

SECTION 02 8200**ASBESTOS REMEDIATION****PART 1 - GENERAL****1.01 SUMMARY**

- A. Section includes furnishing labor, equipment, material, supplies, transportation, storage, and supervision necessary to accomplish removal and disposal of asbestos containing material in accordance with applicable rules and regulations.

1.02 REQUIREMENTS

- A. Asbestos containing material and related contaminated materials shall be removed and properly disposed of in accordance with Federal, State, Local and Environmental Health and Safety regulations pertaining to the removal and disposal of asbestos containing materials.
- B. Be responsible for submitting and obtaining applications, permits, and disposal manifests. Copies of these documents shall be submitted to the University's Representative.
- C. Work in general shall include and is not limited to:
 - 1. Preparation of the area for removal of the asbestos-containing material shall include:
 - a. Relocation of furniture and furnishings for the protection of the furniture and furnishings from damage or contamination.
 - b. Shut-off or temporary modification of air handling equipment or sealing the Work areas supply, return, transfer or exhaust air grilles, registers and diffusers and restriction of other sources of air movement into the room.
 - c. Sealing the Work areas to prevent contamination of adjoining areas not a part of this Contract.
 - d. Protection of students, employees, and guests from exposure to asbestos containing dust and debris.
 - e. Precleaning by wet wiping and HEPA vacuuming techniques of area prior to commencement of Work.
 - 2. Removal of asbestos containing material by wet methods. Other proposed methods shall be submitted to the University's Representative for approval.
 - 3. Placing asbestos containing material or asbestos-contaminated items including required clean-up in containers approved for the receipt, hauling, and storage of asbestos-containing materials.
 - 4. Marking and labeling of asbestos articles and items for disposal purposes.
 - 5. Transporting asbestos articles, items, and containers to a University approved asbestos storage facility.
 - 6. Labeling and record-keeping in accordance with applicable laws and regulations.
 - 7. Preparing manifests and required documentation for transportation, processing, and disposal of asbestos wastes for signature by the University's Representative.

- D. Work shall comply with Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA) rules and regulations governing Asbestos as contained in 29 CFR, Part 1910 and Part 1926 and 40 CFR, Part 61. In addition, Work and Work related practices shall comply with applicable regulations of the California Department of Industrial Relations, California Administrative Code Title 8; Department of Health Services, Title 22; and South Coast Air Quality Management District.
- E. Submit personnel sampling results from each shift at the beginning of the next Work day.
- F. Proposed waste disposal site shall be coordinated with the University's Representative.

1.03 ACTION SUBMITTALS

- A. Submit complete lists of materials and equipment to be used to accomplish the Work required by this section. The lists shall, at a minimum, include, and not necessarily be limited to, protective clothing, engineering control equipment with current certificate of registration, breathing apparatus and containers. The name of the manufacturer, brand name, and catalog number shall be provided where applicable.
- B. Submit a written abatement plan for review and approval by the University's Representative prior to start of removal Work. The plan shall include, as a minimum, the following documents:
 - 1. California Contractor's State License Board Certification to perform asbestos related Work.
 - 2. California Division of Occupational Safety and Health (DOSH) Registration Certificate to perform asbestos related Work.
 - 3. Hazardous Waste Hauler's Registration and Identification Number from DOSH.
 - 4. Comprehensive or Commercial Form General Liability Insurance.
 - 5. Business Automobile Liability Insurance for owned, scheduled, non-owned, or hired vehicles.
 - 6. Worker's training certificates.
 - 7. Contractor's written respiratory protection program.
 - 8. Employee medical approval for respirator use.
 - 9. Employee respirator fit-test records.
 - 10. Arrangements for site location, transportation, and legal disposal of Asbestos and Asbestos-containing materials.
 - 11. University approved Asbestos disposal site.
 - 12. Detailed project plan.
 - 13. Safety Data Sheets.

1.04 INFORMATIONAL SUBMITTALS

- A. Submit copies of required Hazardous Waste Permits.

1.05 CONTRACTOR QUALIFICATIONS

- A. Work under this section shall include the handling and transportation of Asbestos and Asbestos containing materials requiring special expertise. To be eligible for contract

award, the Contractor or its Asbestos removal subcontractor shall possess the following minimum specific qualifications:

1. Shall have Single Party responsibility for and accomplish Asbestos related activities.
2. Shall be certified by the California Contractors' License Board to perform Asbestos related Work.
3. Shall be registered with California Division of Occupational Health and Safety to perform Asbestos related Work.
4. Shall be licensed by the Department of Health Services, and registered with the Department of Toxic Substances Control, for the transporting, handling, and hauling of hazardous wastes including Asbestos.
5. Shall have been engaged in Asbestos related activities, including the preparation, removal, spill clean-up, transportation and disposal of high and low concentration toxic fluids and solids as a major type of Work for a minimum of five consecutive years prior to bidding.
6. Shall provide a listing of key personnel who will be involved with the contract including their qualifications and experience in dealing with Asbestos materials.

