet shall be used in all cases.

Saturated asbestos-containing material shall be removed in manageable sections. Removed material should be containerized immediately. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up. Gross debris shall be cleaned up and bagged prior to any work stoppage such as breaks, lunch or end of a shift.

Material removed from building structures or components shall not be dropped or thrown to the floor. Material should be removed as intact sections or components whenever possible and carefully lowered to the floor.

Double bagging of waste material is necessary. Bags shall not be overfilled. They should be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in gooseneck fashion. Do not seal bags with wire or cord.

After completion of all stripping work, surfaces from which asbestos-containing materials have been removed shall be wet-brushed and sponged or cleaned by some equivalent method to remove all visible residue.

After the work area has been rendered free of visible residues, a thin coat of a satisfactory encapsulating agent shall be applied to lock-down non-visible fibers on all surfaces in the work area including structural members, building components and plastic sheeting on walls, floors and covering non-removable items.

4.7 Glovebag Removal Techniques

The University chooses to restrict the amount of TSI to be removed by staff. Generally the maximum amount of TSI that will be allowed to be removed by University staff is three linear feet. This would require at least 16 hours of Class III Work asbestos training. Where the glovebag technique is to be used for removal of Thermal System Insulation (TSI), or in those areas where the University opts to use glovebags, all of the following conditions must be met:

1. The University shall follow the procedures recommended by the manufacturer of the glovebags, and the specifications required by Federal OSHA and Cal/OSHA regulations.

2. All mechanical HVAC systems in the work area should be turned off.

3. At least one layer of 4-6 mil black colored poly shall be placed on the ground level below the work area and extend at least five feet in all directions from the section of material being removed.

4. The purpose of the black plastic is to assist in providing immediate response to work practices, since any white colored TSI debris will be contrasted onto the black colored floor plastic.

5. A HEPA-filtered vacuum shall be in the immediate area for use in conjunction with the bags or in case of a spill.

6. Half-face respirators with P-100 (HEPA) cartridges and disposable suits (at a minimum) shall be used during this work.

7. A regulated area shall be established by posting the Cal/OSHA required sign and by allowing only authorized personnel into the work area. In some cases, plastic sheeting (poly) shall be used to cover the access points.

8. Glovebag may not be used on surfaces where temperatures exceed 150 degrees Fahrenheit.

9. Glovebag may be used only once, and may not be moved or slid for removal of a second section of TSI.

10. At least two persons shall perform Class I or Class III glovebag removal as defined by Federal and Cal/OSHA.

11. Before beginning the operation, loose and friable material adjacent to the glovebag operation shall be wrapped and sealed in two layers of 6 mil poly sheeting or otherwise rendered intact.

12. Where the system uses an attached waste bag, such bag shall be connected to a collection bag using a hose or other materials which shall withstand pressure of ACM waste and water without losing its integrity.

13. After sealing the glovebag to the system, the integrity of the seal must be tested using a ventilation smoke tube by filling the bag with smoke and squeezing the bag to make sure there are no leaks. If the smoke does leak out of the bag, additional duct tape shall be applied to seal any openings and smoke testing shall continue until there are no further leaks detected.

14. The worker shall apply a sufficient volume of amended water to all pipe wrap scheduled for removal while the pipe wrap is enclosed in the glovebag.

15. After all of the pipe insulation is removed, the upper sections of the glovebag and all exposed sections of piping shall be thoroughly cleaned using scrub pads, brushes and the Hudson-type sprayer with water.

16. The exposed ends of the remaining pipe insulation shall be sealed using wettable cloth to completely cover exposed ends of the pipe insulation.

17. Prior to placement in the disposal bag, Glovebag shall be collapsed by removing air within them using a HEPA-vacuum.

18. Upon detachment, the glovebag must be immediately placed into at least two 6 mil thick pre-labeled asbestos disposal bags. The disposal bags must be sealed using the "gooseneck" sealing technique.

19. Where pipes enter walls, floors, or ceilings which are not within the scope of the project, the pipe wrap shall be removed at least 1" into the structure and the pipe wrap end must be sealed with bridging encapsulant and/or wettable cloth such as “Hardcast”.

20. After removal of the glovebag, the repaired ends of pipe shall be examined and additional wettable cloth shall be added for additional coverage if needed.

4.8 General Repair of Damaged Thermal System (TSI)

Where TSI has been damaged, and it is feasible to repair the small nicks, cuts, and exposed ends, the following procedures shall be performed:

1. A piece of four to six mil poly sheeting shall be placed directly under the area to be worked to collect any fallen debris or repair compound.

2. At a minimum, half-face respirators with P-100 (HEPA) cartridges and disposable protective suits shall be used during this work.

3. A regulated area shall be established by posting the Cal/OSHA required sign and by allowing only authorized personnel into the work area. In some cases, plastic sheeting (poly) shall be used to cover the access points.

4. A HEPA-vacuum must be in the immediate area to pre-clean any debris observed surrounding the damaged section, or in the event of a mishap.

5. If work is performed indoors, the ventilation system shall be off in the areas worked in to prevent fiber distribution.

6. It will be necessary to remove small sections of other insulation material, such as fiberglass, if debris from the damaged pipe wrap has contaminated the other insulation material.

7. In some cases HEPA-vacuuming the damaged section will collect all loose, hanging, friable insulation material prior to any further repair work.

8. Very small cracks, holes, nicks, and cuts can be repaired with joint compound or with a single layer of wettable cloth (“Hardcast”) and an appropriate bridging encapsulant. Larger sections of damaged pipe wrap will require at least two layers of wettable cloth, particularly where pipe hangers or metal channel have damaged the insulation.

