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**SECTION 1. ASBESTOS BIDDING REQUIREMENTS**

**Part 1.1 - Site Investigations**

By submitting a bid for asbestos related work, the asbestos abatement contractor acknowledges that they have investigated and satisfied themselves as to: a) the conditions affecting the work, including but not limited to, physical conditions of the site which may bear upon site access, handling, and storage of tools and materials, access to water, electric, or other utilities, or otherwise affect performance of required activities; b) the character and quality of all surface and subsurface materials or obstacles to be encountered, in so far as, this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the Owner or a designated consultant, as well as, information presented in drawings and specifications included with this contract. Any failure by the asbestos abatement contractor to acquaint themselves with available information will not relieve them from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner is not responsible for any conclusions or interpretations made by the asbestos abatement contractor on the basis of the information made available by the Owner.

**Part 1.2 - Insurance Requirements**

Successful asbestos abatement contractor shall purchase and maintain insurance that will protect them from claims that may arise out of or result from the activities under this Contract, whether those activities are performed by the asbestos abatement contractor, by any Subcontractor, or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.

Successful asbestos abatement contractor shall submit proof of coverage, as well as, Subcontractors under the Worker's Compensation insurance system of the State of California or other similar benefit acts.

Successful asbestos abatement contractor shall submit a certificate of general liability insurance protecting against liability for bodily injury and property damage arising from asbestos abatement contractor's activities under this contract.

Such certificate of insurance must contain the following provisions:

- (a) The limit of liability shall not be less than \$1,000,000.00 per occurrence for bodily injury and property damage liability combined.
- (b) The Owner, Owner's Agents, and Consultant must be named as additional insured, but only in respect to liability arising or resulting from activities under this contract.
- (c) In the event of cancellation of the insurance policy, the Owner shall be given thirty days advance written notice.
- (d) The insurance certificate must state that the insurance includes liability coverage for asbestos abatement work.

Successful asbestos abatement contractor's Subcontractors shall submit a certificate of general liability insurance protecting against liability for bodily injury and property damage arising from Contractor's activities under this contract.

Such certificates of insurance must contain the following provisions:

- (a) The limit of liability shall not be less than \$1,000,000.00 per occurrence for bodily injury and property damage liability combined.
- (b) The Owner, Owner's Agents, and Consultant must be named as an additional insured, but only in respect to liability arising or resulting from activities under this contract.
- (c) In the event of cancellation of the insurance policy, the Owner shall be given thirty days advance written notice.

**Part 1.3 - Licenses and Qualifications Requirements**

The asbestos abatement contractor shall be duly licensed in the State of California with the Contractors State License Board (CSLB) in accordance with the provisions of Chapter 9 of Division 3 of the Business and Professions Code, as amended. This includes certification for asbestos-related work, and all other trades or work required under this contract and within these specifications.

The asbestos abatement contractor shall submit a statement, signed by an officer of the company, containing the following information:

- 1. A record of any citations issued by Federal, State, or Local regulatory agencies within the last 3 years, relating to asbestos abatement activity. Include projects, dates, and resolutions.
- 2. A list of penalties incurred through non-compliance with asbestos abatement project specifications, including liquidated damages, overruns in scheduled time limitations, and resolutions.
- 3. Situations in which an asbestos-related contract has been terminated including projects, dates, and reasons for terminations.
- 4. A list of any asbestos-related legal proceedings/claims in which the Contractor (or employees scheduled to participate in this project) has participated or is currently involved. Include descriptions or role, issue, and resolution to date.

The asbestos abatement contractor is fully and totally responsible at all times for compliance with payment of prevailing wage rates pursuant to provisions of the California Labor Code, for compliance with Division 2, Part 7, Chapter 1, California Labor Code, including but not limited to Section 1776; and for compliance with California Labor Code, Section 1777.5 for all apprentice able occupations.

**SECTION 2. ASBESTOS GENERAL REQUIREMENTS - DEFINITIONS**

**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, 6500 Glenway Avenue, Building D-5, Cincinnati, Ohio 45211

**AHERA** - Asbestos Hazard Emergency Response Act

**AIHA** - American Industrial Hygiene Association, 475 Wolf Ledges Parkway, Akron, Ohio 44311

**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 P&CAM 239 or Method 7400. For clearance air monitoring, electron microscopy methods may be utilized for lower detection and specific fiber identification.

**Air Sampling Professional** - The professional contracted or employed by the Owner 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. This individual shall not be affiliated in any way other than through this contract with the contractor performing the abatement work.

**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 a surfactant has been added.

**ANSI** - American National Standards Institute, 1430 Broadway, New York, New York, 10018

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

**Asbestos-Containing Hazardous Waste** - Materials defined by the State of California to be packaged, labeled, transported, and disposed of as an asbestos hazardous waste. This includes all friable asbestos-containing material over one-percent (1%) asbestos. This also includes all asbestos-containing material containing less than one-percent asbestos for which one or more bulk samples have not been point counted and found to contain less than one-percent (1%) asbestos.

**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. EPA - Asbestos-containing materials with more than one percent asbestos.

**Asbestos-containing waste material** - Asbestos-containing material or asbestos-contaminated objects requiring disposal.

**Asbestos Project Manager (APM)** - (Also known as Clerk-of-the-Works or Competent Person) - An individual qualified by virtue of experience and education, designated as the Owner's representative and responsible for overseeing the asbestos abatement project.

**ASTM** - American Society for Testing and Materials, 916 Race Street, Philadelphia, PA 19103.

**Authorized visitor** - The Owner (and any designated representative) and any representative of a regulatory or other agency having jurisdiction over the project.

**Bidder** - A duly licensed and accredited asbestos contractor who was present at the bid-walk and has submitted a bid.

**Cal/OSHA** - California Division of Occupational Safety and Health, 525 Golden Gate Avenue, P.O. Box 603, San Francisco, CA 94101.

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

**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** - A person who has successfully completed EPA-abatement supervisor training whose accreditation is current. Certificate must show 4 or 5 day training.

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

**Contract Documents** - Written contractual agreements between the Owner and the Contractor that pertain to the work on this project.

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

**Contractor/Supervisor** - A person who successfully completed an initial U.S. EPA and/or state-approved five-day AHERA accreditation course and who has maintained that training through approved annual refresher training, and possesses current and valid AHERA accreditation documentation as a AHERA accredited Contractor/Supervisor.

**Class I, II, III, or IV Work** - Work classes described in 8 CCR 1529 that describe different levels of asbestos work.

**Critical Barrier** - Critical Barriers used to restrict water and air flow. Critical Barriers are the barriers placed over openings in the walls and ceilings of a work area in order to ensure that airborne fibers cannot escape the work area via these openings. The Contractor will construct impermeable barriers at all exits or openings, including doorways, duct chases, mechanical shafts, elevator shafts, floor openings, drains, and the like, so that all possible exit or entrance routes are effectively barricaded and sealed. Unless otherwise specified in the Contract documents, critical barriers shall be constructed of at least one layer of 6-mil thick poly.

**Critical Barrier Negative Pressure Test** - Required test for negative pressure with only critical barriers and air filtration units installed. This test must be conducted prior to the installation of cleaning barriers, but may be conducted with or without the decontamination unit in place.

**Curtained Doorway, Z-Flapped** - A device to allow ingress or egress from one room to another while permitting minimal air movement between spaces (such as the various rooms of the decontamination chamber). Each Curtained Doorway will consist of three sheets of poly. The first barrier will be a sheet of poly covering the entire passage and taped to the ceiling, walls, and floor. This sheet will be slit vertically in order for the workers to pass through it. Another sheet of poly will cover the first sheet but be taped only to the ceiling (or top of the first barrier) and down one wall. The third sheet of poly will be placed on the opposite side of the slit poly from the second sheet. The third sheet of poly will be attached in a similar manner as the second sheet except the wall attachment will be to the opposite wall. Each barrier must be weighted at the bottom in order to ensure that it will lay flat against the slit sheet opening should the negative pressure system fail.

**Decontamination Enclosure System** - (Also known as Decon or Waste Transfer Decon) A series of connected rooms designed for the decontamination of workers and equipment that is separated from the work area and from each other by z-flapped curtained doorways. This unit shall be constructed with at least two layers of six-mil poly for the floors, walls, and ceiling. The floor of the dirty room shall consist of two layers of six-mil poly plus a third layer of poly, four-mil or thicker, to be used as a removable drop layer. Drop layer is to be removed as needed, but not less than daily. All decontamination enclosure systems used for worker entry and exit shall be equipped with a shower. At no time shall z-flaps of Decontaminations Enclosure System chambers be taped, held or otherwise blocked open.

**Demolition** - The wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations.

**DOP** - Dioctylphthalate particles which are normally used as an agent for testing the efficiency of HEPA filters.

**Dust or Debris** - Any visible dust or debris remaining in an abatement area will 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.

**Exterior of Containment HEPA Filtered Pressure Differential Unit** - An air-purifying unit positioned outside, rather than inside the regulated work area. The face, or filter portion of the unit is integrated within the work area, and the remainder of the unit (housing, wheels, rivets, control panel, etc.) is located outside of the work area. This allows filters on the air intake to be changed from within the regulated area but access to the machine itself is available to those outside the area. Pressure differential units which pass DOP testing across the HEPA filter, but fail at rivets, control panels, wheels, etc. may be used in this fashion as long as the failure point of the unit can remain on the exterior of containment while the face of the unit and filters are inside containment.

**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.

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

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

**Glove bag 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 glove bag assembly is a manufactured or fabricated device consisting of a glove bag (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 glove bag 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 glove bag 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/Owner's agent/site representative.

**HVAC** - Heating, ventilation and air conditioning system.

**HEPA Filter** - A high efficiency particulate air filter capable of removing particles 0.3 microns in diameter from an air stream with 99.97% efficiency.

**HEPA Vacuum** - A vacuum system equipped with HEPA filtration.

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

**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** - See "Magnehelic gauge".

**Mini-Enclosures** - Mini-enclosures may be used where glove bag setups are not feasible. The use of them must be approved by the asbestos project manager/Owner's agent/site representative. 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 abatement exercise, pass out the containerized debris 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.

**"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.

**NVLAP** - National Voluntary Laboratory Accreditation Program.

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

**NIOSH** - The National Institute for Occupational Safety and Health CDC-NIOSH, Building J N.E. Room 3007, Atlanta, GA 30033

**Outside air** - The air outside buildings and structures.

**Owner** - The Owner or Owners authorized Representative.

**PCM** - Phase contrast microscopy according to NIOSH Method 7400.

**Plasticize** - See "Poly".

**Poly** - Polyethylene sheeting. Used to cover floors, walls, ceilings, create critical barriers, and seal open vents on mechanical systems, etc. *Note: All poly on this project must be flame-retardant.*

**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.

**Prior experience** - Experience required of the contractor on asbestos projects of similar nature and scope to ensure capability of performing the asbestos abatement in a satisfactory manner. Similarities shall be in areas related to material composition, project size, abatement methods required, number of employees and the engineering, work practice and personal protection controls required.

**Regulated Area** - means an area established by a Contractor to demarcate areas where 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.

**"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 Owners and Air Quality Management Districts.

**Removal** - The stripping of any asbestos-containing materials from surface or components of a facility.

**Renovation** - Altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

**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. The shower room must be equipped with an overflow pan to contain water splashed, leaked or spilled out of the shower unit.

**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.

**Submittals** - Pre, interim, and post job documents submitted by the contractor to Owner/Owner's Representative as indicated in General Requirements and Bidding Requirements.

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

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

**Temporary Enclosure System** - A system by which the regulated work area is isolated from the rest of the building or structure in a manner that prevents the escape of airborne asbestos fibers. Also see "Containment".

**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 Load-out/Transfer System** - A decontamination system utilized for transferring containerized waste from inside to outside of the work area. A series of three connected rooms used for the load-out of asbestos-containing materials that have been properly containerized. The waste load out chamber system shall normally consist of three connected chambers adjacent to the work area. Each chamber shall be constructed with at least two layers of six-mil thick poly for the floors, walls, and ceiling. The chamber located closest to the work area is known as the dirty chamber, and in addition to the two layers of six-mil thick poly on the floor, shall also have a third layer of poly, four-mil or thicker, to be used as a removable drop layer. The drop layer is to be removed as needed but at least daily. The chamber located closest to the outside the work area is known as the clean chamber. See Section 16 for proper use of waste Load-out/Transfer System.

**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.

**Worker** - Contractor employee who has completed course work and passed the exam for an EPA accredited, AHERA asbestos abatement worker. Certificate must show a minimum of three or four days training and a currently valid one-day refresher certificate, as appropriate.

**SECTION 3. NOTIFICATIONS, SUBMISSIONS, POSTINGS**

**Part 3.1 - Notification**

Prior to commencement of work the Contractor shall send notices of work to be completed to the agencies listed below with a copy of each to be provided to the Owner or its representative at the pre-construction meeting.

For compliance with 40 CFR part 61.146 of Subpart M, send notice at least 10 working days prior to start of work to the following appropriate agencies:

San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD)      Phone: (209) 557-6436  
4800 Enterprise Way      Fax: (209) 557-6475  
Modesto, CA 95356

Ms. Kimberly Crews  
U.S. EPA - Region IX  
Asbestos NESHAP Notification (Air 5)  
4800 Enterprise Way  
Modesto, California 95356  
Tel (209) 557-6436  
[kim.crews@valleyair.org](mailto:kim.crews@valleyair.org)  
[asbestos.north@valleyair.org](mailto:asbestos.north@valleyair.org)

For compliance with Title 8, California Administrative Code, Construction Safety Order 1529, Asbestos Regulations send written notice at least one day prior to start of work to:

State of California  
Department of Occupational Safety and Health (Cal/OSHA)

These notices shall include, at a minimum, the name and address of the Contractor, the name and address of the work site, the type of work to be done including the percent asbestos content of the material, the methods used to prevent migration of the fibers, personal protective measures, the number of his workers involved, any union representation of the workers and the methods of disposal including the names and EPA numbers of both the certified hauler and the waste disposal site. The notices shall also include start and finish dates. Changes in start and completion dates shall be reported immediately to the proper agency. Use forms provided by agency whenever possible.

**Part 3.2 - Pre-Construction Submittals**

Submit copies of documents required to be included in the Bidding Requirements. At a minimum these documents will include:

1. Copy of State of California Contractor License Issued by CSLB
2. Copy of State of California CSLB Active License
3. Copy of State of California CSLB Asbestos Certification
4. Copy of Department of Industrial Relations; Division of Occupational Safety and Health; Certificate of Registration for Asbestos-related Work
5. Copy of signed statement from company officer listing citations and pending proceedings against the Contractor, or if there have been no citations, a copy of the statement that no actions by regulatory agencies have occurred in the last three years signed by an officer of

the company.

Submit copies of insurance certificates which meet requirements as outlined in Section 1, Part 1.2, of this Specification.

Submit copies of notifications to government agencies.

Submit proof satisfactory to the Owner that required permits have been acquired applicable to the project being performed and specific to the project site and location. If no city, county, or other permits for parking, waste container location, or variances for scheduled work hours are required this should be stated in writing and submitted to the Owner.

Submit Sub-contractors information or statement that Sub-contractors will not be required or used during this project. This statement should also include that if it becomes necessary to use a Sub-contractor during this project that Sub-contractor will not be allowed to perform work until all required documentation has been submitted for review by the Owner or Owner's agent/site representative, and the Contractor receives written approval for use of the Sub-contractor on this project.

Submit a complete list of all rented equipment, or equipment expected to be rented from an outside contractor for use in "Regulated Areas", "Work Areas", or "Containments", where the equipment may be exposed to elevated levels of airborne asbestos. If no equipment is to be rented a statement should be submitted stating no equipment will be used on the project. The statement should also include that if it becomes necessary to use rented equipment that written statements from each rental company will be provided to the Owner prior to its use, indicating the rental companies acknowledgment that the equipment is provided for and may be used in areas where airborne levels of asbestos may be present.

Submit non-emergency telephone numbers, other than 911, for the appropriate Police, Sheriff, and Fire Departments. This list of numbers shall also include the Name, pager or cell phone numbers of the on-site supervisor and his immediate company supervisor.

Submit detailed written directions from the project site to the medical facility to be used in case of an emergency. Also include a map which sufficiently shows the route to be taken from the site to the designated medical facility.

Submit written emergency procedures pertinent to the work to be performed and which can be implemented by site personnel if the need arises.

Submit detailed information on preparation of work area, personal protective equipment, employee experience, training and assigned responsibilities during the project. Also list decontamination procedures for personnel, work area and equipment, abatement methods and procedures, required air monitoring program, procedures for handling and disposing of waste materials and procedures for final decontamination and cleanup.

Submit a detailed work schedule. The schedule shall have, as a minimum, the work area and the day/month for beginning and terminating work in each work area. During progress of work, it shall be the Contractor's responsibility to keep the schedule current and up to date.

Submit documentation satisfactory to the Owner that the Contractor's employees, including foremen, supervisor, and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of abatement activities, have received required US EPA AHERA training.

Submit documentation from physician that all employees or agents who may be exposed to airborne asbestos in excess of background levels have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse

health effects. In addition, document that personnel have received medical monitoring as required by Cal/OSHA regulations. The Contractor must be aware of and provide information to the examining physician about unusual conditions in the workplace environment (e.g., high temperatures, humidity, chemical contaminants) that may impact on the employee's ability to perform work activities.

Submit documentation of respirator fit-testing for all Contractor employees and agents who must enter any work area where asbestos-containing materials may or will be impacted. This fit-testing shall be in accordance with qualitative procedures as required by OSHA regulations or be quantitative in nature. Documentation pertaining to NIOSH approvals for all respiratory protective devices utilized on site shall also be included.

Submit copy of waste transporters Department of Toxic Substances Control, Hazardous Waste Transporter Registration if hazardous asbestos-containing waste is to be removed during the project. If hazardous asbestos-containing waste will not be generated submit the name, address, and registration information for the waste hauler to be used for transporting the waste.

Submit documentation listing the name and site address of the waste facility designated to receive asbestos-containing waste generated during this project. This documentation shall also include the EPA Identification number, and a copy of the current permit authorizing the waste facility to accept and dispose of asbestos-containing waste.

Submit Safety data sheets (SDS) for any and all applicable, materials, supplies, etc. These documents must be legible and completely reveal information required to be communicated to the Contractor's employees, visitors, and Owner Representatives.

Submit manufacturers' certifications that high efficiency particulate air (HEPA) vacuums, pressure differential units and other local exhaust ventilation equipment conform to ANSI Z9.2-79.

Submit name of laboratory/person to be used for Phase Contrast Microscopy (PCM) analysis and copy of current NVLAP Certificate of Accreditation (if applicable), and most recent NIOSH Proficiency Analytical Testing Program results.

Submit a written statement that OSHA monitoring will be performed for all asbestos-related activities performed during this project. This statement must be on company letterhead, dated, include name of the site or project being worked on, and signed by an authorized agent of the company performing the asbestos-related work.