B. Carry liability insurance as indicated in the Supplementary Conditions.

1.06 WORK SCHEDULE

A. When preparing the required construction schedule, include the following:

1. Outages and interruptions including periods where portable electrical power is to be provided. Shut-downs of building utilities and HVAC systems shall be coordinated with the University's Representative and required dates shall be noted on the project schedule.
2. Moving and return of furniture and furnishings in the Work areas.
3. Preparation of areas for Asbestos removal.
4. Asbestos removal operations.
5. Clean-up operations.
6. Disposal of Asbestos-containing materials.
7. Touch-up and repair of adjacent surfaces.

B. As a supplement to the construction schedule, the routing for transportation of the Asbestos-containing materials, both on and off the University's property, shall be provided for review by the University's Representative.

C. Actual daily hours of Work shall be as specified in General Requirements.

1.07 SAFETY PROCEDURES AND WORKER PROTECTION

A. Take required actions necessary to protect your employees, the University's employees and the general public from exposure to Asbestos containing dust and debris. Regulatory agency requirements shall be met and as a minimum, the following actions shall be taken:

1. Personnel authorized entry into Work areas shall be instructed in the proper procedures for Asbestos related Work prior to entry into the area.

2. Consumption of food or tobacco products shall be prohibited in the Work areas where Asbestos containing materials or dust is present. Smoking is not permitted anywhere on University's property.
 3. After removal of Asbestos-containing materials and Asbestos-contaminated materials has begun, Work area shall not be left unattended until materials which have come in contact with Asbestos are sealed in approved containers and the Work area is secured to prevent unauthorized entry. In general, coordinate and schedule Asbestos related activities such that Asbestos containing materials are transported off-site for disposal as soon as Work has been accomplished.
- B. Prior to commencing Asbestos related Work activities, provide barricades, roping and warning signs to clearly identify and effectively guard against unauthorized entry into Work area. The following minimum requirements shall be satisfied:
1. At a minimum, barricades shall consist of yellow sawhorses set end-to-end.
 2. Ropes shall be yellow in color and supported by the use of weighted bottom pipe type supports.
 3. Warning signs shall be provided as required by OSHA Regulation 29 CFR 1926.58 and 24 CFR 1926.1101.
 4. When Asbestos-containing materials are not sealed in containers, workers shall wear the appropriate protective clothing and breathing apparatus required by regulations.
- C. After Asbestos removal procedures have begun and until Asbestos-containing materials and incidentals have been sealed in approved containers, appropriate personnel shall remain in attendance within the work area. . If immediate transportation to off-site disposal facilities is not feasible, the Work area shall be secured in a manner approved by the University's Representative. In addition, the following personnel protection procedures shall apply:
1. During removal procedures and when Asbestos-containing materials are not sealed in approved containers, personnel entering the Work area must don protective clothing and equipment. Upon exiting the Work area, disposable protective clothing shall be placed in an approved container and sealed for disposal.
- D. Provide sufficient personnel protective clothing, eye protection, and breathing apparatus to provide to the University's Representative or other authorized visitors upon request.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Protective Clothing and Equipment:
1. Provide full-body disposable protective clothing including head, body, and foot covers, consisting of a material impenetrable to Asbestos fibers, in sizes adequate to accommodate movement without tearing. Provide non-skid footwear, preferably steel toed boots, to workers and authorized visitors, including the University's Representative and the University's Industrial Hygienist. Disposable clothing shall be adequately sealed to footwear to prevent body contamination.

2. Eye protection shall be provided and shall be worn during activity that requires protection from eye injury. A full faceplate type respirator shall constitute adequate eye protection.
3. Respiratory protection shall be provided to workers and authorized visitors in accordance with the Contractor's Respiratory Protection Program, which shall include applicable items in OSHA regulation 29 CFR 1910.134 and Title 8 CCR, section 5144 including:
 - a. Workers shall be provided with personally issued, individually fitted, and identified respirators.
 - b. Select respirators in accordance with ANSI Z88.2-2015, OSHA 12 regulation 29 CFR 1910.134, and Title 8 CCR, section 5144. Disposable respirators shall not be provided or used.
 - c. The protection factor of the respirator shall be considered when selecting the appropriate respirator. The required respirator shall be determined by the results of personnel monitoring conducted by the Contractor for its employees.