9. Where the pipe wrap cannot be removed completely from penetrations in the walls, floors, or ceilings, the pipe wrap shall be removed at least 1" into the opening and sealed with a bridging encapsulant to the surrounding surface level.

4.9 Drilling and Cutting Small Openings into Wall or Ceiling Systems

Drilling small holes or making small openings into wall and ceiling materials that contain asbestos must be performed using one of many different engineering controls. The selection of the engineering control depends upon the size of work, building material, location, and availability of the materials.

In all cases, a drop sheet of plastic shall be placed on the ground level extending at least five feet in all directions immediately below the area of work. If the work is on a wall, the plastic should be taped to the lower wall to prevent dust and debris from contaminating the flooring, carpeting, or other ground surfaces.

In general, one of the following procedures should be used while making penetrating cuts into asbestos containing materials:

1. Use a HEPA vacuum with the intake hose nozzle placed within one inch of the surface of material being cut or drilled. The HEPA vacuum shall be the first method of choice for cutting wall and ceiling or drilling activities.

2. Use water to continually spray the surface of the material being cut or drilled, making sure there is no visible dust generated. All of the slurry shall be collected using a rag or sponge or paper towels and placed into an asbestos waste disposal bag.

3. Shaving foam can be used for small penetration cuts or small holes to be drilled. A large enough area of the surface shall be covered with the shaving foam prior to the drilling operation. Careful attention should be made while drilling into the wall and while removing the drill from the wall to prevent dust from being released. The drill must be pulled out slowly to prevent release of dust. All of the slurry shall be collected using a rag or sponge or paper towels and placed into an asbestos waste disposal bag.

4. For penetration cuts into sheet rock wall system, it may be more feasible to make knife cuts onto the wall in lieu of a manual hand saw. Multiple cuts onto the same spots using a razor blade tool will be required in order to completely cut through the wall system.

5. Another good option is to use a small reciprocating hand saw or blade within a shroud in conjunction with a HEPA vacuum. Only those hand saws equipped with a hose connection to a HEPA vacuum may be used.

6. Since control of dust is more difficult with ceiling penetrations, a small plastic mini-enclosure plastic should be erected whenever ceiling systems are to be cut open. The above engineering control options should still be used, but for work that disturbs ceilings, the options must be used within a mini-enclosure, or within a glovebag that has been sealed to the ceiling.

4.10 Disposal Requirements and Procedures

Disposal Requirements: Hazardous Waste versus Non-Hazardous Asbestos-Containing Waste Materials that contain more than one percent asbestos will be disposed of as hazardous waste or non-hazardous asbestos-containing waste depending on the friability of the materials.

NON-FRIABLE MATERIALS: The following materials may be disposed as non-friable, non-hazardous asbestos-containing waste if they have not been subjected to sanding, grinding, cutting, or abrading:

- Built-up Roofing & Patch Mastic
- Transite Pipe or Panels
- Sheetrock & Joint Compound (<1% asbestos content when composite analysis performed)
- Base Cove/Cove Mastic
- Vinyl Floor Tile (VFT) and Mastic

The following materials shall be handled and disposed as friable, hazardous asbestos-containing waste:

- TSI (regardless of asbestos content)
- VFT (severely damaged during the removal process)
- Sheetrock
- Sheet Vinyl (linoleum)
- Skim Coat (surfacing materials)
- Ceiling Tiles
- Fire Proofing
- Acoustic Plaster
- Gasket materials
- Brick Materials and other ACM not specifically mentioned here
- Fire Rated Doors

Disposal of all friable asbestos-containing waste must be tracked utilizing a current copy of a Uniform Hazardous Waste Manifest. These manifests are to be properly filled out and signed by an authorized University representative in Environmental, Health, and Safety.

HEPA filters and disposable coveralls should be disposed as friable asbestos waste and placed into asbestos waste bags for eventual disposal. Drop sheets of plastic used by University personnel can be cleaned of all visible dust and debris by wet wiping and HEPA vacuuming, and thus it would seem reasonable to allow disposal of the cleaned plastic as non-friable asbestos waste.

Mastic, and any solvent used to remove VFT mastic shall be handled as a separate waste stream with proper waste characterization. Package all solvent/mastic waste created in sufficient absorbent to eliminate all free liquids, and place in a D.O.T. 7A Type A approved steel drum (49 CFR 178.350). Label the drum as required, and transport to an approved Class 1 landfill with a separate Uniform Hazardous Waste Manifest and Waste Profile Documentation signed by EHS.

A. Disposal Procedures, Packaging and Labeling

At a minimum, non-friable asbestos waste shall be placed into clear, six mil thick plastic bags and have a DANGER ASBESTOS warning label as required by 8 CCR 1529. Bags shall be sealed using the gooseneck technique.

At a minimum, friable asbestos waste shall be placed into clear, six mil thick plastic bags and have a DANGER ASBESTOS warning label as required by 8 CCR 1529, and appropriate hazardous waste labeling as required by Cal/OSHA and the Department of Health Services (DHS), Division of Toxic Substances Control (DTSC). The label shall include the generator's name, address, accumulation date, and Hazardous Waste Manifest Document number. Bags shall be sealed using the gooseneck technique.

If disposal drums are required, the drums shall be metal or fiber board with locking ring tops. The drums must be approved for use by the selected dump site.