Submit manufactures documentation pertaining to the capability of waste water filters to filter particles of 1.0 micron in size.

### **Part 3.3 - Submittals During the Work Process**

Submit weekly - copies of work site entry/exit logs as well as information on worker and visitor access.

Submit weekly - copies of results of air sampling data collected during the course of the abatement including OSHA compliance air monitoring results.

Submit weekly - copies of air-differential manometer graphs and HEPA filter change logs. (see Section 13)

Submit weekly - copies of all transport manifests, trip tickets, weights and disposal receipts as applicable for all asbestos waste materials removed from the site during the abatement process.

Submit as applicable - copies of current insurance certificates, notifications, worker documentation, etc. if these items expire during the course of the project.

During abatement the Owner will upon request submit to the Contractor results of bulk material analyses and air sampling data collected during the course of the abatement. These serve only to monitor Contractor performance during the project.

Submit upon request during or after completion of the project, documentation deemed by the Owner to be pertinent to the project.

**Part 3.4 - On-Site/Clean-Room Area Postings and Documentation**

The following items shall be posted at the entrance to “Regulated Areas”, “Work Areas”, and “Containments”, or in the possession of the Contractor’s on-site supervisor where respiratory protection or protective clothing is required by this Specification.

A Cal/OSHA Information poster and a Cal/OSHA Construction Site poster.

A copy of the CAL-OSHA and the local AQMD/APCD or EPA NESHAP Notification (if applicable).

Non-emergency telephone numbers, other than 911, for the appropriate Police, Sheriff, and Fire Departments. This list of numbers shall also include the Name, pager or cell phone numbers of the on-site supervisor and his immediate company supervisor. Detailed written directions from the project site to the medical facility to be used in case of an emergency. Also a map which sufficiently shows the route to be taken from the site to the designated medical facility.

Written emergency procedures pertinent to the work to be performed and which can be implemented by site personnel if the need arises.

Written entry/exit procedures shall be posted in the clean room and equipment room. (See Section 12)

List of persons authorized to be in restricted area. The list shall include, among others, the following names with addresses and phone numbers:

Contractor	Air-sampling Professional	Asbestos Project Manager
Testing Laboratory	Owner’s representatives	Any other designated by the Owner

Entry/exit log for work performed in all “Regulated Areas”, “Work Areas”, and “Containments” where respiratory protection or protective clothing is required by this Specification. Contractor shall maintain copies of all entry/exit logs on the site during the performance of asbestos-related work.

All of the Contractor’s personnel and area air sampling results shall be posted in the clean room area or in the possession of the Contractor’s site supervisor if no decontamination unit is required for the work being performed within 72 hours of collection, and submitted to Owner’s agent/site representative weekly unless otherwise noted.

Copies of Safety data sheets (SDS) for all materials on-site.

**Part 3.5 - Job Site Documents**

The following shall be in the possession of the Contractor’s supervisor at each job site:

1. All contract specifications to include, change orders, etc. Contractor competent person must sign a document stating he has full knowledge of all Sections included in this specification.
2. Written Injury and Illness Prevention Program.
3. Written Respiratory Protection Program
4. An updated list of all contractor employees who have worked on this job.

5. List of all US EPA AHERA competent employees (supervisors).
6. Training records
7. Medical records
8. Respiratory fit test records

**Part 3.6 - Project Close-out Documents**

Contractor shall submit post-construction submittals to Owner/Owner's Representative within thirty (30) days of the completion of asbestos-related work. This documentation shall include at a minimum any and all applicable documents as outlined in Part 3.2 and Part 3.3 of this Section. In addition the Contractor should consult and submit as applicable documents identified in Section 24, Part 24.3 - Post Construction Submittal List

**SECTION 4. SITE SECURITY**

The work area is to be restricted to authorized, trained and protected personnel. A list of authorized personnel shall be established prior to job start and posted in the clean room of the work decontamination facility, or in the possession of the on-site supervisor for the Contractor.

Contractor shall report to the Owner immediately entry into the work area by unauthorized individuals.

A log book shall be maintained during the project. Anyone who enters the work areas must record name, affiliation, time in, and time out for each entry.

Access to all "Regulated Areas", "Work Areas", and "Containments" shall be through a designated entry point. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from these areas. The only exceptions for this rule are the waste pass out air-lock, and emergency exits in case of fire or accident.

Emergency exits shall NOT be locked, however, they shall be sealed with polyethylene sheeting and tape until needed. All emergency exits shall be clearly designated. They shall also have a razor knife permanently in place to facilitate emergency exit.

Contractor should have control of site security during abatement operations whenever possible, in order to protect work efforts and equipment. During off-hours access to the abatement area shall be restricted by a lockable entry.

Contractor will have Owner's assistance in the enforcement of restricted access by Owner's employees.

Storage of debris will be such that access to it is limited to the Contractor. Lockable bins shall be utilized and they shall be locked at all times except when loading occurs. No soft covers will be allowed for any storage containers. When a container with rolling tops is being used all access points to the interior of the container must be secured by the Contractor with locks of sufficient strength to require special effort to gain access to the interior of the waste container.

**SECTION 5. EMERGENCY PLANNING**

Emergency planning and procedures shall be developed by the Contractor and shall include considerations of fire, explosion, toxic atmospheres, electrical hazards, slips, trips and falls, and heat related injury and agreed to by Contractor and Owner prior to abatement initiation. These emergency procedures shall be established and presented to all employees and the Owner prior to the beginning of any work. A written emergency plan shall be posted or in the possession of the on-site supervisor for the Contractor regardless of the work being performed.



A copy of the Contractor's written Injury and Illness Prevention Program shall be posted or in the possession of the on-site supervisor for the Contractor regardless of the work being performed.

Employees shall be trained in evacuation procedures in the event of workplace emergencies. Telephone numbers of all emergency response personnel shall either be in the possession of the on-site supervisor, or be prominently posted in the clean change area and equipment room, along with the locations of the nearest telephone indicated on a map or diagram.

At least two fire extinguishers shall be present on site and in close proximity to the work being performed regardless of the type of work being conducted. At least one fire extinguisher shall be present outside of any containment. Additional extinguishers shall be distributed according to Cal/OSHA requirements or as identified in this Specification.

When open abatement is being performed, an emergency blast horn (canned air horn) shall be placed inside of containment for emergency evacuation in the event of a fire or other emergency.

If noted in any other section of this Specification, a means of radio communication shall be established between inside and outside of containment whenever a decontamination setup is required, particularly for all open abatement projects. This requirement may be met through walkie talkies or by wired communication systems.

During hot working conditions, such as in an attic space during summer, or in containments where live steam or hot water lines are exposed, special attention must be given to the possibility of heat stress and burns. The Owner's site representative may make recommendations for work breaks for employees, but the supervisor is ultimately responsible for his workers.

## **SECTION 6. PRE-CONSTRUCTION MEETING (See also Section 3)**

A pre-construction meeting will be held at a time and location to be determined by the Owner. The successful Bidder, his on-site supervisory personnel, and Air Sampling Professional (if applicable), representatives of the Owner, Owner's Representative, and other individuals as necessary shall be present at this meeting.

At this meeting the Contractor shall provide all required submittals, as indicated above in Section 3, Part 3.2. The Contractor should use the Pre-Construction Submittal List provided in Section 24, Part 24.1 to assure all required submittals are included in his submittal package.

## **SECTION 7. MATERIALS AND EQUIPMENT**

### **Part 7.1 - Contractor Equipment and Supplies**

Deliver all consumable materials in the original packages, containers or bundles bearing the name of the manufacturer and brand name (where applicable). These must be approved by the Owner. Polyethylene (Poly) sheeting, of appropriate thicknesses for walls, floors, and ceilings, (4 mil's thick for walls, 10 mil's thick for lining of waste containers, 6 mil's thick for floors and all other uses), shall be provided in widths selected to minimize the frequency of joints.

All poly shall be flame-retardant regardless of its designated use inside or outside any building.

Poly sheeting utilized for worker decontamination enclosure shall be opaque white or black in color and each layer shall be a minimum of 6 mil thick. At least two layers shall be required. Modesty barriers are to be erected whenever and wherever the Owner's agent/site representative determines one is needed.

Disposal bags shall be constructed of 6 mil poly with labels required by OSHA, CDPH, Toxic Substance

Control regulations. Disposal drums shall be metal or fiber board with locking ring tops to be used only if required and/or allowed by selected waste facility.

Stick-on labels as per CDPH and OSHA requirements for disposal drums shall be provided.

Warning signs as required by OSHA shall be provided and posted per regulations.

Surfactant (wetting agent) shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent, mixed in a proportion of one (1) fluid ounce to five (5) gallons of water or as specified by manufacturer. If amosite asbestos is present in the materials being removed, the Contractor shall use a surfactant that is designed to wet amosite. This information shall be submitted to the Owner's agent/site representative before the start of the project.

A sufficient quantity of pressure differential units 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 Section 12. All HEPA filtration equipment must be tested with DOP or an equivalent testing agent (see Section 12).

An adequate number of respirators for the work force shall be on hand. These respirators will include, when specified:

- a. Type "C" air-supplied respirators in positive pressure or pressure demand mode with full face pieces and HEPA-filtered disconnects.
- b. Powered-air respirators with HEPA-filters, full face piece.
- c. Half mask or full face respirators with HEPA filters.

All respirators shall be NIOSH-approved and be equipped with supplies 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 provided to all workers and authorized visitors in sizes adequate to accommodate movement without tearing.

Additional safety equipment (e.g., hard hats, eye protection, safety shoes, disposable PVC gloves), as necessary shall be provided to all workers and authorized visitors.

Non-skid footwear shall be provided to all abatement workers.

If launderable clothing is to be worn underneath disposable protective clothing, it shall be provided by the Contractor to all abatement workers. Laundering must occur in accordance with applicable OSHA requirements.

A sufficient supply of scaffolds, ladders, lifts and hand tools (e.g., scrapers, wire cutters, brushes, utility knives, wire saws, etc.) shall be provided as needed.

Rubber dustpans and rubber squeegees shall be provided for cleanup.

A sufficient supply of HEPA-filtered vacuum systems shall be available.

The Owner's agent/site representative may require the use of additional equipment if he feels the number or amount of certain items or materials is not sufficient.

Vacuums and pressure differential units shall arrive on site sealed and free of debris. Pre-filters of all pressure differential units must be new and unused.

No product or material will be used on the project unless the product data sheets and all SDS's have been submitted, reviewed, and approved by the Owner for use. Any product or material found on the project which has a product data sheet and/or SDS available and has not been approved will be removed from the site by the Contractor until review and approval has been completed by the Owner.

**Part 7.2 - Rental Equipment and Supplies**

Any equipment rented and delivered to the site for the purpose of conducts asbestos abatement work must be accompanied with documentation verifying that the rental agency has been notified, and acknowledges receipt of notification that the equipment being rented will be used for asbestos abatement work. This documentation must be submitted to the Owner's agent/site representative prior to the equipment being delivered to the job site. Rental equipment, including scaffolding, will be held to the same standard of cleanliness as all other equipment on this project.

All rented equipment must be inspected and accepted by Owner's agent/site representative as it arrives onsite. Any equipment covered with dust (no matter the source of dust), plaster debris, multiple layers of encapsulant and/or spray glue, or any other debris will not be accepted. Delays caused by a lack of clean equipment will not extend Contractor's schedule. Equipment rejected due to a lack of cleanliness must be removed from Owner's grounds in order to be cleaned. Dirty equipment wrapped in plastic will not be acceptable.

The Owners' agent/site representative must be informed 24 hours prior to the delivery of any rental equipment.

The decision of the Owner or its representative on all rental equipment and supplies shall be final.

**SECTION 8. WORK SITE FACILITIES**

The Owner shall provide sanitary facilities for abatement personnel outside of the enclosed work area. To use these facilities all workers shall wear normal street clothes, not bathing suits or Tyveks.

The Owner shall provide water for construction purposes. Contractor shall connect to existing Owner system.

The Owner shall provide the electrical source.

The Owner or its representative shall specify the waste water discharge location and location of waste containers.

The Owner shall specify on-site parking areas, if available, and access to the site.

**SECTION 9. RESPIRATORY PROTECTION**

All respiratory protection shall be provided to workers in accordance with the submitted written respiratory protection program, which includes all items as required by OSHA. This program shall be posted in the clean room of the worker decontamination enclosure system or adjacent to the clean room.

The Contractor shall ensure that all workers entering the regulated area wear appropriate respiratory protection. Respiratory protection provided workers shall be in accordance with 8 CCR 1529, and 8 CCR 5144 and the respiratory protection program submitted by the Contractor. This program shall be available at the project site.

The Owner or their representative may deny access to a regulated area to anyone who, in the final judgement of the Owner or their representative, is not properly wearing adequate respiratory protection for the project conditions. This includes but is not limited to those wearing unidentified respirators, those with improperly sealed respirators, those wearing respirators in an improper manner such as over their protective suit hood, or in any other fashion judged by the Owner or their representative to be improper or inadequate to protect the individual from the airborne asbestos at the project site.

The Contractor shall provide each worker needing respiratory protection with his or her own, individually identified, NIOSH-approved respirator. At a minimum, these respirators will be equipped with a P-100 series HEPA filter. The Contractor shall provide additional filter types if that becomes necessary for specific hazards discovered on the job site or if required in the contract documents.

The Contractor shall ensure that all workers use the respirator in compliance with the manufacturer's instructions for proper use and care of that product.

Workers must perform positive and negative respirator seal checks each time a respirator is put on, provided the respirator design so permits.

The Contractor shall ensure that those workers wearing powered air purifying respirators test the air flow rate according to the frequency and methods specified by the manufacturer.

Workers shall be given, at least, a qualitative fit test in accordance with procedures detailed in the Cal/OSHA requirements for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test.

The Contractor shall ensure and provide written records to the Owner's agent/site representative that all workers wearing tight-fitting respirators have been appropriately fit tested in accordance with the requirements of 8 CCR 5144.

The Contractor shall ensure that nothing interferes with the seal of the respirator to the face of the worker. This includes but is not limited to facial hair, clothing, protective clothing, equipment or anything else that comes between the respirator and the face of the worker.

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

The Contractor shall ensure that workers wear respirators underneath protective clothing.

Workers conducts any work that may create an airborne release of asbestos must wear appropriate respiratory protection. This includes, but is not limited to the pre-cleaning of asbestos contamination off of furniture, equipment and floors, and the set-up of contaminated work areas.

The judgement of the Owner's agent/site representative shall be final if there is a disagreement between the Owner and the Contractor regarding the need for wearing or the type of personal protection required..

In no event will a negative exposure assessment be allowed to lower respiratory protection, from that listed in the Scope of Work or required by regulation in the absence of an NEA, prior to the start of a project. Air samples used for negative exposure assessments created after the project has started must be from work conducted under this contract.

#### Minimum Respiratory Protection for OSHA Class I Work

Unless specified differently in the contract documents, the Contractor's employees conducts Class I work will wear tight-fitting, full-face powered-air purifying respirators for all Class I work that will take more than one hour to complete. They must wear a minimum of a half-face negative air-purifying respirator for Class I work lasting less than one hour. Contract documents may require additional respiratory protection, such as the use

of supplied air respirator systems if, in the opinion of the Owner's agent/site representative, the airborne asbestos levels are expected to exceed one fiber per cubic centimeter of air (1 f/cc).

After work has begun, if the Contractor wishes to lower respiratory protection requirements, such as for glove bag or other work, he or she must demonstrate to the Owner's agent/site representative that personal air sampling results from that project prove that airborne fibers levels are below the Cal/OSHA Permissible Exposure Limit. The Owner's agent/site representative will normally require sampling results used for this purpose to include several days of sampling taken during the work expected to generate the highest airborne levels. The Owner's agent/site representative will have final authority regarding whether or not the respiratory protection may be reduced below the need for powered-air purifying respirators.

Unless stated otherwise in the contract documents, for the purposes of respiratory protection, Class I work will include the removal of materials such as gypsum board surfaces that are covered with a texturing or skim coat material that contains over one percent asbestos.

#### Minimum Respiratory Protection for Class II and III Work Practices

Unless specified differently in the contract documents, the Contractor's employees conducts Class II or III work will wear a minimum of half-face, air-purifying respirators. Contract documents may require additional respiratory protection, such as the use of full face air-purifying respirators or powered-air-purifying respirators.

After work has begun, if a Contractor wishes to lower respiratory protection requirements, he or she must demonstrate to the Owner's agent/site representative that personal air sampling results from that project prove that airborne fibers levels are below the limit of quantification for the phase contrast microscopy method. The Owner's agent/site representative will normally require sampling results used for this purpose to include several days of sampling taken during the work expected to generate the highest expected airborne levels. The Owner's agent/site representative will have final authority regarding whether or not the respiratory protection may be reduced or eliminated. For example, the Owner's agent/site representative may require personal samples be analyzed by TEM before determining that asbestos does not pose an airborne health risk.

#### Respiratory Protection for All Work Classes and Unclassified Work

Respiratory protection will always be required if thermal system or surfacing materials are disturbed or if any asbestos-containing materials will not be removed substantially intact.

The Owner's agent/site representative has full authority to raise the level of respiratory protection required for access to the regulated area if in his or her judgement additional respiratory protection is required. For example, if personal air sample results collected by either the Contractor or Owner's agent/site representative indicate higher than expected levels, the Owner's agent/site representative is authorized to increase the level of required respiratory protection. The Owner's agent/site representative will determine if the increased respiratory protection is due to new, unexpected developments such as the discovery of new materials, or if the increase is due to the Contractor failing to follow good work practices. The judgement on this matter by the Owner's agent/site representative will be final.

The Owner is not responsible for increased costs or delays resulting from the need to increase respiratory protection should the reason for the increased respiratory protection be due to the Contractor's failure to adequately utilize wet work methods and/or the prompt cleanup of debris.

The Contractor may only implement respiratory protection changes after receiving written approval for the change from the Owner's agent/site representative.

Waste transport and disposal personnel must wear at least half-face, air-purifying respirators when handling intact sealed bags. Powered-air purifying respirators must be worn if waste containers spill, break, or in any other fashion require a Class I work cleanup be performed.

The Contractor shall comply with the respiratory protection requirements listed in 8 CCR 1529 until that date

that 8 CCR 5144 includes assigned protection factors for all respirators. The following list of respirators and their assigned "protection factors" shall be the criteria for the selection of respiratory protection.

<u>Respirator Selection</u>	<u>Protection Factor</u>
Half-face or full-face air purifying respirator equipped with HEPA filter.	10
Full-face air purifying respirator equipped with HEPA filter with quantitative fit test.	50
Full-face Type C continuous flow supplied air.	1000
Half-face or full-face, powered air purifying respirator equipped with HEPA filter.	1000
Full-face supplied air respirator operated in pressure demand mode.	1000
Full-face supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.	1000

Workers shall be provided, as a minimum, with personally issued and marked respirators equipped with HEPA filters approved by NIOSH to be worn in the designated work area and/or whenever a potential exposure to asbestos exists. Owner or its representative may refuse entry to the work area to a worker with an unidentified respirator.