B. Storage Containers:

1. Asbestos and Asbestos-contaminated materials including wetting and cleaning agents and mixtures shall be placed in a pair of 6 mil polyethylene bags and stored in sealed approved containers.
2. Asbestos solid wastes and materials which have come in contact with Asbestos and Asbestos containing materials including disposable items used in the course of the Work such as rags, gloves, protective clothing, polyethylene sheeting, etc., shall be stored in approved containers. .
3. Proposed Asbestos containers other than DOT approved containers which are intended for storage or transportation shall be submitted to the University's Representative for review and approval prior to use.
4. Asbestos containers shall be labeled in accordance with OSHA Regulation 29 CFR 1926.58.

C. Surfactants shall consist of 50% polyoxyethylene ether and 50% polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one ounce of surfactant to 5-gallons of water. Verify the compatibility of the surfactant with the materials to be removed and the substrate. If incompatibility exists, provide a suitable surfactant at no additional cost to the University.

D. Lock-Down and Post Removal Encapsulants:

1. Encapsulants shall be a non-toxic sealer to be used on surfaces from which Asbestos containing materials have been removed to control the possible release of residual asbestos fibers by forming a membrane (bridging encapsulant) or penetrating into the material and binding its components (penetrating encapsulant).
2. The encapsulant shall have the following surface burning characteristic in accordance with ASTM E84:
 - a. Flame spread of 0.00.
 - b. Smoke Development of 5 or less.

3. Penetrating Encapsulant: Penetrating encapsulants shall be International Cellulose Corporation SK-13 Asbestos Encapsulant, International Protective Coatings Corporation Serpiflex Shield, Fiberlock Technology ABC Asbestos Binding Compound Concentrate, or others listed as acceptable by the Environmental Protection Agency or equal. .
- E. Materials such as polyethylene sheeting, lumber, nails, caulking, plywood, and hardware shall be provided as required to properly seal, contain and otherwise prepare and complete the project.

PART 3 - EXECUTION

3.01 NOTIFICATIONS

- A. Providing written notifications to the following agencies a minimum of ten (10) business days prior to commencement of Asbestos demolition/renovation activities:
 1. United States Environmental Protection Agency/National Emission Standards for Hazardous Air Pollutants.
 2. South Coast Air Quality Management District.
 3. California Department of Health Services.
 4. Others as required by applicable laws.

3.02 PROCEDURES

- A. Prior to commencing and during removal Work involving Asbestos or Asbestos containing materials, the Contractor shall:
 1. Secure the Work area by properly barricading and identification. Operators and personnel shall have donned protective clothing and equipment.
 - a. Properly prepare and isolate the Work area as required by applicable regulations. Insure that existing surfaces, furniture, and furnishing are properly protected from contamination. Coordinate with the University to have HVAC systems turned off or sealed. Clean and seal HVAC ductwork prior to beginning removal operations.
 2. Provide a self-contained portable generator with adequate capacity to supply power requirements for electrically operated pumps, artificial lighting, and other equipment necessary for Asbestos Work related activities. The generator shall be located outside the building and away from building ventilation air intakes to prevent combustion gases from entering interior building or occupied areas.
 3. A minimum of two workmen shall be in attendance during set-up, removal, bagging, and containerizing of Asbestos and Asbestos containing materials.
 4. At the end of each day's operations, apply a mist coat of quick setting encapsulant to every surface in the Work area. When the encapsulant has completely cured, proceed with daily clean-up and lock-up of the Work area and containerization of materials.

- B. Debris generated as a result of Work activities and clean-up operations shall be considered Asbestos contaminated and shall be placed in double 6-mil polyethylene bags, sealed and placed in approved containers and sealed.
- C. Other solids such as rags, disposable protective clothing, soils, and other incidentals shall be placed in double 6-mil polyethylene bags, sealed and placed in approved containers and sealed.
- D. Upon completion of the Asbestos removal and after completion of clean-up and monitoring, spray a mist coat of encapsulant upon the following surfaces:
 - 1. Surfaces from which Asbestos containing materials were removed.
 - 2. Asbestos contaminated surfaces, including polyethylene sheeting.
 - 3. Objects and equipment that cannot be adequately decontaminated prior to removal from the Work area.