Stick-on labels as per OSHA and DHS requirements for disposal containers shall be provided. All containers shall be labeled in accordance with DHS regulations that require a "Caution" label and a "Hazardous Waste" label with the generator's name, address, and Manifest Document number.

Disposal must occur at an authorized site in accordance with regulatory requirements of NESHAP and applicable State and Local guidelines and regulations, including the California State Department of Health Services, Toxic Substances Control Division and the Department of Water Resources.

Transport vehicles shall be marked with the sign prescribed by NESHAP during loading and unloading to warn people of the presence of asbestos.

All dump receipts, trip tickets, waste manifests, NESHAP Waste Shipment Record (WSR) and other documentation of disposal shall be delivered to the University, for its records. The WSR is not required if the cubic yards of asbestos-containing waste is indicated on the Waste Manifest. The manifest should be signed by the University representative, the hauler, and the Disposal Site Operator as the responsibility for the material changes hands. If a second hauler is employed, his name, address, telephone number and signature should also appear on the form.

The WSR, if used, shall be signed by the University representative and the disposal site operator.

All manifests shall have asbestos waste identified as: "RQ, Asbestos, 9 NA2212, III". This requirement may be changed as new regulations are issued.

All manifests shall be accompanied by a "Notice and Certification". A signed copy of this must be provided to the University representative.

B. Transportation to the Landfill

When moving containers, utilize hand trucks, carts and proper lifting techniques to avoid back injuries. Trucks with lift gates are helpful for raising drums during truck loading.

Any debris or residue observed on containers or surfaces outside of the work area resulting from clean-up or disposal activities shall be immediately cleaned up using HEPA filtered vacuum equipment and/or wet methods as appropriate. If necessary, place damaged waste bags into two new asbestos waste bags.

4.11 Specific Procedures and Requirements

The descriptions of work in this section are specific to asbestos containing materials. When drywall is indicated, it is assumed there is asbestos in the drywall skim or texture coat applied to the surface. When the drywall system with an asbestos containing texture or skim coat is present, impact to this material would be considered a Class II work activity.

If bulk sampling shows asbestos is only in the joint compound but not in the texture or skim coat, the drywall material is considered a miscellaneous material not a surfacing material and the work impacting this drywall system is considered Class II.

When plaster is noted in the work practices in the next section, it is assumed the plaster has been tested and found to contain asbestos.

5.0 Cleanup of Asbestos Debris and Associated Dust

5.1 Cleanup of Asbestos Debris and Wipe Down of Associated Dust:

Size of Work:	No size limit for cleaning. Debris collected must be able to fit in one standard-sized waste bag (60 inches by 60 inches.)
Cal/OSHA Class:	Class II or III.
Level of Training:	Class II or III (6-8 Hour Minimum.)
Cleaning Techniques:	HEPA vacuuming and wet wiping of all effected surfaces in regulated area.
Site Preparation:	1. Evacuate room(s) where debris and associated dust is present, and turn off the HVAC system. 2. Lock the door(s), and post asbestos warning signs. 3. Contact EHS and Asbestos Coordinator. 4. Decide on work plan and response by emergency personnel. 5. Wear half-face HEPA filtered respirator, disposable coveralls and enter room to begin clean-up. 6. Clean all horizontal surfaces by HEPA vacuuming and wet wiping techniques. 7. Provide a thorough visual inspection of the entire room. 8. EHS and the Asbestos Coordinator will determine if clearance air samples will be collected in the room depending on the size of the spill. 9. Document the event, clean-up, and personnel involved.
Notification Requirements:	Verbal and written notification to Asbestos Coordinator.
Personal Protection:	Half-face respirator with P-100 (HEPA) cartridges and disposable coveralls are required.
Air Monitoring:	Personal air monitoring is required.
Final Visual Inspection:	The area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.

Disposal Requirements: Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.

Required Forms:

1. Worker sign-in.
2. Work Order.
3. Air Sample.
4. Final Visual Inspection.

5.2 Screwing and Drilling Holes UP TO TWO INCHES IN SIZE into Sheetrock and Plaster Walls/Ceilings:

Size of Work: Attachment of screws or drilling small holes (less than 2" in diameter.)

Cal/OSHA Class: Class III.

Level of Training: Class III (6-8 hour minimum with drilling/cutting techniques included in class.)

Abatement Techniques: Small holes can be drilled or items can be screwed into walls using the nozzle of a HEPA vacuum directly next to the point of disturbance or by placing shaving cream directly on the surface of the material. Air sampling must document that these techniques are effective in eliminating airborne release of asbestos. Refer to Section 4.9 for more details.

Site Preparation: Until air sampling is conducted, plastic sheeting must be placed on the floor area immediately below the wall area extending at least five feet in all directions. Once air sampling has verified that no asbestos is being released, no special site preparation is required.

Notification Requirements: Verbal notification to Asbestos Coordinator.

Personal Protection: Once a Negative Exposure Assessment (NEA) has been established for this work operation, no personal protective clothing or respiratory protection is required. Prior to the establishment of an NEA, a half-face respirator with P-100 (HEPA) cartridges and disposable coveralls is required.

Air Monitoring: Personal air monitoring is required at least annually to maintain the NEA that documents exposures are below the Cal/OSHA Permissible Exposure Limit (PEL) and Excursion Limit.

Final Visual Inspection: Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an

evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.

Disposal Requirements: Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.

Required Forms: None Required.

5.3 Penetrations/cuts into Sheetrock and Plaster Walls/Ceilings (LESS THAN ONE SQUARE FOOT):

Size of Work: Small penetrations or cuts that are less than one square foot.