Sufficient filters shall be provided for replacement as required by the workers or applicable regulations. Disposable respirators shall not be used.

No worker shall be exposed to levels greater than 0.01 f/cc as determined by the protection factor of the respirator worn and the work area fiber levels.

Whenever type C respirator protection is used, compressed air systems shall be designed to provide air volumes and pressures to accommodate respirator manufacturer specifications. The compressed air system shall have a reservoir of adequate capacity to allow the escape of all respirator wearers from contaminated areas in the event of compressor failure.

Compressors must meet the requirements of 29 CFR 1910.134(d).

Location of compressors must be approved by Owner for exhaust and noise considerations.

Compressors must have an in-line carbon monoxide monitor and periodic inspection of carbon monoxide monitors must be documented. Documentation of adequacy of compressed air systems/respiratory protection systems must be retained on site. This documentation will include a list of compatible components with the maximum number and type of respirators that may be used with the system. Periodic testing of compressed air shall insure that systems provide air of sufficient quality (Grade D breathing air). Documentation of this testing, including a description of the process used to perform the test and results of each test must be submitted to the Owner's agent/site representative weekly.

Location of compressors must be approved by Owner for exhaust and noise considerations.

Whenever powered air-purifying respirator 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. The flow rate delivered to the face piece shall be checked and recorded by the Contractor on the sheet provided by the Owner's agent/site representative each time a worker dons the respirator. Written respiratory protection program must detail how this testing is to be performed by each employee or the onsite supervisor. The Contractor shall ensure that the flow rate for PAPRs meets the requirements listed in 8 CCR 1544 regarding tight and loose fitting respirators as appropriate. The Contractors shall also ensure that PAPRs are worn, checked and maintained according to the directions of the manufacturer.

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

The Contractor shall comply with OSHA CFR 1926.110(h) (Respiratory Protection) and Cal/OSHA Title 8 5144. The following list of respirators and their associated "protection factors" shall be the criteria for the selection of respiratory protection.

Sufficient filters shall be provided for replacement as required by the workers or applicable regulations. Disposable respirators shall not be used.

No worker shall be exposed to levels greater than 0.01 f/cc as determined by the protection factor of the respirator worn and the work area fiber levels.

Whenever powered-air-purifying respirator protection is used, a sufficient supply of replacement batteries and P100 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. The flow rate delivered to the face piece shall be checked and recorded by the Contractor on the sheet provided by the Owner's agent/site representative each time a worker dons the respirator. Written respiratory protection program must detail how this testing is to be performed, and whether it will be performed by each employee or the onsite supervisor.

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

During application of spray-poly, appropriate NIOSH approved respirators shall be worn.

**SECTION 10. PERSONNEL PROTECTION REQUIREMENT AND TRAINING**

Prior to commencement of abatement activities all personnel who will be required to enter the work area or handle containerized asbestos containing materials must have received adequate training in accordance with the OSHA, EPA AHERA and NESHAP regulations.

Special on-site training on equipment and procedures unique to this job site shall be performed by the Contractor as required by law or recommended by the equipment manufacturer.

The Contractor shall provide training in emergency response and evacuation procedures.

See Section 8 for respiratory protection requirements.

Disposable clothing, including head, foot and full body protection, shall be provided in sufficient quantities and adequate sizes for all workers and authorized visitors. Damaged coveralls shall be immediately repaired or replaced.

Hard hats, protective eye-wear, proper protective gloves, rubber boots and/or other footwear shall be provided by the Contractor as required for workers and authorized visitors. Safety shoes may be required for some activities.

Contractor personnel shall not wear street clothes or clothes of any type underneath the protective disposable clothing. Upon exiting the work area, no items worn in the work area, such as clothing, personal protective gear, footwear, or hair coverings will be allowed to be worn past the shower of the decontamination unit. Contractor worker(s) have the option of wearing disposable undergarments underneath protective clothing, or they may be nude underneath the protective disposable clothing.

Each time the worker(s) enter the work area they will don new disposable clothing and undergarments. Street clothes (including underwear and shoes) shall not be allowed inside the work area, except during visual clearance activities.

The Owner's agent/site representative may use personal judgement to allow authorized personal to wear street clothes under protective clothing during the construction of final visual or other short-duration visits into the regulated area during times which asbestos is not being disturbed and gross debris is not present. In these situations, approved by the Owner's agent/site representative, the authorized person shall deposit the protective clothing on the dirty side of the decontamination system and may proceed through the shower and clean room wearing the clothes they wore under their protective clothing.

#### **SECTION 11. WORKER DECONTAMINATION ENCLOSURE SYSTEMS**

Worker decontamination enclosure systems shall be provided at all locations where workers will enter or exit the work area. One system at a single location for each contained work area is preferred. Enclosure systems may be constructed out of metal, wood or plastic support as appropriate. Plans for construction, including materials and layout, shall be submitted as shop drawings and approved, in writing, by the Owner or its representative prior to work initiation. Detailed descriptions of portable, prefabricated units, if used, must be submitted for the Owner's approval. The worker decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room, separated from the work area by airdock. The airdock shall be, at least, three feet square. All fabricated units shall have, at least, two layers of 6 mil poly sheeting.

All decontamination units and pressure differential units outside the building shall be covered with a 2"x 4" wood studs and ½" plywood enclosure for security. Pressure differential units shall be secured as necessary to the building or ground. Exhaust openings shall have metal grates to prevent objects from being put into the exhaust openings. Pressure differential exhaust shall be exhausted to an area acceptable to the Owner or Owner's agent/site representative.

Entry and exit from all air locks and decontamination enclosure system chambers shall be through doorways designed to restrict air movement between chambers when not in use. The dirty side shall have an extra layer of 6 mil poly sheeting on the floor as a "boat layer" and it shall be replaced at least daily.

The clean room shall be sized and equipped to adequately accommodate the work crew. Lighting, heat and electricity shall be provided as necessary for comfort. This space shall not be used for storage of tools, equipment or materials (except as specifically designated), or as office space.

Shower room shall contain one or more showers as necessary to adequately accommodate workers. The shower enclosure shall be constructed to ensure against leakage of any kind. In addition, the shower shall be a separate unit from the decon walls. The shower unit cannot be made from poly. Metal or hard plastic is acceptable. An adequate supply of soap, shampoo and towels shall be supplied by the Contractor and available at all times. Shower water shall be drained, collected and filtered through a system with at least 5.0 micron particle size collection capability.

The shower pan in the shower chamber shall be, at least, 3' x 3' in size. The shower chamber shall be constructed so that no water from the shower can spray out of the chamber, nor any water run down the sides of the poly and miss the pan. The shower chamber dimensions shall be determined by the size of the shower pan but are not to be smaller than 3' wide by 3' long by 6' tall. At least one shower shall be provided for each 10 workers. A minimum of two showers will be required for more than 10 workers.



Each decontamination chamber shall have, at least, a 4" lip of poly from the floor up the wall to prevent possible transfer of water and debris between chambers. Excess poly at the corners of this floor is to be fitted to the sides of the chamber by folding poly and taping, as opposed to cutting away excess poly and taping seams. In addition to this 4" lip of poly the shower chamber shall have an overflow pan, in which the shower unit sits, that is capable of holding 2" of water. The filter system and any hose connections transferring contaminated water shall be located in a secondary containment, such as a metal pan. Any leakage shall be double-bagged or re-filtered.

Unless otherwise specified in the scope of work, the minimum size of the decontamination chambers shall be the following:

Clean Room	5' x 6'
Shower	3' x 3'
Dirty Room	5' x 6'
Air Locks	3' x 6' (If five chambers are specified)

Abatement work will be stopped if decontamination unit is not kept in acceptable condition.

Storage or consumption of food and/or beverages shall not be permitted inside the containment or within any of the decontamination chambers. Food or drink consumption within containment will result in the abatement worker(s) dismissal from the site for the duration of the project.

**SECTION 12. WORKPLACE ENTRY AND EXIT PROCEDURES**

All workers and authorized personnel shall enter the work area through the worker decontamination enclosure system.

All personnel who enter the work area must sign the entry log, located in the clean room. This log shall have space for the workers name, social security number, time in, time out, and be identified with the project name, date, and containment location.

All personnel, before entering the work area, shall read and be familiar with all posted regulations, personal protection requirements (including workplace entry and exit procedures) and emergency procedures. A sign-off sheet shall be used to acknowledge that these have been reviewed and understood by all personnel prior to entry.

All personnel shall proceed first to the clean room (or area), remove all street clothes and don appropriate respiratory protection and disposable coveralls, head covering and foot covering. Hard hats, 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 work area.

Personnel wearing designated personal protective equipment shall proceed from the clean room through the shower room and equipment room to the main 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.) Each person shall clean bottoms of protective footwear in the walk-off pan just prior to entering the equipment room.

Personnel shall proceed to equipment room where they remove all protective equipment except respirators. Deposit disposable clothing into appropriately labeled containers for disposal.

Reusable, contaminated footwear shall be stored in the equipment room when not in use in the work area. This footwear shall be cleaned prior to being removed from the work area. Placing footwear in two 6 mil poly

bags is sufficient for moving from one containment to another, but not for moving from one site to another.

Still wearing respirators, personnel shall proceed to the shower area, clean the outside of the respirators and the exposed face area under running water prior to removal of respirator, then shower and shampoo to remove residual asbestos contamination. Various types of respirators will require slight modification of these procedures.

After showering and drying off, proceed to the clean room and don clean disposable clothing if there will be later re-entry into the work area, or street clothes if it is the end of the work shift.

These procedures shall be posted in the clean room and equipment room.

### **SECTION 13. DIFFERENTIAL AIR PRESSURE SYSTEMS (See also Section 14)**

#### **Part 13.1 - Negative Pressure Requirements**

Negative pressure shall be maintained at 0.03" water differential at all times during abatement activities, including entry/exit and bag out procedures. Contractor shall assign crew members to determine cause of loss of pressure any time containment's negative pressure drops below 0.03" water differential. All work will be stopped in any containment for which the negative pressure drops below 0.025" water differential, until problem is resolved and pressure returns to 0.03" water differential or better.

In the event that containment cannot be brought up to 0.03" water differential, abatement contractor must increase number of negative pressure differential units until 10 air changes per hour is taking place. If this fails to raise negative pressure to acceptable levels, Contractor may request in writing a reduction in negative pressure requirements. If Owner's agent/site representative agrees that Contractor has tried all possible remedies, Owner's agent/site representative may grant reduction in negative pressure requirement. Owner's agent/site representative is under no obligation to grant this request.

All negative pressure units installed, but not operating, must be sealed at both the exhaust location and the intake of the machine. This will prevent back draft which could allow asbestos fiber contamination from the HEPA filter.

#### **Part 13.2 - DOP (or equivalent) Testing**

Contractor shall provide differential air pressure systems for each work area in accordance with Appendix J of EPA "Guidance for Controlling Asbestos-Containing Materials in Buildings," EPA 560/5-85-024.

All HEPA filtered systems used on this project shall be tested and certified by an independent company, approved in advance by Owner's agent/site representative, on-site and prior to use. All vacuums and pressure differential units shall meet ANSI Z9.2, using an appropriate testing agent. Documentation of these tests shall be provided to the Owner's agent/site representative prior to the use of any HEPA system.

DOP, or equivalent, testing must be conducted on-site, unless stated otherwise in the Scope of Work. All HEPA filtered units, including but not limited to, vacuums, air pressure differential units, and make-up air filters must be tested onsite. Testing of air pressure differential units must include testing of the wheel attachments, control panel, and seam and rivets of the housing, as well as the HEPA filter itself. A unit which passes DOP testing across the filter, but which fails testing for any component of the housing may be certified as an "Exterior of Containment HEPA Filtered Unit" only.

All HEPA equipped equipment to be used on the project must be delivered to the site empty of all debris, clean and free of dust, and in full operating condition. Covering dirty units with poly, other than the HEPA filter surface, will not be acceptable.

DOP or equivalent testing must be conducted by an independent testing company approved in advance by Owner's agent/site representative. Contractors may not test their own equipment.

DOP or equivalent testing is required when any HEPA filters are changed.

All HEPA filtered machines, including but not limited to vacuums and negative pressure differential machines, shall be utilized in the manner in which they were DOP tested.

Any negative pressure unit turned upside down, or on its side, must be returned to an upright position and re-DOP tested. Negative pressure units shall not be used on this project while laid on their side or upside down.

In case of a power outage, Contractor must seal exhaust ducts against back draft into containment.

All negative air units will have the filter sealed with poly and tape before being shutdown to prevent back drafting.

### **Part 13.3 - Differential Pressure Recording Requirements**

Differential air pressure shall be continuously monitored by Contractor using a recording instrument, Dwyer Instrument Co., "Photohelic Gauge" or equivalent, connected to an appropriate circular chart recorder or a comparable recorder that maintains a record of dates, times and pressure differentials. The location of the pressure measurement tap shall be approved in advance by the Owner's agent/site representative. During the operation of the unit, circular charts shall be collected on a daily basis, dated, and signed by an OSHA Competent Person present on site. Pressure differential shall be checked a minimum of every hour during the work shift by a person familiar with the operation of the pressure-differential-filtration units, as well as the recording device. Each check shall be documented with a time and date notation on the circular chart and "Manometer Readings" form along with the initials of the person performing the check. A copy of the circular chart record shall be submitted to the Owner's agent/site representative on a daily basis. The circular chart shall record time, date, pressure differential, coordinates, and location.

In the event the manometer recording mechanism fails, the Contractor shall be responsible for manually recording the pressure differential at fifteen (15) minute intervals. The log shall be kept until the recording device is operational. The log shall be provided to the Owner's agent/site representative on a daily basis.

The "Manometer Readings" form shall be a record of dates and times of pressure readings and instrument stability.

Connect recording instrument to an audible alarm which will activate at pressure differential of -0.025 inches water gauge air pressure. Defective or non-operating instrumentation may require temporary stoppage of work until instrumentation is replaced.

For larger projects at least one manometer station shall be in place for each 25,000 square feet of containment space.

### **Part 13.4 - Differential Pressure System**

Selection of pressure differential unit (PDU) air exhaust locations and avenues shall require careful consideration with regard to the work being performed and needs of the owner. Unless there is no viable alternative all air exhaust from PDU's shall be directed out of the building. This is expected to be accomplished through use of a temporary duct system (flexible or rigid) provided by the Contractor, or permanent, dedicated exhaust duct systems present within the building. The first choice should always be to direct PDU air exhaust out of the building through Contractor supplied ducts. The first alternative would be to use an existing dedicated exhaust duct system located within the building. The second alternative would be to direct exhaust air into an above ceiling space with no applied fireproofing, loose insulations or un-jacketed fiberglass insulation on building systems. The third and most undesirable alternative would be to

allow exhaust from pressure differential air systems to remain within the buildings occupied spaces. The three alternatives may only be utilized with approval of the owner.

When directing exhaust to a buildings exterior through the use of temporary supplied duct, the Contractor shall select a path of travel (if applicable) for these ducts which does not impede building occupants or other trades, result in creation of a hazard to building occupants, or restrict the closing of entry and exit doors to the building. The exhaust opening must not be within 10' of any air intake vents, open windows or open doors, and must not be directed at paths of travel into or out of the building.

When utilizing a dedicated exhaust duct system present within the building the system must be investigated to determine its capability of handling the volume of exhaust air expected to be produced by the pressure differential system. Sufficient air volume of the existing dedicated exhaust duct system should have a minimum of 5X but preferably up to about 10X the total volume capacity of the exhaust of the pressure differential air system. For example, if a single 2,000 cfm PDU is to be used, the dedicated exhaust fan system which will exhaust the air produced by the PDU should be capable of handling about 10,000 cfm of total exhaust air capacity. Use of permanent dedicated exhaust duct systems may also require sealing of adjacent registers in the same exhaust system to allow the PDU exhaust to make up the difference in exhaust volume.

The owner shall provide approval prior to the contractor utilizing any permanent dedicated exhaust systems which might be considered, since the dedicated exhaust systems will be required to operate at all times the pressure differential air system is operable, and sealing any adjacent registers may not be acceptable. It is critical to note that a dedicated exhaust system is not the same as a return air duct system which re-circulates air from a given building space back to the HVAC fan unit and ultimately is supplied back to the work space. Return air duct systems will not be allowed for exhaust from PDU's.

Directing PDU air exhaust into an attic or above ceiling space may only be utilized in specific conditions and is limited to attic spaces with only exposed wood, metal or concrete undersides of roof or flooring systems. The space may not under any circumstances have any existing known or assumed asbestos containing materials present regardless of their condition. The attic or above ceiling space may also not contain any applied fireproofing, loose insulations or un-jacketed fiberglass insulation materials which could be dislodged from the force generated by any exhaust air.

When no other choice or alternative is available and the Contractor must exhaust air from pressure differential systems into the buildings interior spaces the following requirements must be met. Exhaust air must pass through two HEPA filter equipped PDU's placed in series and be dispersed or diffused within a "mixing" chamber prior to release into the buildings interior. This method offers redundancy in the cleaning of exhaust air and is commonly referred to as a "piggyback" system. The first unit in line exhausts air into a second unit through use of a sealed duct connecting the two units. This system results in any exhaust air being cleaned twice prior to release within the buildings occupied spaces.

If the "piggyback" system is considered, there are two key provisions which must be met prior to its use. The first provision is the second PDU downstream of the first unit must be capable of moving at least 25% more volume of air than the first unit. For example, if the first (upstream) unit is rated at 1,500 cubic feet of air per minute (cfm), the second (downstream) unit must be rated for at least 2,000 cfm. Both units must be capable of demonstrating these volume capacities by measurement with velocity meters or other applicable test methods. PDU's originally rated at 2,000 cfm commonly do not provide 2,000 cfm. The purpose of the second unit being capable of moving a higher volume of air than the upstream unit is to minimize the possibility of creating a positive pressure within the connection between the two units resulting in a failure of the connection and ultimately negating the effects of the downstream unit.

The second provision which must be met if the "piggyback" method of exhaust is chosen, is the downstream unit shall have a new unused HEPA filter installed specifically for this project. This downstream unit shall be marked and identified in some fashion as the downstream unit to be used. Use of a new unused HEPA filter in the downstream unit removes any possibility of dislodging existing particles which may be present from

previous asbestos, mold, or lead related work on other projects. All exhaust must ultimately be directed into a mixing chamber to reduce the speed of exhaust air prior to release into the building.

Regardless of the exhaust system utilized, the system and its components shall be inspected daily by the Contractor to ensure compliance with the requirements of this specification, remains in good repair and is otherwise not compromised in any way which could negate its designed purpose. Any deficiencies found in the system being used shall be repaired immediately and if necessary all work will cease until those repairs can be accomplished.

The work area shall have a differential air pressure of -0.03 inches water whenever the work is being performed including removal, gross clean-up, encapsulation of surfaces, bag-out operations and worker entry and exit procedures. If pressure differential ever drops below 0.025 inches water differential, all work, other than cleanup of waste on the floor of containment, must be halted until reason for pressure differential drop has been determined and corrected.