3.03 HANDLING AND TRANSPORTATION

- A. Asbestos or Asbestos-contaminated containers and items shall be handled as follows:
 - 1. Approved containers shall be permanently sealed and marked prior to loading on the transport vehicle. Filled containers shall be removed from the site and loaded on the transport vehicle.
 - 2. The transport vehicle shall be enclosed or covered and the cargo bed shall be lined with 6-mil polyethylene sheeting prior to loading.
 - 3. Containers shall be secured to the transport vehicle prior to movement of the vehicle to prevent movement in transit.
- B. Asbestos or Asbestos-contaminated materials shall be transported within the building using the following procedures:
 - 1. In areas where containers used to store Asbestos or Asbestos-contaminated items are to be placed for interim short term storage, the floor shall be covered with an impervious plastic sheet.
 - 2. Before moving the containers, the floor along the entire travel route within the building shall be protected with plastic while Asbestos or Asbestos-contaminated materials are being moved along the travel route. Elevators used shall be fully lined with 6-mil polyethylene sheeting. The sheeting shall be removed daily and disposed of as Asbestos contaminated waste.
- C. Asbestos or Asbestos-containing material containers shall be transported as follows:
 - 1. Sealed containers shall be removed from the job site and taken to a prearranged disposal area on a regularly scheduled basis.
 - 2. With the exception of properly decontaminated tools and pumping equipment used in the normal course of Work activities, Asbestos and Asbestos-containing materials and other materials shall be transported off-site for disposal.
 - 3. Vehicles and drivers shall be licensed for the transportation and hauling of hazardous wastes. In addition, provide a routing plan which clearly identifies the

routes to be used while transporting Asbestos items from the various points of generation to the off-site Asbestos storage or disposal facility.

4. A minimum of two operators shall be in attendance when Asbestos items are being loaded, transported, and unloaded.
5. Vehicles used for transporting of Asbestos items shall be plainly and visibly marked with a minimum of four EPS type ML Asbestos labels. In addition, vehicles shall not be loaded in excess of 75% of rated load capacity.
6. Provide the University's Representative with each original dump receipts, trip tickets, transportation manifests or other records of disposal for documentation purposes. Provide copies of these records to the University's Industrial Hygienist. If the transporter of the Asbestos is a subcontractor, the name, address, telephone number, and signature shall appear on the documentation forms.

3.04 DECONTAMINATION OF EQUIPMENT AND SUPPLIES

- A. External and internal surfaces of non-fixed equipment and objects shall be cleaned by thoroughly wet wiping and rinsing before moving such items of final cleaning and removal to non-contaminated areas.
- B. Objects and equipment removed shall be stored in areas designated by the University's Representative.
- C. Where the configuration of equipment, supplies or materials is such that decontamination and cleaning of asbestos debris is neither possible nor feasible, the object shall be thoroughly wrapped in a minimum of 2-layers of 6-mil polyethylene sheeting with joints, seams and overlaps sealed with tape or containerized in an approved container with a locking lid for transport to another contaminated Work site. Examples include: air filtration devices, HEPA filtered vacuums and the like.
- D. Wood or other materials used in the construction of on-site decontamination systems and enclosures may be wrapped in plastic and taped and either taken to another contaminated Work site for use or disposed of as Asbestos-contaminated waste.

3.05 DECONTAMINATION OF WORK AREA

- A. Following removal of Asbestos-containing materials, clean the Work area in the following sequence:
 1. Step 1: Gross decontamination shall be performed using HEPA filter-equipped vacuums and wet-mopping techniques. At the completion of the initial decontamination, no accumulations of debris or standing water shall be permitted. Surfaces shall be allowed to dry out for a period of 24-hours.
 2. Step 2: Upon completion of the gross decontamination, notify the University's Representative of the need for the University's Industrial Hygienist to inspect the Work area. If the Industrial Hygienist judges the area to be sufficiently clean and dry, proceed to step 3. If the Industrial Hygienist judges the area to not be sufficiently clean and dry, repeat Steps 1 and 2.
 3. Step 3: Apply a "mist coat" of quick setting encapsulant to surfaces in the Work area. When the encapsulant has cured completely, remove only the inner layer of

- polyethylene sheeting from the floor and walls. If leakage through the polyethylene sheeting has occurred, perform additional wet-wiping or vacuuming.
4. Step 4: The University's Industrial Hygienist will conduct final clearance testing. These samples will be analyzed by phase-contrast microscopy (PCM) using National Institute for Occupational Safety and Health (NIOSH) Method 7400. Results of samples must indicate airborne fiber concentrations at or below 0.010 f/cc.
 5. Step 5: If the results of the preliminary air sampling indicate airborne fiber concentrations greater than 0.010 f/cc, reclean the area as required under Step 3 until the area is free of visible dust and debris and the preliminary air samples are less than 0.010 f/cc.
 6. Step 6: If the area passes the final clearance testing by the University's Industrial Hygienist, the negative air systems may be shut down and remaining critical barriers and decontamination enclosure systems shall be removed and disposed of as Asbestos contaminated waste.
 7. Step 7: Replace Asbestos contaminated HVAC system filters. The removed filters shall be disposed of as Asbestos contaminated waste. Filter assemblies shall be decontaminated with HEPA vacuums and wet cleaning techniques.
 8. Step 8: Areas damaged as a result of Asbestos abatement operations shall be repaired or as directed by the University's Representative.

END OF SECTION