Cal/OSHA Class: Class III.

Level of Training: Class III (6-8 hour minimum with drilling/cutting techniques included in class.)

Abatement Techniques: Work can be done without the use of a mini-enclosure if hand tools are used and the nozzle of a HEPA vacuum is used directly next to the point of cut. The material to be disturbed must be wetted before and during the removal process. The sawing/cutting action shall be slow and deliberate allowing capture of the dust by the HEPA vacuum. Two workers are needed to implement this process. Refer to Section 4.9.

Air sampling must document that these techniques are effective in eliminating airborne release of asbestos.

Site Preparation: Plastic sheeting must be placed on the floor area immediately below the wall or ceiling area extending at least five feet in all directions. Staff in work area should not be present in the immediate work area.

Notification Requirements: Verbal notification to Asbestos Coordinator.

Personal Protection: Once a Negative Exposure Assessment (NEA) has been established for this work operation, no personal protective clothing or respiratory protection is required. Prior to the establishment of an NEA, a half-face respirator with P-100 (HEPA) cartridges and disposable coveralls is required.

Air Monitoring: Personal air monitoring is required, at least annually after negative exposure assessments show exposures below the Cal/OSHA PEL.

Final Visual Inspection: Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.

Disposal Requirements: Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.

Required Forms:

1. Worker sign-in.
2. Work Order.
3. Air Sample.
4. Final Visual Inspection.

5.4 Penetrations/cuts into Sheetrock and Plaster Walls/Ceilings (ONE TO FOUR FEET IN SIZE)

Size of Work: Penetrations or cuts that are greater than one square foot and less than about four square feet.

Cal/OSHA Class: Class III.

Level of Training: Class III (16 hour minimum.)

Abatement Techniques: A HEPA vacuum must be used in conjunction with the hand saw. Use of a razor knife to cut the opening may be used as an alternative method using either a HEPA vacuum or a water spray bottle. Removal of ceiling material will require a mini-enclosure to control the debris. All the material to be disturbed must be wetted before and during the removal process. Debris must be wetted again prior to placing it in waste bags. Refer to Section 4.9.

Site Preparation: Plastic sheeting must be placed on the floor area immediately below the wall or ceiling area extending at least five feet in all directions. Staff in work area should not be present in the immediate work area.

Notification Requirements: Verbal notification to Asbestos Coordinator.

Personal Protection: Once a Negative Exposure Assessment (NEA) has been established for this work operation, no personal protective clothing or respiratory protection is required. Prior to the establishment of an NEA, a half-face respirator with P-100 (HEPA) cartridges and disposable coveralls is required.

Air Monitoring: Personal air monitoring is required, at least annually after negative exposure assessments show exposures below the Cal/OSHA PEL.

Final Visual Inspection: Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.

Disposal Requirements: Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.

Required Forms:

1. Worker sign-in.
2. Work Order.
3. Air Sample.
4. Final Visual Inspection.

5.5 Floor Tile, Rubber Base Cove, and Mastic LESS THAN 50 SQUARE FEET)

Size of Work: Less than 50 square feet.

Cal/OSHA Class: Class II.

Level of Training: Class III (6-8 hour minimum.)

Abatement Techniques: For quantities less than about 15 square feet, removal can be outside of the mini-enclosure with the floor tiles removed using either a heat gun to loosen the tiles or prying them with a small tools, hand scrapers, and shall be continually wetted as they are lifted in sizable pieces. For quantities greater than about 15 square feet, removal should be made within a small mini-enclosure with either a HEPA vacuum or small negative air unit providing a NPE. The base cove mastic can be removed by scraping the material with a hand scraper onto a plastic drop sheet taped to the floor. The mastic on the floor can be removed by an approved low odor solvent using brushes, scrapers, and clean rags.

Site Preparation: Small quantities of floor tile and mastic (<15 sq. feet) does not need plastic on the adjacent floor. Areas larger than 15 sq. ft. and less than 50 square feet shall be within a mini-enclosure with a HEPA vacuum used to create a negative pressure. For base cove material only, place plastic onto the floor surface and tape the plastic to the floor along the edge of the wall to catch the mastic during hand scraping.

Notification Requirements:	Verbal and written notification to the Asbestos Coordinator.
Personal Protection:	Half-face respirator with P-100 (HEPA) cartridges and disposable coveralls. Rubber gloves approved for the solvent used and eye goggles shall be worn during solvent application and removal on the floor.
Air Monitoring:	Personal air monitoring is required. Area air sampling should be considered.
Final Visual Inspection:	Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.
Disposal Requirements:	Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.
Required Forms:	1. Worker sign-in. 2. Work Order. 3. Air Sample. 4. Final Visual Inspection.

5.6 Floor Tile, Rubber Base Cove, and Mastic GREATER THAN 50 SQ. FT. BUT LESS THAN 100 SQ. FT.)

Size of Work:	Less than 100 square feet.
Cal/OSHA Class:	Class II.
Level of Training:	Class III (6-8 hour minimum.)
Abatement Techniques:	For quantities of floor tile greater than about 50 square feet but less than 100 square feet, removal shall be within a mini-enclosure with the floor tiles removed using either a heat gun to loosen the tiles or prying them with a small tools, hand scrapers, and continually wetting them as they are lifted in sizable pieces. One or more HEPA vacuums or a small negative air unit shall be used to establish a NPE. The base cove mastic can be removed by scraping the material with a hand scraper onto a plastic drop sheet taped to the lower wall. The mastic on the floor can be removed by an approved low odor solvent using brushes, scrapers, and clean rags.