Only unused pre-manufactured, reinforced flexible ducts shall be used within the containment area for exhausting of filtered air. Contractor may not construct ducts using poly or other materials.

All interior of containment PDU's and flexible ducts must be wrapped in poly during all abatement activities. This poly wrap is to be removed after "finish detail" work has been completed, but prior to clearance visual.

Flexible ducts must be supported by solid surface at point of exit from containment. This may require Contractor to install plywood, or similar, structure for exhaust point.

## **SECTION 14. EXECUTION, WORK SCHEDULE**

### **Part 14.1 - Execution**

Contractor and Owner's agent/site representative shall investigate the work area and agree (in writing, if necessary) on the pre-abatement condition of the work area.

Contractor shall post danger signs meeting the OSHA specifications at locations and approaches to locations where airborne concentrations of asbestos may exceed ambient background levels.

When electrical supply within area of abatement poses a hazard, Contractor, in conjunction with the Owner, shall shut down and lock out electric power to all work areas. Contractor shall provide temporary power and lighting sources, ensure safe installation (including ground faulting) of temporary power sources and equipment by complying with all applicable electrical code requirements and OSHA requirements for temporary electrical systems. Contractor shall have a licensed electrician shut down and lock out electric power, and setup temporary power and lighting sources. All cost of electricity shall be paid for by the Owner unless specified differently in the Scope of Work. Cost for set-up of temporary power is the responsibility of the abatement contractor unless specified differently in the Scope of Work.

When plumbing is required to be altered or becomes damaged, Contractor shall have a licensed plumber disconnect and cap all water as necessary within the work area. Water shall be provided by the Owner from a location near the work area, but not necessarily within the work area.

Shut down and lock out all heating, ventilating and air-conditioning-system (HVAC) components that are in, supply, or pass through the work area. Seal all intake and exhaust vents in the work area with tape and 6-mil polyethylene within the work area (interior) and on the exterior of the building. Also seal any seams in system components that pass through the work area.

Pre-clean all fixed objects in all work areas using HEPA-filtered vacuums and/or wet-cleaning techniques as appropriate and deemed necessary by the Owner's agent/site representative. Careful attention must be paid

to machinery behind grills or gratings where access may be difficult but contamination significant. After pre-cleaning, enclose fixed objects in 6-mil polyethylene sheeting and seal securely in place with tape.

Pre-clean all surfaces in all work areas using HEPA filtered vacuums and/or wet cleaning methods as appropriate. Do not disturb asbestos-containing materials during the pre-cleaning phase.

Unless otherwise stated in the Scope of Work or by agreement with the Owner's agent/site representative Project Manager all non-asbestos-containing materials left in the work area shall be covered by two layers of 6-mil polyethylene sheeting. If any non-asbestos containing materials become contaminated with asbestos during removal activities these materials shall be disposed of as asbestos-containing materials by the Contractor. The Owner's agent/site representative shall determine the friability of these materials prior to disposal. These materials shall be manifested appropriately.

Contractor shall seal all windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and other openings between the work area and uncontaminated areas outside of the work area. These openings must be sealed with 6-mil polyethylene sheeting and tape. These protective layers shall be in addition to the two polyethylene layers on floors, ceilings and walls. These openings are referred to as critical barriers. Seal all cracks in critical barrier areas with tape, caulk, or foam prior to sealing critical barriers.

A critical barrier only, negative pressure check shall be required prior to the set-up of interior containment. Prior to the Contractor covering critical barriers with additional layers of wall, floor, or ceiling poly, the installation and integrity of critical barrier seals must be approved by the Owner's agent/site representative. Wall, floor and ceiling poly installed prior to the critical barrier negative pressure check shall be removed by the Contractor if deemed required by the Owner's agent/site representative in order to properly test critical barriers.

All items attached to asbestos-containing materials and items which cannot be removed without disturbing asbestos-containing materials shall be removed by the Contractor after establishment of containment and negative pressure. If these items are to be "saved and returned" or "reused" by the Owner, the Contractor must remove and clean them without damage. These items must be cataloged using the attached "Return Item Inventory Sheet" provided by Owner's agent/site representative

Contractor shall cover floors in the work area with polyethylene sheeting. Floor shall be covered with a minimum of two layers of 6-mil polyethylene sheeting. Plastic shall be sized to minimize seams. A distance of at least six (6) feet between seams is sufficient. DO NOT locate any seams at wall/floor joints. Floor sheeting shall extend at least twelve inches (12") up the sidewalls of the work area. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material. A layer of 10-mil polyethylene sheeting and/or plywood may be required by the Owner's agent/site representative to protect certain flooring materials -- carpets, hardwood floors, tiles, etc. At no time will wall or ceiling materials be permitted to be dropped onto unprotected floors. This includes areas where the floor surfaces contain asbestos.

Contractor shall cover walls in the work area with polyethylene sheeting. Walls shall be covered with a minimum of two layers of 4-mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate any seams at wall/floor joints. Wall sheeting shall overlap floor sheeting by at least twelve inches (12") beyond the wall/floor joint to provide a better seal against water damage and for pressure differential maintenance. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when pressure differential systems are utilized.

Contractor shall cover ceilings in the work area with polyethylene sheeting. Ceilings shall be covered with a minimum of two layers of 4 mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate seams at wall/ceiling joints. Ceiling sheeting shall overlap wall sheeting by at least twelve inches (12") beyond the ceiling/wall joint to provide a better seal against water damage and for pressure differential maintenance. Ceiling sheeting shall

be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when pressure differential systems are utilized.

The Contractor shall add clear sight windows in the containment walls at least 1' x 2' in size. The Owner's agent/site representative will approve quantity and placement of these inspection windows. Owner's agent/site representative has the right to require more clear sight windows or require placement of windows to be altered.

The equipment room shall be used for storage of equipment and tools at the end of a shift after they have been decontaminated using a HEPA-filtered vacuum and/or wet-cleaning techniques as appropriate. A walk-off pan shall be located in the work area just outside the equipment room. A six-mil. disposal bag or a drum lined with a labeled 6-mil polyethylene bag for collection of disposable clothing shall be located in this room.

Contractor shall obtain written containment visual clearance from Owner's agent/site representative prior to the start of abatement in any and all containments.

Contractor is not responsible for normal tape damage due to tape requirements for containment set-up, unless specifically mentioned in the Scope of Work. Contractor is responsible for excessive tape damage and damage from spray glue application, staples, nails, hooks, etc. installed to support containment.

Install and initiate operation of pressure differential equipment as needed to maintain differential-air pressure of -0.030 inches of water. There shall be a sufficient number of differential air pressure units to maintain a minimum of four air changer per hour. All pressure differential units shall have pre-filters at the intake of the system which must be changeable from inside the containment area. Openings made in the enclosure system to accommodate these units shall be made airtight 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, air monitoring and daily inspections shall be done to ensure that the ducts does not release fibers into uncontaminated building areas.

All flexible ducts, protected by poly during abatement or not, pre-filters and intermediate filters shall be manifested and discarded as friable, hazardous asbestos-containing materials. A flexible tube may be used for multiple containments on the same job as long as it is moved from one containment to another in two 6 mil poly bags.

Once the containment has been constructed and reinforced as necessary with pressure differential units in operation as required, the Contractor shall test the enclosure for leakage utilizing smoke tubes. The containment shall be repaired or reconstructed as needed.

All HEPA systems used on this project shall be tested and certified onsite by an independent company prior to use. (See section 12)

Contractor shall submit logs documenting filter changes for each pressure differential unit.

Contractor shall clearly identify and maintain emergency and fire exits from the work area.

Work shall not begin each day until:

- a. Enclosure systems, or modifications thereof, have been designed and built by the Contractor and each step approved by the APM. If design of containment is to be altered in any way, after it is approved by the Owner's agent/site representative, a written explanation of how and why the containment is to be altered must be submitted to the Owner's agent/site representative for approval.
- b. Pressure-differential systems are functioning according to an acceptable design.
- c. All pre-abatement submissions, notifications, postings and permits have been provided and are satisfactory to the Owner or its representative.

- d. All equipment for abatement, clean-up and disposal is on hand.
- e. All worker training (and AHERA certification) is completed and documented.
- f. The Contractor has installed all required clear transparent view ports made of plastic or equivalent, in the polyethylene wall so that activities can be visually monitored by the Owner's agent/site representative from outside the containment. This window shall measure approximately 1' wide by 2' high. It shall be installed at a location approved by the Owner's agent/site representative. It is recognized that viewing ports are not possible in all locations.
- g. All pressure-differential units and vacuums have received and passed onsite DOP testing.
- h. Contractor has at least one competent person at each site in which work is taking place.
- i. All necessary documents and information have been posted or are on the work site.  
See Section 2.

#### **Part 14.2 - Power Outage Procedures**

The following procedures shall be followed in the event of a power outage (no matter the source of the outage):

- 1. Immediately stop abatement activities.
- 2. Wet all debris and/or friable materials within the containment.
- 3. Depart containment area as soon as reasonable. Shower out or use Hudson sprayers to decontaminate worker if shower is inoperable due to power outage.
- 4. Seal containment area including:
  - A. Decontamination units
  - B. Makeup air ports
  - C. Bag out chambers
  - D. Negative pressure air exhausts or inlets (must be sealed in a fashion that will allow for exhaust of air to occur when power is restored)
  - E. Re-establish APD before starting abatement
- 5. Contractors will be given credit against liquidated damages for all actual down time plus two hours for shut down procedures, decontamination procedures and start up, (total of 6 hours) unless power outage is attributable to abatement contractor actions.

If a generator is required in the specifications, made necessary due to extended power outages, or chosen to be used by the abatement contractor the following issues must be addressed:

- 1. Generator must not violate any local noise ordinances nor disturb adjacent building occupants.
- 2. Generator exhaust must not be allowed to contaminate the makeup air being pulled into the containment. It must, also, not be allowed to mix with HVAC air supplied to adjacent occupied buildings.

#### **Part 14.3 - Work Schedule**

Contractor shall schedule work as required to meet the needs of the project. During progress of work, it shall be the Contractor's responsibility to inform the Owner's agent/site representative 48 hours or earlier of any and all work shifts to be performed. If at least 48 hours notice is not given, the proposed work shift may be canceled by the Owner's agent/site representative.

Contractor shall be responsible for informing the Owner's agent/site representative in writing at least 48 hours or earlier prior to the proposed addition of any off hours work, work expected to include more than one shift per day, or extend beyond 10 hours in a shift. If 48 hours notice is not given, work shift may be canceled by the Owner's agent/site representative. The Owner's agent/site representative reserves the right to deny any changes in the work schedule.



If the Contractor wishes to work on a Federal or State holiday, more than five days a week, or more than 9 hours a day, Contractor becomes responsible for cost of project management fees to cover extended hours. If Contractor fails to appear on-site without notifying Owner's agent/site representative at least 24 hours in advance of a scheduled work shift, the Contractor becomes responsible for all Owner's agent/site representative travel fees, on-site time fees, and other associated project management fees for that day.

At no time shall a work shift extend beyond 12 hours in a day.

## **SECTION 15. REMOVAL PROCEDURES**

Wet all asbestos-containing material with an amended water solution using equipment capable of providing a fine spray mist, in order to reduce airborne-fiber concentrations when the material is disturbed. 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. Maintain high humidity in the work area by misting or spraying to assist in fiber settling and reduce airborne concentrations. Wetting procedures are not equally effective on all types of asbestos-containing materials but shall none-the-less be used in all cases.

Saturated asbestos-containing material (ACM) 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 end of each 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.

Containers (6 mil poly bags or drums) shall be sealed when full. 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.

Asbestos-containing waste with sharp-edged components (e.g., nails, screws, metal lath, tin sheeting) will tear the polyethylene bags and sheeting and shall be placed into drums or burlap bags and then poly bags (at least 6 mil's thick) for disposal.

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 (and verified clean by the APM), 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, to seal in non-visible residue.

## **SECTION 16. WASTE CONTAINER PASS-OUT PROCEDURES**

Asbestos-contaminated waste that has been containerized shall be transported out of the work area through the waste transfer airlock or through an approved pass-out arrangement.

Waste pass-out procedures shall utilize two teams of workers, an "inside" team and an "outside" team. The inside team, wearing appropriate protective clothing and respirators for inside the work area, shall clean the outside, including bottoms, of properly labeled containers (bags, drums, or wrapped components) using HEPA vacuums and wet-wiping techniques and transport them into the waste container pass-out airlock. Provisions for spray cleaning exterior of bags, equipment, and removable items shall be present in the waste pass-out.

Waste water from this operation shall be collected and filtered as required through a 1.0 micron filter. No worker from the inside team shall further exit the work area through this airlock.

The three-chamber system is utilized in the following manner. Workers inside the work area place the waste in the initial waste container, which is usually a bag. They then rinse the bag and seal it. They hand it to a worker in the dirty chamber room who inspects the bag and, if it is clean, places it in the secondary waste container. The secondary container is either another bag or a lined rigid-wall container such as a barrel or box. The worker then seals the secondary container and may attach the proper labeling. The worker places the container in the middle chamber. The worker in the clean chamber then reaches in and lifts the container into the clean chamber. The worker inspects it and if not already labeled, attaches the proper labels. The worker then passes the container to the outside worker who transports the container either to the waste transport vehicle or to a holding area. At no time shall z-flaps of transfer system chambers be taped, held or otherwise blocked open. The Contractor must not allow more than one poly airlock doorway to be open at any one time. This prevents a tunnel system and a breakdown in the isolation of the work area. Negative pressure must be maintained during all waste load-out activities.

The contract documents or the Owner's agent/site representative may in allow a one or two chamber system to be used for some projects, as long as the liability to the client, in the judgment of the Owner's agent/site representative is not increased. As with a three-chamber system, in a one or two chamber system, the Contractor may never allow more than one poly air flap doorway to be open at any one time. For example, a one chamber system would function in the following manner. Workers in the work area rinse and seal the initial waste container. They hand the initial container to a worker in the load-out chamber. That worker verifies that the container is clean and then places it into the secondary container which will be either another bag or lined ridged-wall container depending on the specifications. The load-out worker then seals the container and applies the appropriate labels. The sealed, labeled container is then passed to the outside workers who transport it to the waste transport container or holding area.

The exit from this airlock shall be secured to prevent unauthorized entry.

## **SECTION 17. CLEAN-UP PROCEDURE**

### **Part 17.1 - Clean-up Procedure**

Remove and containerize all visible accumulations of asbestos-containing material and asbestos-contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. DO NOT use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting.

Wet-clean all surfaces in the work area using rags, mops and sponges as appropriate. (Note: Some HEPA vacuums might not be wet-dry vacuums.) To pick up excess water and gross wet debris, a wet-dry shop vacuum with HEPA filter may be used.

Airless sprayers and water hoses shall not be used in a "power washing" fashion on any surfaces.

Contractor shall remove each cleaned layer of polyethylene sheeting from walls and floors. Windows, doors, HVAC system vents and all other critical barriers shall remain sealed. The pressure differential units shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.

Remove all containerized waste from the work area.

Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

Contractor shall clean work area and conduct pre-clearance visual. Once pre-visual has been passed by Contractor, Contractor shall allow dust to settle within containment for 24 hours, then return and re-clean by

HEPA-vacuuming and/or wet-cleaning all objects and surfaces in the work area again. At this point Owner's agent/site representative will conduct the final visual. If final visual fails, Contractor must re-clean area until final visual passes. Once final visual is passed, Contractor will be instructed to encapsulate the containment area, unless encapsulation of containment has been disallowed in the Scope of Work or material specific specification.

Contractor may request a reduction in the 24 hour waiting period, if personal samples collected during the abatement work and detail clean-up work have shown fiber levels below the PEL. Reduction of waiting period must be made in writing, accompanied by personal sample results from this project. Contractor must acknowledge that reduction in waiting period may result in failed clearance air samples and that retaking and re-analyzing these air samples will be at the Contractor's expense. Reduction in waiting time will be at the discretion of the Owner's agent/site representative and client.

### **Part 17.2 - Visual Clearance Criteria**

The **Contractor** shall perform a pre-final visual of the removal area and adjacent surfaces prior to requesting that the Owner's representative conduct a final visual inspection. The pre-final visual performed by the Contractor shall verify that all materials have been completely removed from the work area, and that the work area meets the requirements specified in Section 17.

In addition, the level of cleanliness in all work areas where asbestos has been removed shall meet the final clearance criteria established in the ASTM E1368-90 Standard Practice for Visual Inspection of Asbestos Abatement Projects.

Upon completion of the pre-final visual inspection by the Contractor a final visual of the containment area will be performed by the Owner's representative. The Owner's agent/site representative will determine the clearance criteria for the project. At a minimum, no three dimensional debris shall be left within the work area; all poly shall be wet wiped so that no visible dust or debris is left; the decontamination chambers shall be clean of all debris; the waste transfer area shall be clean of all debris; all equipment and supplies shall be clean of all debris. The Contractor shall not be released to encapsulate the containment until receiving written acceptance by the Owner's representative stating the removal area and the containment have met the criteria of the Owner's representative for completeness of removal and cleanliness of the containment barriers and surfaces.

When required, clearance air sampling shall be performed following the requirements specified in Section 18 after encapsulation of the containment has taken place and a sufficient amount of time has passed to allow the encapsulant to dry. The Owner shall determine the method of analysis to be used based on the amount and type of material removed within a containment. If at a K through 12 site and the quantity of Asbestos-Containing Material (ACM) exceeds 160 square feet or 260 linear feet, analysis of air samples must be by transmission electron microscopy (TEM) per US EPA AHERA regulations.

The Owner's agent/site representative will conduct the final visual inspection of the work area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and the 24 hour settling period/cleaning cycle will be repeated.

Additional cleaning cycles shall be provided by the Contractor, as necessary, at no cost to the Owner until the specified clean criteria have been met.

### **Owner's agent/site representative has final say on whether or not an area meets these requirements.**

Following the satisfactory completion of clearance-air monitoring, remaining barriers may be removed and properly discarded as non-asbestos containing waste. If contamination exists behind these critical barriers, additional cleaning and air monitoring may be required.

Final visual will be conducted by at least one Owner's agent/site representative. Owner's agent/site

representative may supply additional personnel for inspection in order both to speed the inspection and to more thoroughly inspected the containment areas.

Owner, Contractor and Owner's agent/site representative shall jointly review the work area and make a damage assessment, after clearance air samples have passed and containment has been torn down.

#### **SECTION 18. CLEARANCE AIR MONITORING**

Following the completion of clean-up operations, the Contractor shall notify the Owner's agent/site representative in writing that work areas are ready for final visual inspection. This notification is to be made only after Contractor foreman has made a visual inspection of his own.

After the Owner's agent/site representative has given a final written approval of the clean-up operations, the Contractor shall proceed to "lock-down" the containment area with an encapsulant. Exception to this is for containments that are not to be encapsulated prior to clearance air testing according to the Scope of Work (i.e. floor tile only projects).

Owner shall then arrange for an Air Monitoring Professional to sample the air in the work area for airborne fiber concentrations. Clearance-air monitoring shall proceed 24 hours after lock-down or when the area is dry, whichever is later.

Contractor may request a reduction in the 24 hour waiting period, if personal samples collected during the abatement work and detail clean-up work have shown fiber levels below the PEL. Reduction of waiting period must be made in writing, accompanied by personal sample results from this project. Contractor must acknowledge that reduction in waiting period may result in failed, or overloaded (with encapsulant) clearance air samples and that retaking and re-analyzing these air samples will be at the Contractor's expense. Reduction in waiting time will be at the discretion of the Owner's agent/site representative and the Owner.

Air samples will be taken using the "aggressive" air sampling techniques described in the AHERA regulations unless noted differently in the Scope of Work for non-AHERA sites. In the case aggressive samples cannot be collected (e.g. in a dirt floor area) this will be noted in the Owner's agent/site representative's notes.

If PCM analysis is used for clearance air samples, all clearance samples at all locations shall indicate a fiber concentration of less than or equal to 0.01 f/cc for release of the work area.

If TEM analysis is to be used for clearance air samples, then the clearance criteria shall be the same as AHERA, unless otherwise specified in the Scope of Work.

Areas exceeding these levels shall be re-cleaned and, if appropriate, re-encapsulated at no additional cost to the owner. All areas where clearance air samples fail will be re-tested.

The Contractor shall be responsible for all subsequent air sampling costs if air samples fail to meet clearance criteria levels. This cost includes four hours of time for Owner's agent/site representative personnel to collected the air samples and the cost of laboratory analysis.

#### **SECTION 19. MONITORING**

Owner reserves the right to perform air and performance monitoring at any time.

Contractor shall provide personal air monitoring in accord with OSHA regulations. Results shall be made available to the Owner's agent/site representative within 72 hours of collection. Hard copies of these results shall be supplied to the Owner's agent/site representative within 7 days of collection. Failure to supply these sample results in specified time may cause work to be stopped until all delinquent results have been submitted. Loss of Contractor work time because of non compliance with the provisions of this paragraph will

not extend the date for work completion.

Owner's agent/site representative may take air samples prior to, during, and after the project. Work shall not be considered complete until all air sampling has been completed and satisfactory levels have been obtained. "Satisfactory levels" shall be those established by AHERA, unless more stringent requirements have been identified in any other section of this Specification.

In areas where soil contamination may be present, soil samples must meet specified criteria in any other section of this Specification prior to clearance air samples collection.

Owner, or Owner's agent/site representative, shall be authorized to issue a STOP WORK order whenever Contractor's work or protective measures are not in accord with published regulations or contract specifications.

## **SECTION 20. DISPOSAL PROCEDURES**

### **Part 20.1 - Disposal Procedures**

Waste transport and disposal personnel must wear at least half mask HEPA-cartridge type respirators when handling intact sealed bags. If any bags are broken or if visual debris is observed, powered air respirators (HEPA-filtered) must be worn.

Disposal bags shall be of 6 mil poly, pre-printed with labels as required by CDPH, Toxic Substance Control regulations.

Disposal drums shall be metal or fiber board with locking ring tops to be used only if required and/or allowed by selected dump site.

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

As the work progresses, to prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos-containing waste shall be removed and transported to the prearranged disposal location.

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.

Transport vehicles shall be marked with the sign prescribed by OSHA 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 Owner, 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 Owner, 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 Owner or its agent 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. See "Waste Disposal" requirements at end of "General

Requirements".

All manifests shall be accompanied by a "Notice and Certification". A signed copy of this must be provided to the Owner or its agent.

**Part 20.2 - Transportation to the Landfill**

Once drums, bags and wrapped components have been removed from the work area, they shall be loaded into an enclosed (solid walls, ceiling and floor) truck or waste container, which has been lined with 6 mil poly sheeting (walls and floor).

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.

Personnel loading asbestos-containing waste shall be protected by disposable clothing including head, body and foot protection and, at a minimum, half-face, air-purifying, dual cartridge respirators equipped with high-efficiency filters. 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.

No waste containers shall be on site which contain other hazardous waste, or hazardous waste from any other source or job site. Waste from multiple sites of the Owner within the same waste container is acceptable; however, it must be manifested separately.

If Contractor is storing waste from various sites of one owner, all transportation vehicles shall be covered by the same regulations as the waste container or truck being used to haul the waste to the dump. If equipment or supplies are to be left in vehicles during hauling of waste to waste container or truck, waste and equipment/supplies must be separated by a solid (wood or metal) barrier which has been sealed as a critical barrier. A poly wall barrier is not sufficient.

Waste container, truck, or storage bin must be locked at all times except when being filled.

It is the Contractor's responsibility to see that all waste containers, trucks, and storage bins arrive on site completely free from debris.

The contractor shall provide a weight receipt that identifies the **net** weight of the material being discarded.

**Part 20.3 - Disposal at the Landfill**

Upon reaching the landfill, trucks are to approach the dump location as closely as possible for unloading of the asbestos-containing waste.

Bags, drums and components shall be inspected as they are off-loaded at the disposal site. Material in damaged containers shall be re-packed in empty drums or bags as necessary. (Local requirements may not allow the disposal of asbestos waste in drums. Check with appropriate agency and institute appropriate alternative procedures.)

Waste containers shall be placed on the ground at the disposal site, not pushed or thrown out of the trucks (weight of wet material could rupture containers).

Personnel off-loading containers at the disposal site shall wear protective equipment consisting of disposable head, body and foot protection and, at a minimum, half-face, air-purifying, dual cartridge respirators equipped with high-efficiency filters.

Following the removal of all containerized waste, the truck cargo area shall be decontaminated using HEPA

vacuums and/or wet methods to meet the no visible residue criteria. Poly sheeting shall be removed and discarded, along with contaminated cleaning materials and protective clothing, in bags or drums at the disposal site.

**SECTION 21. PATENTS AND PREVAILING WAGES**

**Part 21.1 - Patents**

Contractor shall pay all royalties and license fees required for the performance of the work. Contractor shall defend suits or claims resulting from Contractor's or any Sub-contractor's infringement of patent rights and shall indemnify Owner and Owner's representative from losses on account thereof.

**Part 21.2 - Prevailing Wage Requirements**

The asbestos abatement contractor is fully and totally responsible at all times for compliance with payment of prevailing wage rates pursuant to provisions of the California Labor Code, for compliance with Division 2, Part 7, Chapter 1, California Labor Code, including but not limited to Section 1776; and for compliance with California Labor Code, Section 1777.5 for all apprentice able occupations.

**SECTION 22. PERMITS AND FEES**

If any permits are required to be issued for any of the Work to be performed by Contractor, Sub-contractor(s) or Sub-subcontractor(s) as part of the Project, it shall be the sole responsibility of the Contractor to expeditiously obtain all such permits and any costs incurred by the Contractor in obtaining such Permits shall be included within the Contract Price.

**SECTION 23. SPECIFIC PROCEDURES AND REQUIREMENTS**

NOTE: All Specific Procedures and Requirements listed in Section 20 shall be reviewed by the Contractor along with the Scope of Work issued for the project. If any perceived conflicts are present between the Scope of Work and these specifications or within the General Requirements specification itself, the Contractor shall ask for a written interpretation from the Owner’s agent/site representative prior to submission of his bid. If conflicts in the “Scope of Work” and this specification or with the General Requirements specification itself are discovered after the start of abatement, the more stringent specification and/or requirements will be enforced. The Owner’s agent/site representative shall make the determination as to what which requirements and/or specifications are more stringent.

**Part 23.1 - General Repair of Damaged Thermal System Insulation (TSI)**

Not Used

**Part 23.2 - Glove Bag Technique Requirements**

Not Used

**Part 23.3 - Mini-Cube Enclosure Requirements**

Not Used

**Part 23.4 - Roofing Abatement Requirements**

**General Requirements**

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, all other Sections of this Specification shall be followed.
2. The work shall be coordinated and scheduled when there are favorable weather conditions, such as, performing the abatement work when the forecast is for "clear skies" and no rain for three or more consecutive days. The Contractor shall remove only that amount of roofing material which can be re-roofed or covered, and secured from the weather.

Work may be halted at the discretion of the Owner’s agent/site representative if wind conditions occur which can or does cause removed roofing materials to be blown off the roof area, or beyond the designated removal area perimeter. All roofing work shall be coordinated to allow other trades to work at the same time as long as their work is located in areas where contamination cannot occur. No cutting, sanding, grinding, or removal of any type will take place until all preparations for removal have been completed and inspected by the Owner’s agent/site representative. This section may be amended in other sections of this Specification for this project.

The words “clear skies” are used as a means of indicating favorable weather conditions. These two words do not mean, nor are they intended to require skies be clear and free of clouds, fog, or other meteorological conditions which are not expected or forecast to produce measurable rain. The follow up requirement of no rain for three or more consecutive days is to help clarify the favorable weather condition requirement. The last sentence concerning the amount of roofing to be removed is to further instruct and direct the Contractor not to be over optimistic and create more open roof areas than can be re-roofed, secured, or properly protected from weather in case the forecast changes unexpectedly or without warning.

3. All work hours at the site shall be determined by the Owner or as defined in other sections of this Specification.



4. All work shall be coordinated with the other trades involved on this project, with central coordination being primary between the abatement Contractor and the General Contractor for the project. However, Owner's agent/site representative must be notified of projects in advance as stated in other sections of this Specification.
5. The Contractor shall provide all necessary equipment, tools, materials, lighting, labor, etc. to perform the work. Sufficient lighting shall be provided to illuminate the entire removal and transit areas for removal of roofing material, and for the final visual inspection by the Owner's agent/site representative if the work is to be performed at night.
6. All HEPA equipment to be used on the project must be delivered to the site empty of all debris, clean, free of dust, and in full operating condition. HEPA equipment to be used inside any building must have been DOP tested within the last 90 days. This DOP certification must be verified by Owner's agent/site representative prior to its use.
7. The Contractor shall provide worker safety according to all OSHA regulations (Title 8), including use of tie-offs, harnesses, and lanyards. Particular attention shall be given to the placement and securing of accesses (ladders, etc.) to the roof.
8. All ladders used shall conform to Cal/OSHA requirements. The ladders shall extend at least three feet above the roof line, and shall be tied off to the building to prevent them from sliding.

#### Contractor Responsibilities

1. The Contractor shall be responsible for securing all exposed roof surfaces, including any roof penetrations against weather after roofing materials have been removed. Protection of the roof must be made with an impermeable barrier to prevent water from entering the building structure.
2. The Contractor will be responsible for all clean-up and costs associated with the decontamination of occupied spaces in the event of contamination of an occupied space.
3. The Contractor is responsible for any contamination of the attic space above the existing ceilings inside the buildings caused by their work, except as noted specifically in Section 24, Asbestos Specification/Procedures.
4. The Contractor is responsible for damage to the roofing substrate, and will be responsible for repair or replacement if damaged. **Due to the current damaged condition of the roofing system associated with water intrusion, it is recommended that an evaluation be conducted prior to asbestos abatement to evaluate the structural integrity of the roofing system and determine Contractor accessibility for removing roofing ACMs.**
5. The Contractor is responsible for removal of all roofing layers and associated materials such as roofing nails, insulation, fiberboard, etc. down to the wood or metal substrate regardless of asbestos content, unless otherwise noted in Section 24, Asbestos Specification/ Procedures. Where it is unknown how many layers of roofing materials exist, it must be assumed that there are multiple roofing layers present. The Contractor may, upon request and approval by the Owner, collect core samples of any roof to be removed for the purpose of determining its depth and structure. If coring is conducted, it is the responsibility of the Contractor to repair to industry standards using non-asbestos materials the areas affected.
6. The Contractor is responsible for removing all roofing nails, and driving in all nails used for securing the roofing substrate after roof material has been removed. This section may be amended in Section 24, Asbestos Specification/Procedures for this project.

7. The Contractor is responsible for damage to all equipment and existing cables which are present on the roof. The Contractor is responsible for damage to electrical wiring, telephone lines, antenna wires, and other conduits which are present. An inspection for pre-existing conditions is the responsibility of the Contractor, but may also be conducted by Owner's agent/site representative.
8. The Contractor is responsible for obtaining all necessary permits to perform this work, including any local permits for work in the evening/night hours.
9. Standards of cleanliness for fluted metal decks located underneath asbestos-containing roofing materials. It is possible for the abatement crew to remove the asbestos-containing roofing materials without breaking through or removing the light grey insulation material beneath it. If removal of asbestos roofing materials is performed as described above, and the insulation material remains intact, Owner's agent/site representative can conduct a final visual for asbestos-containing debris. Once this inspection has been completed, and the requirement for no remaining asbestos-containing debris on the roof is met, the insulation layer is removed.

At this point, asbestos is no longer an issue, and Owner's agent/site representative will allow minor amounts of the non-asbestos debris to remain in the fluted areas of the deck. General cleaning of the flutes is conducted to a point where the amount of debris remaining is reduced to a minimal amount without having to completely clean or vacuum the flute channel.

The Owner is unaware of any potential hazard which could be caused by leaving some non-asbestos debris, and does not consider it necessary to have the flute channels detailed beyond generally clean conditions. However, if the fiberboard layer is extensively damaged during removal of the asbestos-containing materials, and asbestos-containing roofing debris cannot be distinguished from non-asbestos containing roofing materials, all flutes shall be vacuumed and cleaned as set forth in the project specifications.

**Owner Responsibilities**

1. The Owner is responsible for closing all windows in the building where the asbestos roofing material will be removed. This must be done prior to the asbestos abatement contractor arriving onsite for the work shift, in order to prevent delays.

The Owner shall also be responsible for cutting or trimming back all trees and limbs which may impact the removal of the existing roofing materials.

**General Roof Removal Instructions and Requirements**

1. Removal of non-friable asbestos-containing roofing is designated as Class II work. Half-face respirators and disposable coveralls shall be used at a minimum by all workers, at all times, when within the regulated area.
2. No personnel will be allowed into the regulated area during actual removal work without proper respiratory and personal protective equipment. Work boots with hard soles are required to be worn by all abatement personnel. No athletic, street, or dress shoes are to be worn during work activities.
3. All roofing material shall be removed in an intact state to the extent feasible.
4. All roofing is to be removed wet by an amended water solution or encapsulant as necessary.
5. The abated roof area shall be HEPA vacuumed after roofing materials have been removed. Particular attention shall be directed at the flute channels of metal decks.

**Pre-Abatement Preparation Requirements**

1. The Contractor shall seal all air intakes associated with the HVAC units which are on or near the roof under abatement, and at adjacent HVAC units, particularly downwind from roofing removal activity. In addition, all louvers, window mounted fan systems, attic openings, etc., shall be sealed as critical barriers. The Contractor is responsible for sealing all HVAC openings as critical barriers using one layer of 6 mil poly. These critical barriers shall be installed at the beginning of each shift, and removed at the end of each shift prior to reuse by the Owner. If the building will not be reoccupied daily, the barriers may stay in place.

The perimeter of the roof where removal is to be conducted, shall be posted with barrier tape at a distance of at least 20 feet from the edge of the removal area. This barrier tape will provide a buffer zone, and assist in the restriction of non-abatement personnel.

Poly sheeting shall be placed on the ground directly below the work area or on the adjacent roof surfaces at least 10 feet. The Contractor shall secure the poly to the ground using tape, weights, or other means to secure the poly from being picked up by wind or becoming a trip hazard. The Contractor shall secure the poly to the adjacent roof surfaces with tape, etc.

**Waste containers and Waste container Preparations**

1. The Contractor is responsible for inspecting all waste containers delivered to the job site for load worthiness. The Owner’s agent/site representative reserves the right to refuse any waste container without any additional cost to the client, which upon examination, and in the opinion of the site representative, has a high probability of failure of doors, skids, walls, floors, or which contains other debris.
2. The Contractor shall be required to place footing materials of sufficient thickness, strength, and size under the casters, footings, and/or runners of waste container(s) to prevent damage of property surfaces. The Contractor is responsible for all damages to Owner's property caused by the delivery, placement, or removal of a waste container. Damaged property shall be repaired to equal or better condition than was present prior to the activity causing the damage. This section may be amended in Section 24, Asbestos Specification/Procedures for this project.
3. Unless the roofing material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane, or hoist. All waste shall be sufficiently wetted with amended water to prevent fiber release. If fiber release cannot be prevented, then the chute and bin must be within a negative pressure enclosure. In no case shall roofing materials be dropped or thrown into bins or waste containers from the roof.

**Posting and Label Requirements for:**

**Regulated Area Entry Points and Waste container Perimeters**

Access to regulated areas shall be posted as outlined by Cal/OSHA Title 8, 1529 (k)(7)(B) 1 and 2 with warning signs. Perimeters of waste container(s) shall also be posted as outlined by Cal/OSHA Title 8, 1529 (k)(7)(B) 1 and 2 with barrier tape bearing the following information:

DANGER  
 ASBESTOS  
 CANCER AND LUNG DISEASE HAZARD  
 AUTHORIZED PERSONNEL ONLY  
 RESPIRATORS AND PROTECTIVE CLOTHING ARE  
 REQUIRED IN THIS AREA

These postings are required to warn non-abatement personnel of the restricted access, and potential hazard which exists in the vicinity of the regulated areas and waste container(s).

**Building Perimeter at Ground Level**

Building perimeters shall be posted with barrier tape bearing one of the following descriptions:

**CAUTION** in black letters on a solid yellow background.

**DANGER** in black letters on a solid red background.

**DANGER ASBESTOS HAZARD** in black letters on a solid red background.

**Waste Material Containers**

Waste material containers, including the "burrito wrapped" material, shall have warning labels affixed in accordance with Cal/OSHA Title 8, 1529 (k)(8)(A-D).

DANGER  
CONTAINS ASBESTOS FIBERS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
DO NOT BREATHE DUST  
AVOID CREATING DUST

**Waste Disposal and Documentation Requirements**

1. Roofing waste may be disposed as non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos roofing material. If the asbestos roofing material is currently friable, or becomes friable during its removal, it shall be disposed of in a landfill permitted to accept friable asbestos waste.

It is acceptable to dispose of bagged or sealed roofing waste into open topped waste containers lined with a single layer of 10 mil poly sheeting. The Contractor shall completely enclose all roofing waste material commonly known as "burrito wrap" in the waste container using 10 mil poly sheeting. Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such a manner as to preclude the dispersion of dust. In addition to the 10 mil poly sheeting, the top of the waste container shall be completely enclosed with a tarp which is secured to the vehicle for transport or storage on-site if left overnight. The type of material for the tarp shall meet all requirements for transport of hazardous materials.

2. The Contractor is required to provide to Owner's agent/site representative a copy of the "trip tickets" indicating the actual weight of waste material.