Site Preparation:	A three foot high layer of four mil plastic shall be placed on the lower walls as a splash layer for the mastic, and a negative air unit should be installed to establish NPE after critical barriers are installed. For base cove material only, place plastic onto the floor surface and tape the plastic to the floor at the edge of the wall to catch the mastic during hand scraping.
Notification Requirements:	Verbal and written notification to the Asbestos Coordinator.
Personal Protection:	Half-face respirator with P-100 (HEPA) cartridges and disposable coveralls. Rubber gloves approved for the solvent used and eye goggles shall be worn during solvent application and removal on the floor.
Air Monitoring:	Personal air monitoring is required. Area air sampling should be considered. Clearance air sampling should be performed by a third party.
Final Visual Inspection:	Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.
Disposal Requirements:	Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.
Required Forms:	1. Worker sign-in. 2. Work Order. 3. Air Sample. 4. Final Visual Inspection.

5.7 Rubber Base Cove and Mastic (No Limit):

Size of Work:	Less than 100 square feet.
Cal/OSHA Class:	Class II.
Level of Training:	Class III (6-8 hour minimum.)
Abatement Techniques:	The base cove mastic can be removed by manual scraping the material with a hand scraper onto a plastic drop sheet taped to the floor near the wall. It is assumed that only the high points of the base cove mastic will be removed, leaving the majority of the mastic in place with new mastic to be placed over the old mastic.
Site Preparation:	For base cove material only, secure the place plastic onto the floor surface immediately next to the wall using duct tape along the entire length of wall area to catch the mastic during hand scraping. The plastic should extend approximately 4-5 feet away from the entire length of wall.
Notification Requirements:	Verbal and written notification to the Asbestos Coordinator.
Personal Protection:	Once a Negative Exposure Assessment (NEA) has been established for this work operation, no personal protective clothing or respiratory protection is required. Prior to the establishment of an NEA, a half-face respirator with P-100 (HEPA) cartridges and disposable coveralls is required.
Air Monitoring:	Personal air monitoring is required, at least annually after negative exposure assessments show exposures below the Cal/OSHA PEL.
Final Visual Inspection:	Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.
Disposal Requirements:	Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.
Required Forms:	1. Worker sign-in. 2. Work Order. 3. Final Visual Inspection.

5.8 Penetrations/cuts into Roofing Materials:

Work Type:	Penetrations/cuts into Built-up Roofing Materials.
Size of Work:	Various sizes typical for HVAC systems, roof vents, light wells, electrical, etc.
Cal/OSHA Class:	Class II.
Level of Training:	Class III (6-8 hour class.)
Abatement Techniques:	Razor blade cutting by hand shall be the primary method of cutting roof materials. A power saw may be used only if a HEPA vacuum is attached to the saw. Slightly wet the roofing material to prevent visible dust emissions.
Site Preparation:	Close adjacent windows within 15 feet of the cutting area and turn off any HVAC systems with outside air intakes immediately adjacent to the penetration cuts. As an alternative, seal the outside air opening at the HVAC system with plastic temporarily during the roof penetration cuts.
Notification Requirements:	Verbal and written notification to the Asbestos Coordinator.
Personal Protection:	Once a Negative Exposure Assessment (NEA) has been established for this work operation, no personal protective clothing or respiratory protection is required. Prior to the establishment of an NEA, a half-face respirator with P-100 (HEPA) cartridges and disposable coveralls is required.
Air Monitoring:	Personal air monitoring is required, at least annually after negative exposure assessments show exposures below the Cal/OSHA PEL.
Final Visual Inspection:	Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.
Disposal Requirements:	Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.
Required Forms:	1. Final Visual Inspection.

5.9 Pipe Insulation, TSI, Repair and Patch

Size of Work:	No limit to the amount of patching and repair work on TSI.
Cal/OSHA Class:	Class III.
Level of Training:	Class III (6-8 hour minimum.)
Abatement Techniques:	Wettable cloth (such as Hardcast) shall be used to repair damaged TSI. The wettable cloth shall be wetted and wrapped onto the damaged surfaces of TSI. Pipe insulation should have the wettable cloth wrap completely around the pipe diameter. On tanks and boilers, the wettable cloth shall be placed onto the damaged areas and secured to the surrounding metal edges. Multiple layers shall be applied and extended several inches beyond the damaged section. The plastic sheeting below the work area shall be cleaned by wet wiping after the work is completed and placed into a clear waste bag with a Cal/OSHA warning label. The floor below the patch and repair area shall be HEPA vacuumed following the repair. Refer to Section 4.8 for more details.
Site Preparation:	The floor area immediately below the damaged pipe or TSI work area should first be HEPA vacuumed prior to any repair work. A drop sheet of four or six mil plastic shall be placed onto the floor immediately below the area of work and extend at least five feet beyond the area of repair in all directions.
Notification Requirements:	Verbal and written notification to the Asbestos Coordinator.
Personal Protection:	Half-face respirator with P-100 (HEPA) cartridges and disposable coveralls shall be worn whenever disturbing TSI.
Air Monitoring:	Personal air monitoring is required, at least annually after negative exposure assessments show exposures below the Cal/OSHA PEL.
Final Visual Inspection:	Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.
Disposal Requirements:	All TSI material is considered friable and is a hazardous waste. Any waste generated must be placed into two six mil asbestos waste bags with the diamond label. All air from the waste bags shall be evacuated using a HEPA vacuum prior to sealing with duct tape.
Required Forms:	None Required.