**Part 23.5 - Vinyl Floor Tile (VFT)**

**General Requirements**

For the purposes of this project any direction to remove asbestos-containing or assumed asbestos-containing VFT shall include the full removal by the abatement contractor of the adjacent base cove, as well as, the adhesive/mastic used to secure the VFT and/base cove regardless of its asbestos content. Any mastic which has not been tested for asbestos content must be assumed to contain asbestos and removed by the abatement contractor prior to the performance of a final visual by the Owner's agent/site representative, and final air testing of the containment.

Removal of more than 100 square feet of contiguous asbestos-containing VFT shall require a full enclosure/containment be constructed prior to removal. Any full enclosure/containment constructed for the purposes of removing asbestos-containing VFT, and/or the adhesive/mastic used to secure the VFT and/base cove, shall include critical barriers, a temporary poly ceiling fully connected to poly walls, a sufficient number of DOP tested negative air units to attain a level of at least -0.03" of negative air pressure within the

containment, a circular recording manometer, and at a minimum, a three-stage decontamination unit with an operational shower and water filtration system. The filtration system must have at least a 5.0 micron particle size collection capability. Documentation of this capability shall be provided to Owner's agent/site representative.

Whenever and wherever possible, the Contractor shall enclose multiple rooms within a building or wing into a single containment. Where rooms are joined by a common interior hallway or have a common exterior walkway, multiple spaces shall be joined together creating one containment using poly enclosures. Where multiple rooms in a building do not have a common interior hallway, multiple rooms shall be joined using a common work chamber built by the Contractor. The common work chamber shall be constructed of wood studs and plywood sheeting for security purposes, and shall be part of the decontamination chamber. Decontamination units and joined "common areas" outside of a building shall have lockable doors or gates created with temporary fencing for security during off-hours.

Where appropriate floor tile adhesive/mastic may be removed either by solvent or wet buffing with a solvent. **Bead blasting of materials will only be allowed with approval of Owner. Contractor must declare use of bead blasting to Owner/Owner's Representative prior to use of this method.** If a solvent is used, the negative air unit exhaust shall be directed down wind of make-up air vents a sufficient distance to preclude the re-entrainment of vapors back into the building. Any solvents used for removing adhesive/mastic shall be non-toxic, low odor, non-flammable, and compatible with the new flooring adhesive/mastic.

A safety data sheet for the solvent(s) proposed for use shall be provided in the pre-construction submittal package, all solvent(s) must be approved by the Owner's agent/site representative prior to their use.

Except as amended here and in the "Scope of Work" Section, all other Sections of this exhibit shall be followed. No removal of VFT, VFT adhesive/mastic, carpets over VFT, or base cove with "assumed" or known asbestos-containing adhesive shall be performed prior to the approval of the Owner's agent/site representative.

### **Contractor Responsibilities**

1. The Contractor shall provide all necessary notifications, equipment, tools, materials, lighting, labor, etc. to perform the work. Notification as appropriate to OSHA, EPA, or the delegated Air Quality Management District is the responsibility of the Contractor.
2. All HEPA equipment to be used on the project must be delivered to the site empty of any debris, clean, free of dust, and in full operating condition. HEPA equipment must be DOP tested at the beginning of the set-up phase and prior to installation into the containment or use on the project. Any equipment removed from the site for more than 10 working days must be DOP tested again prior to re-use on the project.
3. DOP certification testing shall be observed and witnessed by an Owner's agent/site representative. Copies of DOP test results and certification must be submitted to Owner's agent/site representative within 24 hours of the testing being performed.
4. All poly sheeting to be used for the construction of full enclosures/containments must be fire retardant. SDS information reflecting this requirement must be submitted prior to use.
5. All personnel used by the Contractor to conduct removal or handling of asbestos-containing waste materials must possess a current accreditation certificate as a worker or contractor/supervisor as described in 40 CFR Part 763, Appendix C to subpart E, Asbestos Model Accreditation Plan.
6. The Contractor shall be responsible for all clean-up and costs associated with the decontamination of occupied spaces adjacent to any containment where removal of asbestos-containing material is conducted. The Contractor shall also be responsible for damage to building finishes and costs

associated with removal of tape glue, staining of wall finishes, or destruction of wall surface integrity. It is the responsibility of the Contractor to identify with the General Contractor all aspects of the project requirements pertaining to these types of damages.

#### Owner Responsibilities

1. The Owner shall provide the Contractor with access to the building during scheduled work hours through their representative. This representative is expected to be the General Contractor in charge of the site. The Owner shall also be responsible for arming and disarming alarm systems on buildings where work will be performed.
2. The Owner shall also provide the Contractor access to water and electrical hook-ups. However, the Contractor is responsible for all connections, electrical cords, GFCI's, water hoses, and hose bibs necessary for attachment. GFCI's are required to be used by the Contractor on all electrical circuits in use.

#### General VFT & Adhesive/Mastic Removal Requirements

1. For the purposes of this project, removal of VFT by any method shall be performed by personnel who are properly trained and accredited to perform Class II Work in public buildings, and are currently approved to conduct work on the project.
2. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum this shall include half-face negative pressure respirators, full body coveralls, rubber boots, and gloves. During removal of adhesive/mastic with solvent or other organic based liquid, combination respiratory cartridges (organic vapor/HEPA) shall be worn, by workers to protect against asbestos and the solvent. Rubber gloves shall also be worn to protect workers skin from the solvent material. **No street clothes or shoes shall be worn inside containment during the removal process.**
3. All doors, windows, and penetrations into the room(s) shall be sealed with poly sheeting. All ventilation systems shall be locked-out and sealed with critical barriers of either poly sheeting or plywood sheeting. **No spray glue may be used on any Owner property or building surface.**
4. Full enclosure of the walls and ceiling with poly sheeting will be required, no matter what method of removal is used. Support of ceiling poly will be at the discretion of the Contractor. Ceiling may be constructed of one layer of 4 mil poly sheeting. Walls shall be constructed of one layer of 6 mil poly, and include a splash guard. The splash guard shall be a minimum of 4 feet in height from the base of the wall upward.
5. Based on the size of the enclosure/containment, a three stage decontamination unit shall be put into place and be fully operable. The clean room of any three stage decontamination unit must be at least 5' in width, 8' in length, and 8' in height.
6. Sufficient negative air units shall be installed which will provide a minimum of four air changes per hour and -0.03" air pressure differential. A manometer with an accurate circular, or equivalent recording chart must be installed and operational. The manometer chart(s) shall reflect the location, times, and dates of all measurements recorded. Once these requirements have been met and the negative pressure has been established, the Contractor shall request a pre-start visual inspection from Owner's agent/site representative.
7. When the Contractor has passed the pre-start visual inspection, removal of base cove/boards may be conducted. Base cove adhesive shall be removed completely on hard surfaced walls where damage to the substrate will not occur, or only to a point of smoothing out high spots on walls which will become damaged due to the work to be performed. Full removal is not expected unless the

Contractor is notified in writing on these types of soft substrate surfaces.

8. Sufficiently wet VFT with amended water prior to and during the removal phase of work, and place into waste containers for disposal. Acceptable methods of containing VFT waste materials include placing VFT into clear properly labeled 6 mil poly bag and deposit this bag into a lined fiberboard drum. The drum shall be sealed when filled and placed into a waste container for disposal.
9. Method of removal pertaining to asbestos-containing adhesive/mastic shall be at the discretion of the Contractor, except methods which are noted in this Exhibit that are prohibited. Hand scraping, solvents, and wet buffing with solvents are acceptable methods. If the Contractor chooses to use solvents, exhaust of negative air units shall be directed downwind as much as possible, or a sufficient length of exhaust hose will be required to prevent re-entrainment of the vapors.
10. Any solvents used for removing adhesive/mastic shall be non-toxic, low odor, and non-flammable. A SDS for the solvent shall be provided and subject to approval by the Owner's agent/site representative prior to use.
11. Upon completing the removal of all floor tiles and adhesive/mastic, the Contractor shall remove the splash guard from the containment walls, and conduct wet wiping on all surfaces within the containment/enclosure.
12. If a solvent was used to remove any VFT adhesive/mastic, the Contractor shall wash the floors thoroughly using a solution of trisodium phosphate (TSP), or equivalent, and water. Sufficient water shall be used for final rinsing of the floor for a clean finish.
13. It is the sole responsibility of the Contractor to reduce concentrations of any solvents used to a level which will allow new adhesive/mastic to be applied. Owner's agent/site representative will not test the floor for PH levels, and will not attest that the solvents used have been reduced in any way.

#### **Final Visual Inspection**

1. Upon the completion of all activities listed above, the asbestos contractor shall provide their own visual inspection prior to Owner's agent/site representative, and shall be present during the inspection by Owner's agent/site representative to remove/clean additional surfaces as needed, prior to encapsulation.
2. The final visual inspection will include an evaluation of all surfaces within the containment area, with emphasis placed on the completeness of materials removed from the floor area. Any three dimensional debris identified by the Owner's agent/site representative, which can be seen using a flashlight placed on the floor and directed across the floor, shall be removed as directed with the use of a HEPA vacuum and other tools as necessary to remove the material. The Contractor shall thoroughly clean all equipment inside the containment, including all parts of the negative air units, and new pre-filters shall be installed into all negative air units.

#### **Final Lockdown-Encapsulation**

1. The asbestos contractor may encapsulate the entire containment area upon completion of the final visual inspection by the Owner's agent/site representative, and acceptance of the work as complete.

#### **Clearance Criteria**

- a. All clearance air samples will be analyzed by transmission electron microscopy (TEM), and performed by a NIST/NVLAP accredited laboratory. The clearance criteria for releasing the Contractor is the AHERA Standard, with the average of all air samples less than 70 asbestos structures per square millimeter. Aggressive air sampling will be used, which includes using a leaf blower in conjunction

with fans to dislodge any remaining dust within the containment.

### **Disposal Requirements**

1. All vinyl floor tile and vinyl sheet flooring waste shall be disposed as hazardous asbestos waste and will require a Uniform Hazardous Waste Manifest. Package all solvent/mastic waste created during the project 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.
2. The Contractor **SHALL NOT** sign any Hazardous Waste Manifests for the Owner. It shall be the responsibility of the Contractor to notify the Owner's agent/site representative and coordinate having any manifest properly signed by a Owner representative.

### **Part 23.6 - Carpet Removal over Vinyl Floor Tile (VFT)/Tile Adhesive Requirements**

Not Used

### **Part 23.7 - Sheetrock and Joint Compound and Texture Abatement Requirements**

#### **General Requirements**

For the purposes of this project any direction to remove sheetrock and joint compound wall and ceiling system materials known to contain <1% asbestos as a composite material and verified by the point count method shall include the full removal by the abatement contractor of all nails, screws, or other fastening units which have visible sheetrock and/or joint compound remaining, as well as, all dust, debris, and waste generated by the removal work.

Removal of more than 100 square feet of contiguous asbestos-containing sheetrock and joint compound wall and/or ceiling systems shall require a full enclosure/containment be constructed prior to removal. Any full enclosure/containment constructed for the purposes of removing asbestos-containing sheetrock and joint compound wall and/or ceiling system materials, shall include critical barriers, a temporary poly ceiling fully connected to poly walls (as appropriate for surfaces not being removed), a sufficient number of DOP tested negative air units to attain a level of at least -0.03" of negative air pressure within the containment, a circular recording manometer, and at a minimum, a three-stage decontamination unit with an operational shower and water filtration system. The clean room of any three stage decontamination unit must be at least 5' in width, 8' in length, and 8' in height. The filtration system must have at least a 1.0 micron particle size collection capability. Documentation of this capability shall be provided to Owner's agent/site representative.

Removal of less than 100 square feet of asbestos containing sheetrock and joint compound wall and/or ceiling system materials shall require a full enclosure/containment be constructed prior to removal. However, the use of a two stage decontamination unit will not be required and negative pressure requirements may be reduced to verification of negative air flow. All other containment requirements apply.

Whenever and wherever possible, the Contractor shall enclose multiple rooms within a building or wing into a single containment. Where rooms are joined by a common interior hallway or have a common exterior walkway, multiple spaces shall be joined together creating one containment using poly enclosures. Where multiple rooms in a building do not have a common interior hallway, multiple rooms shall be joined using a common work chamber built by the Contractor. The common work chamber shall be constructed of wood studs and plywood sheeting for security purposes, and shall be part of the decontamination chamber. Decontamination units and joined "common areas" outside of a building shall have lockable doors or gates created with temporary fencing for security during off-hours.



Except as amended here and in the "Scope of Work" Section, all other Sections of this exhibit shall be followed. No removal of sheetrock and joint compound wall and/or ceiling system materials shall be performed prior to the approval of the Owner's agent/site representative.

**Contractor Responsibilities**

1. Except as amended here and in Section 24, Asbestos Specification/Procedures, all other Sections of this Specification shall be followed.
2. The Contractor shall provide all necessary notifications, equipment, tools, materials, lighting, labor, etc. to perform the work. Notification as appropriate to OSHA, EPA, or the delegated Air Quality Management District is the responsibility of the Contractor.
3. All HEPA equipment to be used on the project must be delivered to the site empty of all debris, clean, free of dust, and in full operating condition. HEPA equipment to be used inside any building must have been DOP tested within the last 90 days. This DOP certification must be verified by Owner's agent/site representative prior to its use.
4. DOP certification testing shall be observed and witnessed by an Owner's agent/site representative. Copies of DOP test results and certification must be submitted to Owner's agent/site representative within 24 hours of the testing being performed.
5. All poly sheeting to be used for the construction of enclosures/containments must be fire retardant. SDS information reflecting this requirement must be submitted prior to use.
6. All personnel used by the Contractor to conduct removal or handling of asbestos-containing waste materials must possess a current accreditation certificate as a worker or contractor/supervisor as described in 40 CFR Part 763, Appendix C to subpart E, Asbestos Model Accreditation Plan.
7. The Contractor shall be responsible for all clean-up and costs associated with the decontamination of occupied spaces adjacent to any containment where removal of asbestos-containing material is conducted. The Contractor shall also be responsible for damage to building finishes and costs associated with removal of tape glue, staining of wall finishes, or destruction of wall surface integrity. It is the responsibility of the Contractor to identify with the General Contractor all aspects of the project requirements pertaining to these types of damages.

**Owner Responsibilities**

1. The Owner shall provide the Contractor with access to the building during scheduled work hours through their representative. This representative is expected to be the General Contractor in charge of the site. The Owner shall also be responsible for arming and disarming alarm systems on buildings where work will be performed.
2. The Owner shall also provide the Contractor access to water and electrical hook-ups. However, the Contractor is responsible for all connections, electrical cords, GFCI's, water hoses, and hose bibs necessary for attachment. GFCI's are required to be used by the Contractor on all electrical circuits in use.

**General Sheetrock and Joint Compound Wall and Ceiling Systems Removal Instructions and Requirements**

1. For the purposes of this project, removal of sheetrock and joint compound wall and ceiling systems by any method shall be performed by personnel who are properly trained and accredited to perform Class II Work in public buildings, and are currently approved to conduct work on the project.

2. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum this shall include half-face negative pressure respirators, full body coveralls, rubber boots, and gloves. **No street clothes or shoes shall be worn inside containment during the removal process.**
3. All doors, windows, and penetrations into the room(s) shall be sealed with poly sheeting. All ventilation systems shall be locked-out and sealed with critical barriers of either poly sheeting or plywood sheeting.
4. Full enclosure of the walls and ceiling with poly sheeting (as applicable) will be required, no matter what method of removal is used. Support of ceiling poly will be at the discretion of the Contractor. Ceiling may be constructed of one layer of 4 mil poly sheeting. Walls shall be constructed of one layer of 6 mil poly.
5. Based on the size of the enclosure/containment, a three stage decontamination unit shall be put into place and be fully operable. The clean room of any three stage decontamination unit must be at least 5' in width, 8' in length, and 8' in height.
6. Sufficient negative air units shall be installed which will provide a minimum of 4 air changes per hour and -0.03" air pressure differential. A manometer with an accurate circular, or equivalent recording chart must be installed and operational. The manometer chart(s) shall reflect the location, times, and dates of all measurements recorded. Once these requirements have been met and the negative pressure has been established, the Contractor shall request a pre-start visual inspection from Owner's agent/site representative.
7. When the Contractor has passed the pre-start visual inspection, removal of sheetrock and joint compound wall and ceiling systems may be conducted.
8. Sufficiently wet sheetrock and joint compound wall and ceiling systems to be removed with amended water prior to and during the removal phase of work, and place into waste containers for disposal. Acceptable methods of containing sheetrock and joint compound wall and ceiling system waste materials include placing waste into clear 6 mil poly bag and seal bag with appropriate amount of tape. This bag shall be cleaned of all visible dust and deposited into a second clear 6 mil poly bag and sealed with an appropriate amount of tape using the "goose neck" method. This second bag must then be labeled with the appropriate Cal/OSHA asbestos warning label.
9. Upon completing the removal of all sheetrock and joint compound wall and ceiling systems, the Contractor shall conduct wet wiping on all remaining surfaces within the containment/enclosure.

**Final Visual Inspection**

1. Upon the completion of all activities listed above, the asbestos contractor shall provide their own visual inspection prior to Owner's agent/site representative, and shall be present during the inspection by Owner's agent/site representative to remove/clean additional surfaces as needed, prior to encapsulation.
2. The final visual inspection will include an evaluation of all surfaces within the containment area, with emphasis placed on the completeness of materials removed. Any three dimensional debris identified by the Owner's agent/site representative, shall be removed as directed with the use of a HEPA vacuum and other tools as necessary to remove the material. The Contractor shall thoroughly clean all equipment inside the containment, including all parts of the negative air units, and new pre-filters shall be installed into all negative air units.

**Final Lockdown-Encapsulation**

1. The asbestos contractor may encapsulate the entire containment area upon completion of the final visual inspection by the Owner's agent/site representative, and acceptance of the work as complete.

**Clearance Criteria**

- a. All clearance air samples will be analyzed by transmission electron microscopy (TEM), and performed by a NIST/NVLAP accredited laboratory. The clearance criteria for releasing the Contractor is the AHERA Standard, with the average of all air samples less than 70 asbestos structures per square millimeter. Aggressive air sampling will be used, which includes using a leaf blower in conjunction with fans to dislodge any remaining dust within the containment.

**Disposal Requirements**

1. All sheetrock and joint compound wall and ceiling system waste may be disposed as non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos containing material.
2. Waste material containers, including "burrito wrapped" material, shall have warning labels affixed. Contractor may either use the Cal/OSHA Title 8, 1529 (k)(8)(A-D) warning:
- 3.

DANGER  
CONTAINS ASBESTOS FIBERS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
DO NOT BREATHE DUST  
AVOID CREATING DUST

4. All non-hazardous asbestos containing waste shall be tracked utilizing some form of system which at a minimum includes: date, document number, generator name and mailing address, description of the waste, waste generating site address, contractor company name and address, special handling instructions, transporter company name, as well as name and address of facility accepting the waste.

**Part 23.9 - Impact to and Removal of Transite Pipe, Shingle, or Sheeting Materials**

Not Used

**Part 23.12 - Non-Friable, Non-Hazardous, Glazing Abatement Requirements**

Not Used

**Part 23.13 - Subfloor Crawl Space Dirt Removal, Final Cleaning and Lockdown Requirements**

Not Used

**Part 23.14 - Subfloor Enclosure Requirements**

Not Used

**Part 23.15 - Subfloor Crawl Space Pony Wall Installation, Dirt Removal, Final Cleaning and Lockdown Requirements**

Not Used

**Part 23.16 - Installation of "Rat Slab" in Contaminated Subfloor Crawl Space Requirements**

Not Used

**Part 23.17 - Stucco/Texture Removal, Final Cleaning and Containment Requirements**

**General Requirements**

Direction to remove areas of stucco/gunite texture surfacing materials regardless of asbestos content from exterior building components either by hand or by forced air methods shall be performed within a full enclosure. Extent of removal concerning stucco/texture surfacing materials is not included in this Part. That information shall be provided by others in appropriate project documents.

Any full enclosure/containment constructed for removing stucco/texture surfacing materials either by hand or by forced air methods shall include critical barriers at all vents, openings, penetrations, voids, etc. into the building, a sufficient number of DOP challenge tested negative air units to attain a level of at least -0.03" of negative air pressure within the containment space and a minimum of four (4) air changes an hour, a manometer with digital readout capabilities, and at a minimum, a three-stage decontamination unit with an operational shower and water filtration system. The clean room of any three stage decontamination unit must be at least 5' in width, 8' in length, and 8' in height. "Pop up" 3' X 3' style prefabricated units will not be allowed for this work. The filtration system must have at least a 1.0 micron particle size collection capability prior to release of the water into the treated water system. Documentation of this capability shall be provided to Owner's agent/site representative.

Except as amended here and in the "Section 24", all other Sections of this Exhibit shall be followed which apply to creation of containments specifically for asbestos related work practices. No removal of stucco/texture surfacing materials shall be performed prior to the Contractor receiving approval from the Owner's agent/site representative.

**Contractor Responsibilities**

1. Except as amended here and in Section 24, Asbestos Specification/Procedures, all other Sections of this Exhibit shall be followed.
2. The Contractor shall provide all necessary notifications, equipment, tools, materials, lighting, labor, etc. to perform the work. Notification as appropriate to OSHA, EPA, or the delegated Air Quality Management District is the responsibility of the Contractor.
3. All HEPA equipment to be used on the project must be delivered to the site empty of all debris, clean, free of dust, and in full operating condition. HEPA equipment to be used on the project must be DOP challenge tested at the site. This DOP challenge test and certification process must be verified by Owner's agent/site representative prior to its use.
4. DOP certification testing shall be observed and witnessed by an Owner's agent/site representative. Copies of DOP test results and certification must be submitted to Owner's agent/site representative within 24 hours of the testing being performed.
5. All poly sheeting to be used for the construction of enclosures/containments must be fire retardant. MSDS information reflecting this requirement must be submitted prior to use.
6. All personnel used by the Contractor to conduct removal or handling of asbestos-containing waste materials must possess a current accreditation certificate as a worker or contractor/supervisor as described in 40 CFR Part 763, Appendix C to subpart E, Asbestos Model Accreditation Plan.
7. The Contractor shall be responsible for all clean-up and costs associated with the decontamination

of occupied spaces adjacent to any containment where removal of asbestos containing stucco/texture is conducted. The Contractor shall also be responsible for damage to building finishes and costs associated with removal of tape glue, staining of wall finishes, or destruction of wall surface integrity. It is the responsibility of the Contractor to identify with the General Contractor all aspects of the project requirements pertaining to these types of damages.

#### Owner Responsibilities

1. The Owner shall provide the Contractor with access to the building during scheduled work hours through their representative. This representative is expected to be the General Contractor in charge of the site.
2. The Owner shall also provide the Contractor access to water and electrical hook-ups. However, the Contractor is responsible for all connections, electrical cords, GFCI's, water hoses, and hose bibs necessary for attachment. GFCI's are required to be used by the Contractor on all electrical circuits in use.

#### General Removal Instructions and Requirements

1. Removal of stucco/texture by any method and regardless of asbestos content shall be performed by personnel who are properly trained and accredited to perform Class I Work in public buildings, and are currently approved to conduct work on the project.
2. No personnel are allowed into the containment area for any reason during actual removal work without proper respiratory and personal protective equipment. At a minimum this shall include half-face negative pressure respirator if only hand scrapping is being performed. At a minimum this shall include full-face PAPR if air blasting methods are being employed. Regardless of the method used, full body coveralls, rubber boots, and gloves shall always be required while inside the containment. **No street clothes or shoes shall be worn by workers under full body coveralls or inside containment once removal has begun.**
3. All openings, doors, hatches, voids, penetrations, etc. which may lead into the building shall be sealed with poly sheeting. **No spray glue may be used on any exterior surface of a building.**
4. Removal of stucco/texture regardless of asbestos content over a surface area greater than 25 square feet will require the construction and use of a three stage decontamination unit. This decontamination unit must be directly attached to the entrance of the containment and fully operable with working shower and hot water heater, as well as properly stocked with towels, soap, and shampoo. The clean room of any three stage decontamination unit must be at least 5' in width, 8' in length, and 8' in height. "Pop up" 3' X 3' style prefabricated units will not be allowed for this work. The filtration system must have at least a 1.0 micron particle size collection capability prior to release of the water into the treated water system.
5. Sufficient negative air units shall be installed which will provide a minimum of 4 air changes per hour and -0.03" air pressure differential. A manometer with digital readout capability must be installed and operational. Once these requirements have been met and the negative pressure has been established, the Contractor shall request a pre-start visual inspection from Owner's agent/site representative.
6. When the Contractor has passed the pre-start visual inspection, removal of stucco/texture may be conducted.
7. Sufficiently wet materials to be removed with amended water prior to and during the removal phase of work, and place into waste containers for disposal.

8. Upon completing removal of all stucco/texture, the Contractor shall conduct wet wiping of all remaining wall surfaces, poly barriers, scaffolding, etc. to remove settled dust from those surfaces.

**Final Visual Inspection**

1. Upon completion of all activities listed above, the asbestos contractor shall provide their own visual inspection prior to Owner's agent/site representative, and shall be present during the inspection by Owner's agent/site representative to remove any additional dirt and/or clean additional surfaces as needed, prior to encapsulation.
2. The final visual inspection will include an evaluation of all surfaces within the containment area, with emphasis placed on the completeness of materials removed. The Contractor shall thoroughly clean all equipment inside the containment, including all parts of the negative air units exposed to the work performed. New pre-filters shall be installed into all negative air units.

**Final Lockdown-Encapsulation**

1. Lock down-encapsulation of the containment shall be performed using one of two methods based on the needs of the project.
  - A. **Hand Wipe Method:** The needs of the project may require the remaining building component surfaces have no new film materials applied to them. If this is required the asbestos abatement contractor shall use clean wet cloths/towels to wipe existing surface dust off of remaining building components. These cloths/towels will be wetted with clean water and no chemicals or treatments will be added. All poly sheeting scaffolding and other components used to create the containment will be hand wiped with wetted cloths/towels which are treated with lock down-encapsulation chemicals to remove possible surface dust and lock down-encapsulate the surfaces of these items. This method can be used prior to the final visual to complete the final cleaning process.
  - B. **Aerial Dispersal Method:** The asbestos contractor shall lock down-encapsulate the entire containment area upon completion of the final visual inspection by the Owner's agent/site representative, and acceptance of the work as complete.

**Clearance Criteria (If Required)**

- a. All clearance air samples will be analyzed by transmission electron microscopy (TEM), and performed by a NIST/NVLAP accredited laboratory. The clearance criteria for releasing the Contractor is the AHERA Standard, with the average of all air samples less than 70 asbestos structures per square millimeter. Aggressive air sampling will be used, which includes using a leaf blower in conjunction with fans to dislodge any remaining dust within the containment.

**Disposal Requirements**

1. All waste containing less than 1% asbestos shall be properly disposed as a non-hazardous asbestos containing waste at an appropriate landfill. All waste containing greater than 1% asbestos shall be properly disposed as hazardous asbestos waste, in a landfill permitted to accept friable, hazardous ACM.
2. All waste containers shall have stick-on labels as per OSHA and DOHS requirements. All waste containers shall be labeled in accordance with DOHS regulations that require a "Caution" label and a "Hazardous Waste" label (if required) with the generator's name, address, and Manifest Document number.
3. If bulk loading of waste into "burrito wrap" style bags is to be performed contractor is responsible for

assuring the waste facility is aware of this type of bagging and will accept the waste upon its arrival. Bulk loading of waste into large “burrito wrap” style containers will result in heavy stresses upon the poly sheeting. Contractor must submit written directions indicating the requirements to be used to create such waste containers. Contractor may not use these container bags until approved by Owner’s Representative.

**SECTION 24. ASBESTOS SPECIFICATIONS/PROCEDURES**

**Part 24.1 - Contacts**

Don D’Amico, CAC  
Senior Project Manager  
Entek Consulting Group, Inc.  
916-632-6800

David Norman  
Principal Environmental Scientist  
Provost & Pritchard Consulting Group  
559-326-1100

**Part 24.2 - Removal Locations**

Refer to architectural drawings for this site identifying the building and work included in the project and scope of work outline.

The General Contractor and his Sub-contractor are responsible for estimating the amount of asbestos-containing materials to be impacted as revealed on the mandatory bidwalk, and provided in the project specifications and architectural drawings. The drawings will also provide the Contractor with locations where work is to be performed to allow computation of the quantities of materials to be impacted or removed.

The abatement contractor shall provide a complete copy of this specification, to their project foreman for reference while conducts work on the project.

**Part 24.3 - Materials to be Abated**

Refer to architectural drawings, and project specifications for designations and instructions pertaining to what materials are to be abated or impacted during this project. There is asbestos containing floor tiles, asbestos containing black mastic, vinyl sheet flooring, damaged spray-applied ceiling material, and drywall and joint compound wall and ceiling systems with texture coat present inside the building. In addition, there is asbestos containing black penetration mastic, gray penetration mastic, silver paint, black rolled roofing and black mastic, gray stucco with a black tar binder material, and tan gunite present on the exterior lower and upper roofs of the building, and exterior walls. All floor tiles/vinyl sheet flooring and black mastic and floor filler shall be removed down to the bare concrete. substrate. Directions pertaining to materials to be impacted during this project are **NOT** included in this Exhibit.

**Due to the damaged spray-applied acoustical ceiling material present throughout the building, access to the interior of the building should be restricted to only those personnel wearing proper PPE including, respiratory protection, eye protection, coveralls, etc. In addition, since the building has been vacant for several years, pigeons have roosted in the structure and pigeon feces is present throughout both floors and horizontal surfaces of the interior of the building and exterior roof areas. Pigeon feces may contain bacteria and other pathogens that can cause illness. The contractor shall include decontamination of the building of pigeon feces prior to or in conjunction with asbestos abatement activities. Since the building is scheduled for demolition at a later time, cleaning**

procedures may include the application and wetting of impacted areas with a bleach or soap and water solution with all debris placed into double bagged 6-mil poly bags. Bagged pigeon feces can be transported to the local landfill. The impacted areas should then be scrubbed with a stiff brush or broom to remove debris from cracks or crevices. The areas should then be rinsed with water or with a power washer.

Areas of roofs, walls, floors, and/or ceilings may require penetrations be made during the project which may involve asbestos containing materials (ACM) depending upon the location of penetrations. Prior to impacting any building materials which are listed as “suspect” for containing asbestos by the US EPA the Contractor should refer to Section 25, Asbestos Results List for information pertaining to specific Asbestos Containing Building Materials (ACBM) or products known to exist on the site. Materials suspected of containing asbestos but which have not been tested are “assumed” to contain asbestos.

Materials commonly excluded from being suspected for containing asbestos include but are not limited to: unwrapped pink and yellow fiberglass insulating materials or products, foam insulation, bare concrete, wood, metal, plastic, or glass. All other types of building materials or coatings on the materials listed above are commonly listed as “suspect” and must be tested prior to impact by a Contractor.

**Part 24.4 - Containment and Abatement Requirements**

The general guidelines in these specifications shall be followed by the asbestos abatement contractor for all work on this project. All requirements of Cal/OSHA Section 1529 and US EPA AHERA regulations apply, and shall be followed, as well as, other applicable regulations.

The Contractor shall follow all requirements set forth in Section 23, Specific Procedures and Requirements when performing roof mastic abatement or disturbance.

**Part 24.5 - Contractor Assist Requirements**

Not Used

**Part 24.6 - Additional Requirements for Removal of Nicolite Roofing Felts**

Not Used

**Part 24.7 - Visual Inspection Forms-Interior and Exterior (Roof Removal Shifts Only)**

The Owner’s agent/site representative shall conduct visual inspections inside each building space **prior to** each work shift to determine existing conditions, including loose or dislodged acoustical ceiling tiles.

In addition, all interior spaces directly below the area of work shall be visually inspected by the Owner’s agent/site representative, **at the end of the work shift**, to inspect for roofing debris and for loose or dislodged ceiling tiles, etc.

The Contractor is responsible for all costs associated with clean-up of any debris which falls in the occupied spaces of the building.

The Contractor is responsible for providing adequate lighting during all phases of work. This includes final visual inspection by the Owner’s agent/site representative, of the removal area and adjacent surfaces impacted during the work.

The Contractor shall perform a pre-final visual of the removal area and adjacent surfaces prior to requesting that the Owner’s agent/site representative conduct a final visual inspection. The pre-final visual performed by the Contractor shall verify that all materials have been completely removed from the work area as specified, and all poly sheeting or tape placed over any vents or equipment which has been removed. The Contractor



will also verify that all perimeter poly sheeting on adjacent surfaces has been picked up, and all debris generated by the roofing work such as gutters, flashing, roofing products, paper, nails, screw, etc. have been placed into the waste container.

**Part 24.8 - Protection of Accessible Attic Areas**

Not Used

**Part 24.9 - Caulking and Poly Barrier Requirements**

Not Used

**Part 24.10 - Worker Protection**

At a minimum half-face respirators with HEPA cartridges, disposable coveralls, and hard sole shoes shall be used during the removal and disposal of all asbestos containing material. Workers wearing tennis shoes, sandals, or soft sole type shoes will not be allowed to work on roofs or inside containments regardless of the activity being performed. Worker protection for all other work areas shall be in compliance with Cal/OSHA requirements and shall follow the respirator selection as specified in Title 8 section 5144.

**Part 24.11 - Electrical and Water Hook-Ups**

The Owner shall provide access for electrical and water hook-ups. The Contractor shall install a temporary electrical spider box to an existing electrical panel using a licensed qualified electrical contractor. The Contractor is responsible for all hook-ups, electrical cords, water hoses, and hose bibs necessary for attachment.

**Part 24.12 - Visual and Air Clearance Criteria**

The **Contractor** shall perform a pre-final visual of the removal area and adjacent surfaces prior to requesting that Owner's agent/site representative conduct a final visual inspection. The pre-final visual performed by the Contractor shall verify that all materials have been completely removed from the work area, and that the work area meets the requirements specified in Section 17.

Upon completion of the pre-final visual inspection by the Contractor a final visual of the containment area will be performed by Owner's agent/site representative. The Contractor shall not be released to encapsulate the containment until receiving written acceptance by Owner's agent/site representative stating the removal area and the containment have met the criteria of Owner's agent/site representative for completeness of removal and cleanliness of the containment barriers and surfaces.

**Part 24.13 - Owner Responsibilities**

It is assumed that the building associated with this project have roof decking which may include any number of construction methods which allow for roofing debris to sift into joist spaces, or attics located beneath areas where roofing may have previously been removed. Therefore, it must be assumed that all inaccessible and accessible attic spaces, joist spaces, and even flutes of metal decks involved with this project will become, or have already been contaminated with asbestos, and shall be noted in the Management Plan.

The Owner acknowledges that the removal of any roofing materials during this project will result in contamination of the attic spaces, and assumes any associated responsibilities.

**Part 24.14 - Disposal Requirements**

The asbestos containing floor tiles, and mastic may be disposed as non-friable asbestos waste unless removal is by mechanical means, which would render the materials "friable" per NESHAP definition. All roofing

materials and mastics may also be disposed as non-friable asbestos waste. Disposal of all non-hazardous asbestos-containing waste must be tracked utilizing a current copy of a Non-hazardous Waste Form. These forms including any Bill of Lading or other forms are to be properly filled out by the Contractor and signed by an authorized Owner's representative. No individual or representative other than the Owner's designated representative is permitted to sign the forms for the Owner.

The spray-applied ceiling material shall be disposed as friable and hazardous asbestos waste. Disposal of all friable and hazardous asbestos-containing waste must be tracked utilizing a current copy of a Hazardous Waste Form. These forms are to be properly filled out by the Contractor and signed by an authorized Owner's representative. No individual or representative other than the Owner's designated representative is permitted to sign the forms for the owner.

Disposal of all ACCM waste can be handled as general construction debris however, these materials must be properly sealed in leak tight containers prior to leaving the project site.

**Part 24.15 - Work Periods**

Work periods shall be scheduled with Owner's agent/site representative at least 48 hours prior to the start of any shift. If weekend work is to be conducted, shift times are to be established and approved by Owner's agent/site representative. All shifts are to consist of 8 hours and will begin at the time specified and agreed to by Owner's agent/site representative and the abatement contractor.