5.10 Pipe Insulation and TSI Removal (LESS THAN THREE LINEAR FT. OR LESS THAN THREE SQ. FT.):

Size of Work:	Less than three linear feet or less than three square feet of TSI.
Cal/OSHA Class:	Class III.
Level of Training:	Class III (16 hour minimum.)
Abatement Techniques:	All pipe insulation removal shall be by glovebag technique following the manufacturer's directions. Only one section of pipe insulation is to be removed by a single glovebag. All work is to be performed by a team of two trained workers. For TSI other than pipe insulation, all work shall be within a mini-enclosure under negative pressure established with a HEPA vacuum. The TSI shall be wetted prior to removal, during removal, and as it is being placed in the waste bag. The floor shall be HEPA vacuumed following all abatement. Any exposed ends of TSI shall be repaired with wettable cloth as required in Part 11.9 - Pipe Insulation, TSI, Repair and Patch. Refer to Section 4.7 for more details.
Site Preparation:	The HVAC system should be turned off and locked out before any work begins in the work area. The floor immediately below the work area shall be pre-cleaned using a HEPA vacuum. The floor shall be covered with a layer of four to six mil black colored plastic extending at least five feet in all directions. A HEPA vacuum shall be present in the immediate area.
Notification Requirements:	Verbal and written notification to the Asbestos Coordinator.
Personal Protection:	Half-face respirator with P-100 (HEPA) cartridges and disposable coveralls shall be worn at all times when removing TSI.
Air Monitoring:	Personal air monitoring is required, at least annually after negative exposure assessments show exposures below the Cal/OSHA PEL.
Final Visual Inspection:	Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.
Disposal Requirements:	All TSI material is considered friable and is a hazardous waste. Any waste generated must be placed into two six mil asbestos waste bags with the diamond label. All air from the waste bags shall be evacuated using a HEPA vacuum prior to sealing with duct tape.

Required Forms:

1. Worker sign-in.
2. Work Order.
3. Air Sample.
4. Final Visual Inspection.

5.11 Pipe Insulation and TSI Removal (GREATER THAN THREE LINEAR FT. OR THREE SQ. FT.):

Size of Work: Greater than three linear feet or greater than three square feet of TSI.

Cal/OSHA Class: Class I.

Level of Training: Class I (40 hour minimum.)

Abatement Techniques: All pipe removal is to be removed using glovebag techniques following the manufacturer's directions. Only one section of pipe insulation is to be removed by a single glovebag. All work is to be performed by a team of two trained workers. The floor shall be HEPA vacuumed following all abatement. Any exposed ends of TSI shall be repaired with wettable cloth as required in Part 11.9 - Pipe Insulation, TSI, Repair and Patch. Refer to Section 4.7 for more details.

Site Preparation: The floor immediately below the work area shall be covered with a layer of six mil black colored plastic extending at least five feet in all directions. The HVAC system shall be turned off and locked off. A HEPA vacuum shall be present in the immediate work area. For work involving greater than 10 linear feet of pipe insulation or any quantity of other TSI, the work shall be performed within a mini-enclosure with either a negative air unit or HEPA vacuum placed in the work area to establish a NPE. A shower is required if greater than 25 linear or 10 square feet of TSI is removed.

Notification Requirements: Verbal and written notification to the Asbestos Coordinator.

Personal Protection: Half-face respirator with P-100 (HEPA) cartridges and disposable coveralls shall be worn while removing any TSI.

Air Monitoring: Personal air monitoring is required. Clearance air sampling shall be conducted by a third party following removal.

Final Visual Inspection: Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.

Disposal Requirements: All TSI material is considered friable and is a hazardous waste. Any waste generated must be placed into two six mil asbestos waste bags with the diamond label. All air from the waste bags shall be evacuated using a HEPA vacuum prior to sealing with duct tape.

Required Forms:

1. Worker sign-in.
2. Work Order.
3. Air Sample.
4. Final Visual Inspection.

5.12 Fireproofing and Surfacing Material Removal (LESS THAN THREE SQ. FT.):

Size of Work: Less than three square feet.

Cal/OSHA Class: Class III.

Level of Training: Class III (16 hour minimum.)

Abatement Techniques: All fireproofing material shall be removed within a mini-enclosure if the material is accessible. If the fireproofing material is in an attic space, a mini-enclosure shall be used to access the work area. All work is to be performed by a team of two trained workers. Small sections of fireproofing shall be wetted with amended water using a Hudson-type sprayer to thoroughly wet the material and allow the fireproofing to soak up the water and become saturated. Small sections shall be carefully scraped into a container held immediately below the areas being scraped and within inches of the fireproofing. The second person shall continuously spray the fireproofing material as the first person is scraping the material with a hand scraper. Apply an approved encapsulant to the surface of the substrate that was cleaned and to the edges of the adjacent fireproofing.

Site Preparation: The floor immediately below the work area shall be covered with a layer of six mil plastic extending at least five feet in all directions. (Realize that the “floor area” may be the floor of the attic space or the top of the ceiling system). The HVAC system should be turned off and locked out. A HEPA vacuum shall be present in the immediate work area, and shall be used to vacuum the surface of the floor following all work.

Notification Requirements: Verbal and written notification to the Asbestos Coordinator.

Personal Protection: Half-face respirator with P-100 (HEPA) cartridges, disposable coveralls, and eye protection (goggles) are required.

Air Monitoring: Personal air monitoring is required.

Final Visual Inspection: Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.

Disposal Requirements: All surfacing material is considered friable and is a hazardous waste. Any waste generated must be placed into two six mil asbestos waste bags with the diamond label. All air from the waste bags shall be evacuated using a HEPA vacuum prior to sealing with duct tape.

Required Forms:

1. Worker sign-in.
2. Work Order.
3. Air Sample.
4. Final Visual Inspection.

5.13 Fireproofing and Surfacing Material Removal (GREATER THAN THREE SQ. FT.):

Size of Work: Greater than about three square feet of surfacing material.

Cal/OSHA Class: Class I.

Level of Training: Class I (40 hour minimum.)

Abatement Techniques: All fireproofing material shall be removed within a mini-enclosure if the material is accessible. If the fireproofing material is in an attic space, a mini-enclosure shall be used to access the work area. All work is to be performed by a team of two trained workers. Small sections of fireproofing shall be wetted with amended water using a Hudson-type sprayer to thoroughly wet the material and allow the fireproofing to soak up the water and become saturated. Small sections shall be carefully scraped into a container held immediately below the areas being scraped and within inches of the fireproofing. The second person shall continuously spray the fireproofing material as the first person is scraping the material with a hand scraper.

Site Preparation: The floor immediately below the work area shall be covered with a layer of six mil plastic extending at least five feet in all directions. (Realize that the “floor area” may be the floor of the attic space or the top of the ceiling system). The HVAC system shall be turned off and locked off. A HEPA vacuum shall be present in the immediate work area. For any quantity of material being removed, the work shall be performed within a mini-enclosure with either a negative air unit or HEPA vacuum placed in the work area to establish a NPE. A shower is required if greater than 10 square feet is removed.

Notification Requirements: Verbal and written notification to the Asbestos Coordinator.

Personal Protection: Half-face respirator with P-100 (HEPA) cartridges, disposable coveralls, and eye protection (goggles) are required.

Air Monitoring: Personal air monitoring is required. Clearance air sampling generally will always be collected following the work.

Final Visual Inspection: Upon the completion of all activities listed above and prior to termination of pressure differential unit and removal of barriers a visual inspection of the surfaces cleaned shall be performed. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any three dimensional debris remaining, shall be removed with the use of a HEPA vacuum or by wet wiping prior to release of the area for occupancy by unprotected personnel.

Disposal Requirements: All surfacing material is considered friable and is a hazardous waste. Any waste generated must be placed into two six mil asbestos waste bags with the diamond label. All air from the waste bags shall be evacuated using a HEPA vacuum prior to sealing with duct tape.

Required Forms:

1. Worker sign-in.
2. Work Order.
3. Air Sample.
4. Final Visual Inspection.

5.14 Repair and Removal of Transite Pipe and Laboratory Tables and Benches:

Size of Work: Less than 100 linear feet.

Cal/OSHA Class: Class II.

Level of Training: Class II (6-8 hours) Training shall include Snap Cutting Techniques.

Abatement Techniques: Snap cutting of transite pipe is the preferred method to cut sections of transite pipes. Any beveling that is required must be done wet and collection of all wet debris shall be contained on a sheet of plastic four to six mil placed on the ground immediately below the area of work. The plastic shall be carefully placed under the section of transite pipe requiring filing of the edges to capture all water and transite debris. When whole sections of transite sheeting, roof tiles, or wall shingles are to be removed, they are to be removed intact by carefully removing the nails or screws that hold them in place.

Site Preparation: Four to six mil plastic shall be placed under the transite pipe being cut or beveled. Laboratory benches or tables should not be cut inside of buildings. If possible the laboratory tables or benches

should be removed from the room and placed into a mini-enclosure under negative pressure prior to being saw cut using a HEPA equipped saw. Transite wall or roof shingles or transite sheets being removed intact shall have the work area below covered with six mil plastic extending at least five feet in all directions.

Notification Requirements: Verbal and written notification to Asbestos Coordinator.

Personal Protection: Once a Negative Exposure Assessment (NEA) has been established for this work operation, no personal protective clothing or respiratory protection is required. A half-face respirator with P-100 (HEPA) cartridges and disposable coveralls is required until NEA is established.

Air Monitoring: Personal air monitoring is required, at least annually after negative exposure assessments show exposures below the Cal/OSHA PEL.

Final Visual Inspection: Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.

Disposal Requirements: Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.

Required Forms:

1. Worker sign-in.
2. Work Order.
3. Air Sample.
4. Final Visual Inspection.

5.15 Part 11.15 - Mini-Enclosure Work with Surfacing or TSI Asbestos

Size of Work: That which can fit into one asbestos waste bag or one glovebag.

Cal/OSHA Class: Class III.

Level of Training: Class III (16 hours.)

Abatement Techniques: A pre-manufactured portable pop-up mini-enclosure or one constructed by the University staff shall be used to safely access areas in attic spaces where asbestos containing fireproofing or TSI is known. The “mini-cube” or “mini-enclosure” is designed to provide a controlled access to a ceiling attic space and sometimes wall cavities where known asbestos containing fireproofing or TSI is present and

is used for repairs and a safe access to the attic. The mini-cube shall be positioned in the area of work and pushed up to the underside of the ceiling. The top of the mini-cube shall have a cleanable soft rubber-like material added to the top of the manufactured mini-cube frame so it can be pushed up to the ceiling and provide a seal at the ceiling. A HEPA filtered vacuum shall be present and placed outside of the mini-cube near the entrance with the long extension hose placed inside of the mini-cube to be used to create a slight negative pressure inside of the mini-cube, for cleaning of light fixtures, building components, and for cleaning inside of the mini-cube prior to employees exiting the mini-cube. Inside of the mini-cube there shall be a spray bottle with water, clean paper towels, 6-mil plastic bag with asbestos warning label for waste, and any other hand tools or equipment used to accomplish the work task. The disposable coveralls shall be placed inside of the waste bag, air evacuated from the bag using the HEPA vacuum, and sealed with duct tape.