**PREPARED BY:**

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Senior Project Manager  
Entek Consulting Group, Inc.  
CAC#96-2014  
January 10, 2016

**Part 24.17 - Pre-Construction Submittal List**

- 1. \_\_\_\_\_ Copy of State of California - Contractor's State License
- 2. \_\_\_\_\_ Copy of State of California CSLB Active License
- 3. \_\_\_\_\_ Copy of State of California CSLB Asbestos Certification
- 4. \_\_\_\_\_ Copy of Department of Industrial Relations; Division of Occupational Safety and Health; Certificate of Registration for Asbestos-related Work
- 5. \_\_\_\_\_ Copy of signed statement from company officer listing citations and pending proceedings against the Contractor, or if there have been no citations, a copy of the statement that no actions by regulatory agencies have occurred in the last three years signed by an officer of the company.
- 6. \_\_\_\_\_ General Liability Insurance Certificate
  - a) \_\_\_ Occurrence
  - b) \_\_\_ Asbestos/Lead Activities or Abatement Certificate
  - c) \_\_\_ Owner Named as Additional Insured
  - d) \_\_\_ Consultant Named as Additional Insured
- 7. \_\_\_\_\_ Auto Insurance
- 8. \_\_\_\_\_ Workers' Compensation Insurance
- 9. \_\_\_\_\_ Statement of Non-use of Sub-contractors or
  - a) \_\_\_ Name of Each Sub-contractor
  - b) \_\_\_ License Number for Each Sub-contractor
  - c) \_\_\_ General Liability Insurance Certificate for Each Sub-contractor
    - 1) \_\_\_ Minimum Coverage of \$1,000,000.00
    - 2) \_\_\_ Owner Named as Additional Insured
    - 3) \_\_\_ Consultant Named as Additional Insured
  - d) \_\_\_ Auto Insurance Certificate for Each Sub-contractor
  - e) \_\_\_ Workers' Compensation Insurance Certificate for Each Sub-contractor
    - 1) \_\_\_ Owner Named as Additional Insured
    - 2) \_\_\_ Consultant Named as Additional Insured
- 10. \_\_\_\_\_ Written Notification to CAL/OSHA
- 11. \_\_\_\_\_ Written Notification to local SJVUAPCD
- 12. \_\_\_\_\_ Copies of City Permits (e.g. Parking or Waste container) or Statement That no Permits are Required
- 13. \_\_\_\_\_ Statement That no Equipment Will be Rented for use With Asbestos or a Statement From Each Rental Company Acknowledging Their Equipment Will be Exposed to Asbestos

- 14. \_\_\_\_\_ Non-Emergency Telephone Numbers
  - a) \_\_\_ Local Police Department
  - b) \_\_\_ Sheriff Department
  - c) \_\_\_ Fire Department
  - d) \_\_\_ Emergency Medical Facility and Directions to That Facility From the Site
- 15. \_\_\_\_\_ Written Emergency Plans
- 16. \_\_\_\_\_ Written Work Plan
- 17. \_\_\_\_\_ Written Schedule
- 18. \_\_\_\_\_ Worker Documentation (Must Include at Least One Supervisor)
  - a) \_\_\_ Training Records for Asbestos - AHERA (Supervisor and Worker)\*
  - b) \_\_\_ Medical Examination Written Opinion Final Report for Each Employee\*
  - c) \_\_\_ Respiratory Fit Tests for Each Employee\*
- 19. \_\_\_\_\_ Equipment list, SDS for all materials to be used on the project, including but not limited to, spray glue, encapsulants, wetting agents, mastic remover, etc.
- 20. \_\_\_\_\_ Name of laboratory/person used for PCM analysis and copy of current NVLAP Certificate of Accreditation (if applicable), and most recent AIHA Proficiency Analytical Testing (PAT) Program results.
- 21. \_\_\_\_\_ Written Statement That OSHA Monitoring Will be Performed During the Project
- 22. \_\_\_\_\_ Manufacturers documentation of 5.0 micron filter capability required for waste water
- 23. \_\_\_\_\_ Name of Transporter
- 24. \_\_\_\_\_ Hazardous Waste Transporter Registration (if applicable) **Is required only if work to be conducted involves the removal and disposal of "hazardous" asbestos waste as determined either by definition or designated within the Asbestos Abatement Specifications/Procedures and associated attached Exhibits.**
- 25. \_\_\_\_\_ Waste Facility Documentation
  - a) \_\_\_ Name and Site Address
  - b) \_\_\_ EPA Identification Number (if applicable)
  - c) \_\_\_ Copy of Current Permit Authorizing Asbestos Waste Receipt and Disposal
- 26. \_\_\_\_\_ Signed Copy of Competent Person Form Acknowledging Reading and Understanding the Specifications (Last Page of Forms Sections of Document)

Note: Items 9, 12, 13, and 21 may be addressed in a single letter as applicable.

\* No Contractor's worker will be allowed to conduct asbestos related work, enter a containment, or regulated area prior to verification of AHERA, respirator, and medical documentation. This verification must either be onsite or faxed to Owner's agent/site representative prior to entry.

Upon request by the Owner or Owner’s Representative, the Contractor shall provide copies of documentation identified to be pertinent to the project.

**Part 24.19 - Post Construction Submittal List**

Contractor shall provide the following post-construction submittals to Owner’s Representative within thirty (30) days of the completion of asbestos abatement work.

1. \_\_\_\_\_ Copies of revised notifications to regulatory agencies.
2. \_\_\_\_\_ Information on all new workers not covered by the pre-construction submittals and not submitted during the project.
3. \_\_\_\_\_ A copy of worker exposure monitoring results collected in compliance with DOSH regulations (Title 8 CCR, Section 1529) including daily/representative/full-shift/breathing-zone air samples, and 30-minute excursion samples.
4. \_\_\_\_\_ A copy of the worker/visitor log showing the following for all persons entering the work area: date, name, social security number, entering, and leaving times, company or agency represented, and reason for entry. The Contractor's time records will not be accepted in lieu of a worker/visitor log.
5. \_\_\_\_\_ Copies of all accident reports submitted during the course of work. **If no accidents occur during the project this should be stated in writing by the Contractor.**
6. \_\_\_\_\_ Receipts from the landfill operator acknowledging the Contractor's delivery of wastes, including dates, container types and quantities, tare weights or material delivered, and all appropriate signatures.
7. \_\_\_\_\_ A complete record of the air filtration devices used certifying DOP testing (if performed) and a circular chart recording, indicating continuous operation and documenting differential air pressure.
8. \_\_\_\_\_ Copies of DOP Testing Performed on HEPA Equipment not Previously Submitted
9. \_\_\_\_\_ Manometer graphs identifying project name, date, and location.
10. \_\_\_\_\_ A copy of the asbestos waste record showing dates, times, manifest numbers, quantities of wastes, types of containers removed from the work area, the hauler, and the signature of the recorder.
11. \_\_\_\_\_ A Land Disposal Restrictions Notification and Certification
12. \_\_\_\_\_ Completed Uniform Hazardous Waste forms
13. \_\_\_\_\_ Other Documents as Requested

**SECTION 25. ASBESTOS RESULTS LIST**

Any material not specified on the following list which the Contractor encounters at this site must be considered as “suspect” and “assumed” to contain asbestos per US EPA. The only items excluded from this statement are; bare wood, glass, and metal.

<b>Suspect Materials Found or Known TO Contain &gt;1% Asbestos (RACM)</b>				
<b>Sample ID#’s</b>	<b>Suspect Material</b>	<b>Asbestos Content/Type (%) by PLM</b>	<b>Location</b>	<b>Total Estimated Quantity</b>
06A-E	White Spray Applied Acoustic Ceiling Material	1-5% Chrysotile	Throughout	4,500 sq. feet

<b>Suspect Materials Found or Known TO Contain &gt;1% Asbestos (CAT-I)</b>				
<b>Sample ID#’s</b>	<b>Suspect Material</b>	<b>Asbestos Content/Type</b>	<b>Location</b>	<b>Total Estimated Quantity</b>
03A	Gray Vinyl Floor Tile and Associated Black Mastic	2-7% Chrysotile (Tile) None Detected (Black Mastic)	Near Southeast Entrance of Building	100 sq. feet
18A-B	Black Penetration Mastic Painted Silver	1-5% Chrysotile	Lower Roof; Vents and HVAC Support Brackets	30 sq. feet
20A-B	Black Rolled Roofing and Black Mastic	1-5% Chrysotile	Upper Roof and Parapet Wall	500 sq. feet
21A-B	Black Penetration Mastic and Silver Paint	1-5% Chrysotile	Upper Roof; Vents and Skylights	10 sq. feet
22A	Black and Gray Penetration Mastic Painted White	1-5% Chrysotile	Upper Roof- Large Skylight; East Side	5 sq. feet

**NOTE:** Any CAT-I materials identified in the previous table which will be subjected to mechanical removal, must be considered RACM for the purposes of notification to SJVAPCD, and classification of waste. Removal of any CAT-I materials prior to demolition of a building is dependent upon how the materials will be impacted and if the impact will cause the materials to become friable. If any remaining CAT-I materials will become friable they must be removed prior to the initiation of demolition.

Suspect Materials Found or Known TO Contain <1% Asbestos (ACCM)				
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM/PC	Location	Total Estimated Quantity (Sq./Ln./Cu. Ft.)
05A-C	White Knockdown Wall Texture on Drywall	< 1% Chrysotile (Confirmed by 400 Point Count)	Partial, West, and North Walls in Building	800 sq. feet
13A-E	White Drywall and Joint Compound	< 1% Chrysotile (Confirmed by 400 Point Count)	Throughout	4,000 sq. feet
19A-C	Gray Stucco (***Black Stucco/Tar Binder Layer)	< 1% Chrysotile (Confirmed by 400 Point Count)  ***1-2% Chrysotile (***Black Stucco/Tar Binder)	Wall from Lower Roof Connecting to Upper Roof	300 sq. feet
24A	Tan Gunite	< 1% Chrysotile (Confirmed by 400 Point Count)	Exterior South Face of Building	250 sq. feet

NOTE: Cal/OSHA regulates all materials containing greater than 0.1% asbestos. As a result, impact to materials identified as ACCM and ACM must be performed by properly asbestos trained personnel utilizing appropriate personal protection, work practices, as well as, properly constructed and demarcated work areas or containments, in accordance with Cal/OSHA asbestos regulations.

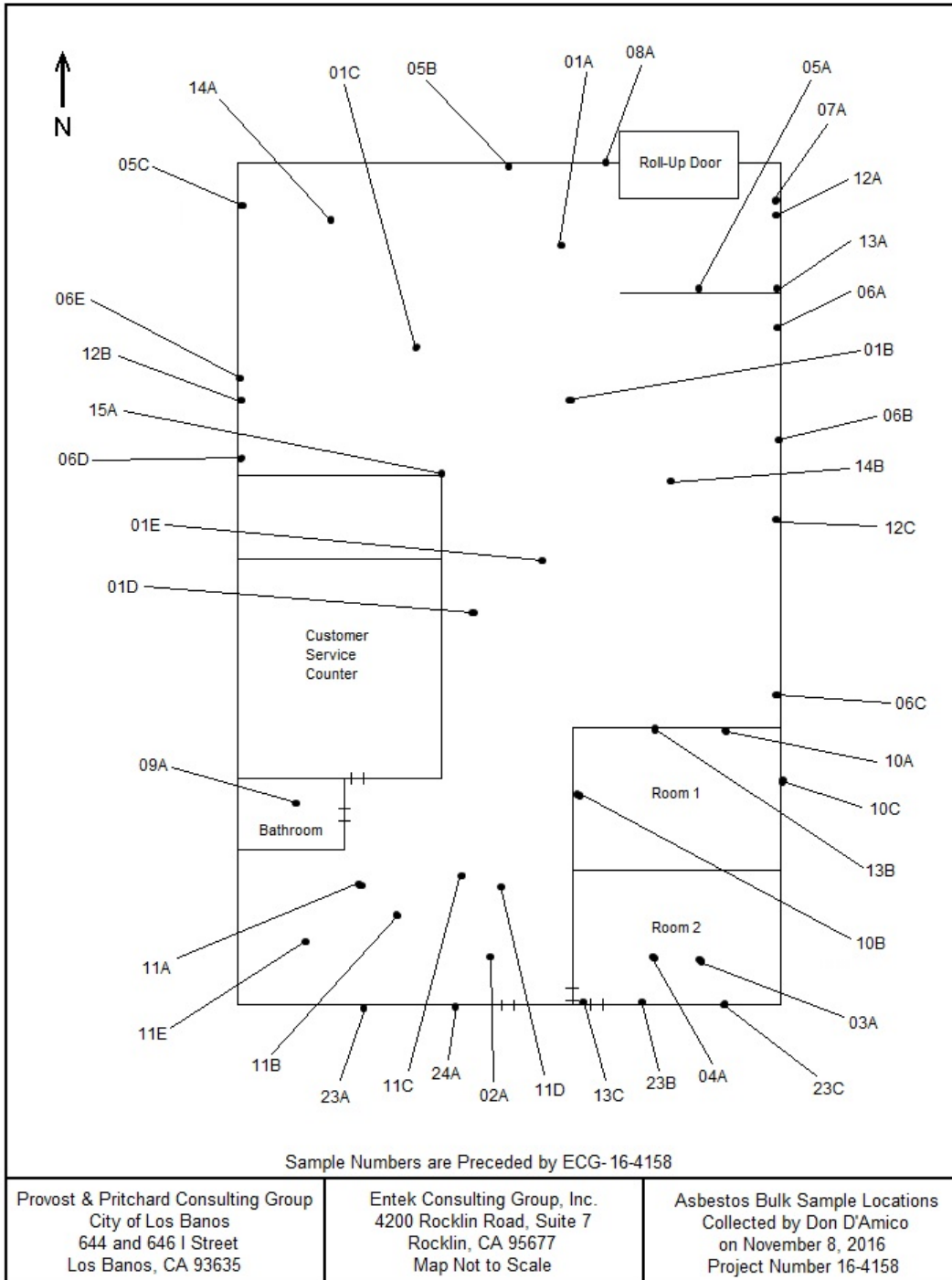
Note 1.: **Category I Non-friable ACM** is asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos by area.

Note 2.: **Category II Non-friable ACM** is any material, excluding Category I non-friable ACM, containing more than one percent asbestos, which is non-friable such as transite and other concrete based products.

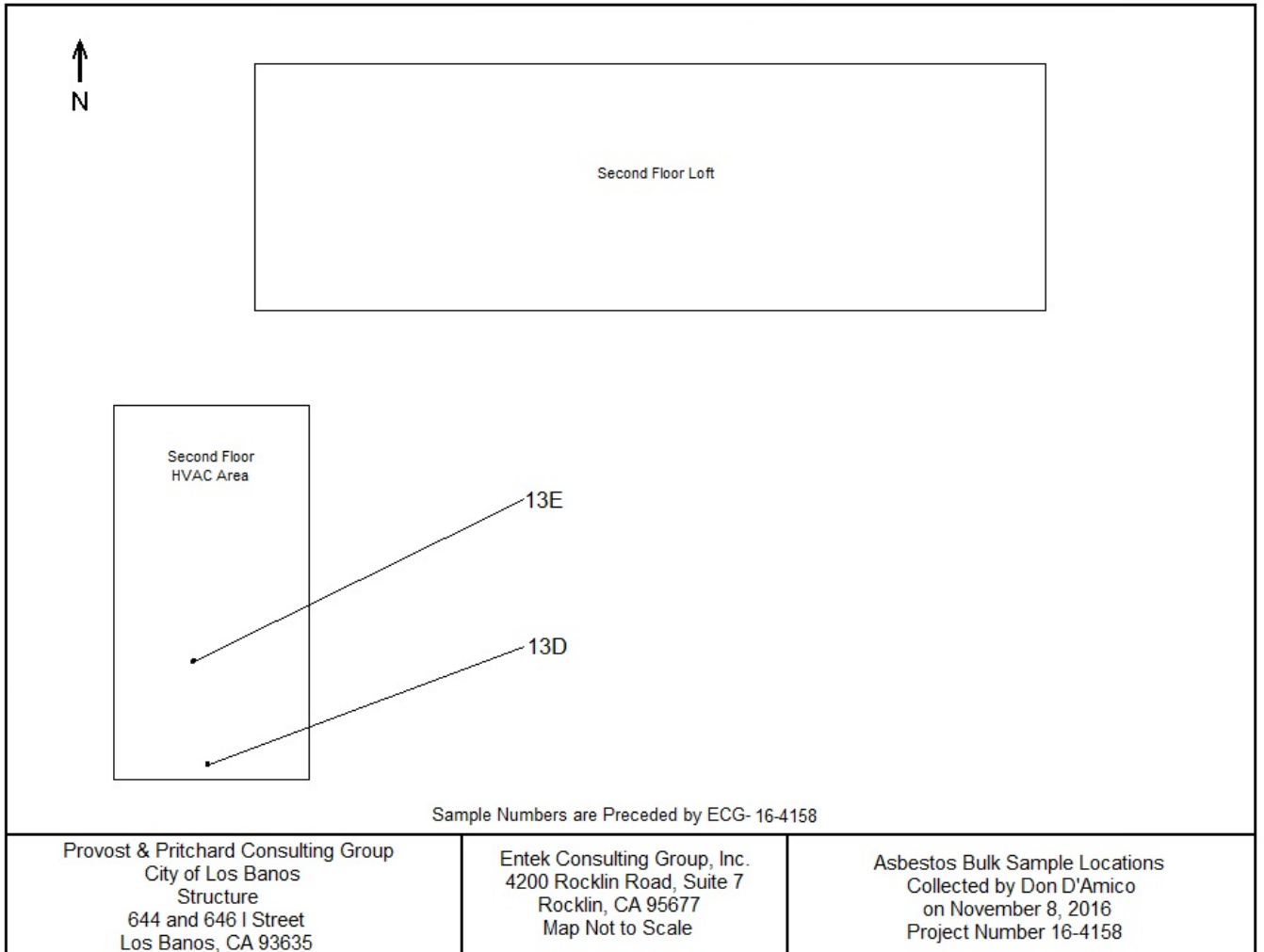
Note 3.: **Regulated Asbestos-Containing Material (RACM)** is any friable material, any Category I non-friable ACM which has become friable, any Category I non-friable ACM which will be or has been subjected to sanding, grinding, cutting, or abrading, any Class II non-friable ACM that has a high probability 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.

Note 4.: The terms “assume” and “presume” mean the named material is considered positive for containing asbestos and must be treated accordingly, until properly sampled in compliance with 40 CFR, Part 763 Asbestos-Containing Materials in Schools; Final Rule and Notice.

SECTION 26.







**SECTION 27. FORMS**

Competent Person Acknowledgment

The Cal/OSHA standard for asbestos related construction work, found in 8 CCR, 1529, outlines specific duties and qualifications of the "Competent Person." Find below a overview of these qualifications and responsibilities. The competent person must be authorized by their employer to take prompt corrective measures to eliminate hazards on the job and protect their workers safety. The competent person must be capable of:

- Identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees.
- Identifying existing asbestos hazards in the work place and selecting the appropriate control strategy for asbestos exposure.

The duties of the competent persons include, but are not limited to:

- Frequent and regular inspections of the job site, materials, and equipment.
- Supervise or perform the set-up of the regulated area and/or containment.
- Ensure the integrity of the regulated area and/or containment.
- Set up procedures to control entry to and exit from the regulated area and/or containment.
- Supervise all employee exposure monitoring and assure it is conducted according to regulatory requirements.
- Ensure that employees working within the regulated area(s) wear respirators and protective clothing as required by regulation.
- Ensure that employees working set up, use, and remove engineering controls, use work practices and personal protective equipment in compliance with the regulations.
- Ensure that employees use hygiene facilities and observe the decontamination procedures specified in the regulation.
- Ensure through continuing onsite surveillance that engineering controls are functioning properly and employees are using proper work practices.
- Ensure that notification requirements of the regulation are met.

Additionally, the EPA requires the competent person to be trained in the Federal NESHAP regulations, the means to comply with them, and be on site during all removal operations.

I \_\_\_\_\_ have the authority to take prompt corrective measures to eliminate hazards on the job and protect workers safety. Furthermore, I have read and understand my duties as outlined above and under the applicable regulations, and will exercise them to best of my ability.

\_\_\_\_\_  
Signature of Competent Person      Date: \_\_\_\_\_      Employer: \_\_\_\_\_

\_\_\_\_\_  
Printed Name of Competent Person