Site Preparation: The pre-manufactured portable mini-cube is on wheels and is completely sealed and does not require any additional site preparation.

Notification Requirements: Verbal and written notification to Asbestos Coordinator.

Personal Protection: Personal protective clothing and respiratory protection is required for this work at all times inside of the mini-cube due to the potential exposure to fireproofing and/or TSI. A half-face respirator with P-100 (HEPA) cartridges and disposable coveralls are required.

Air Monitoring: Personal air monitoring is required, at least annually after negative exposure assessments show exposures below the Cal/OSHA PEL.

Final Visual Inspection: Upon the completion of all work activities inside of the mini-cube, the area shall be visually inspected for any three dimensional debris in the mini-cube. The floor of the mini-cube shall be vacuumed using the HEPA vacuum, followed by wet wiping with the paper towels and water from the spray bottle prior to workers leaving the mini-cube.

Disposal Requirements: Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.

Required Forms:

1. Worker sign-in.
2. Work Order.
3. Air Sample.
4. Final Visual Inspection.

5.16 Removal of Asbestos Containing Electrical Wire:

Size of Work:	Less than 100 linear feet.
Cal/OSHA Class:	Class II.
Level of Training:	Class II (6 - 8 hours.)
Abatement Techniques:	When there is asbestos containing electrical wiring to be removed from a light fixture it will generally be removed by either unscrewing the nut or bolt to release the electrical wiring, or it may be necessary to cut the wiring using a wire cutter. Sometimes older asbestos containing electrical wiring is damaged and in a friable condition, which must be determined by the electrician. If the electrical wire is a large woven type of braid insulation and is determined to be friable, it may be necessary to remove the entire light fixture, place it into a six-mil plastic bag and conduct the removal of the electrical wiring inside of a sealed mini-enclosure following procedures in Part 11.15. It may be necessary to add a ceiling to the top of the mini-enclosure before conducting the work to completely enclose the mini-enclosure. Other small diameter wiring that contains asbestos and is not considered friable can be cut with the wire cutters after either electrical tape or duct tape has been wrapped around the wiring where it will be cut; thereby minimizing any release of potential asbestos while snipping the wire wrapped with tape. The asbestos containing wire removed shall be placed into a 6-mil plastic waste bags with the asbestos warning label, and shall be wetted with a spray bottle.
Site Preparation:	Four or six-mil plastic shall be placed under the work area below covered with six mil plastic extending at least five feet in all directions.
Notification Requirements:	Verbal and written notification to Asbestos Coordinator.
Personal Protection:	Once a Negative Exposure Assessment (NEA) has been established for this work operation, no personal protective clothing or respiratory protection is required. Prior to the establishment of an NEA, a half-face respirator with P-100 (HEPA) cartridges and disposable coveralls is required.
Air Monitoring:	Personal air monitoring is required, at least annually after negative exposure assessments show exposures below the Cal/OSHA PEL.
Final Visual Inspection:	Upon the completion of all activities listed above, the area will be visually inspected prior to the release of the area for occupancy by unprotected personnel. The visual inspection will include an evaluation of all surfaces within the regulated area, with emphasis placed on the completeness of cleaning. Any remaining three dimensional debris shall be removed with the use of a HEPA vacuum or by wet wiping prior to the approval of the area for re-occupancy.

Disposal Requirements:	Disposal is determined by the asbestos concentration and friability of the material. Please refer to Section 4.10 for information pertaining to disposal.
Required Forms:	1. Worker sign-in. 2. Work Order. 3. Air Sample. 4. Final Visual Inspection.

6.0 Appendix

Department of Environmental Health & Safety

Worker Sign-In Form

WORK ORDER #:_____ **DATE:**_____

SUPERVISOR NAME:_____ **BUILDING:**_____

WORK PERFORMED:_____ **ROOM/AREA:**_____

NAME	UNIQUE ID#	SIGNATURE	TIME IN/OUT	TIME IN/OUT

COMMENTS: _____

_____

_____

Department of Environmental Health & Safety

Visual Inspection Form

California State University, Chico
Final Visual Clearance Report

WORK ORDER #: _____

SUPERVISOR: _____

REMOVAL LOCATION: _____

WORK CONDUCTED: _____

FINAL VISUAL INSPECTION RESULT

FINDINGS:

_____
_____
_____
_____

DATE: _____

COMMENTS:

_____
_____
_____

Department of Environmental Health & Safety

Air Monitoring Form

AIRBORNE ASBESTOS FIBER *Analysis Request Form for California State University, Chico*
Facilities Management and Services
California State University, Chico
400 West 1st Street
Chico, CA 95929-0244

WORK ORDER #: _____ **COLLECTED BY:** _____

DATE COLLECTED: _____ **DATE SUBMITTED:** _____ **LAB SUBMITTED TO:** _____

SPECIAL INSTRUCTIONS: _____

ANALYSIS REQUESTED: _____ **TURNAROUND TIME:** _____

JOB LOCATION: _____

Sample No.	Location Activity Date Collected	Rotameter Number	LPM AVG.	On/Off Total	Volume (L)

Date _____