Fresno Unified School District

Preparing Career Ready Graduates

Purchasing Services
4498 N. Brawley Ave. Fresno, CA 93722
Ph. (559) 457-3588 Fax (559) 457-6040

April 27, 2021

ADDENDUM No. 2
Bid No. 21-45
WEBSTER ELEMENTARY SCHOOL MULTIPURPOSE ROOM PLUMBING REPLACEMENT

NOTICE TO ALL BIDDERS

This Addendum is attached to and made a part of the above-entitled specifications for Fresno Unified School District with a scheduled bid opening on May 4, 2021 prior to 2:01 P.M. All changes and/or clarifications will appear in **bold** type and deletions will be struck out in revised sentences.

Incorporate the following into your bid response.

I. REFERENCE: TECHNICAL SPECIFICATIONS
Add: FACS Abatement Scope of Work

The attached additional scope of work for abatement shall be incorporated into the bid documents as part of the prime bidder proposal.

Instructions:
- Entire addendum may be downloaded from District Purchasing Web Site, under "Bid Opportunities". https://www.fresnou.org/dept/purchasing/Pages/Bid-Information.aspx

Acknowledge receipt and understanding of this addendum in designated area of the Bid Form.

Ann Loorz
Purchasing Manger

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Addendum No. 2
Abatement Scope of Work
Webster Elementary School
Kitchen Plumbing Replacement Project

Site Address

Webster Elementary School
2600 East Tyler Avenue
Fresno, CA 93701

Contacts

Fresno Unified School District – William Anderson, Project Manager – (559) 457-3046
Forensic Analytical Consulting Services, Inc. – Chris Chipponeri, Director – (209) 484-4648

Scope of Work

Asbestos

Material	Asbestos Content	Location	NESHAP Category	Approximate Amount*
Sprayed-On Ceiling	10% Chrysotile	Washroom	Friable / RACM	200 Sq. Ft.
Pipe Insulation	60% Chrysotile	Janitors Closet – Material may also exist within other inaccessible wall and ceiling cavities	Friable / RACM	5 Ln. Ft. Visible

*** Approximate amount of material provided for informational purposes only. Contractors are responsible for own measurements for bidding, notifications, etc.**

Project Requirements

Asbestos-containing sprayed-on ceiling in the washroom to be removed as part of this project shall be abated within a single negative pressure enclosure. The TSI within the janitor closet shall be included within this containment area as well.

Contractor performing abatement must be registered with the Division of Occupational Safety and Health (DOSH) as an asbestos abatement contractor. Contractor must hold the C-22 asbestos abatement license or the B-class general license with asbestos certification.

SUBMITTAL REQUIREMENTS

A copy of the contractor's prestart submittal shall be provided to the onsite project monitor and shall include the items listed in the attached Asbestos General Requirements at Sections 2.2, 2.31a, 2.31b, 2.31c, and 2.5. Delays in providing the required submittals may affect the start of the project.

At the start of each work day, the contractor shall be responsible for submitting a paper copy of the previous day's paperwork (worker roster, regulated area sign-in/sign-out sheets, daily log) to FACS project manager.

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Notifications

Contractor will be responsible for filing notification to the San Joaquin Valley Air Pollution Control District for the abatement of asbestos-containing materials on the project at least 10 working days prior to the project commencing. Contractor is responsible for payment of any fees associated with this notification.

Contractor shall submit a temporary worksite "report of use" notification to the Fresno Cal/OSHA office at least 24 hours prior to commencing work on site.

Copies of the notifications shall be provided as part of pre-start submittal package or to FACS on site project manager at the start of the project. No asbestos abatement work may take place until these notifications are provided.

Work Days and Hours

No schedule has been established for this project. It is anticipated that work will be conducted Monday through Friday, 7:00 am to 3:30 pm. Alternative days or hours may be worked by the contractor upon request. The written request for additional time must be submitted at least 48 hours prior to the work shift commencing to Owner, General Contractor, and FACS for approval.

Worker Training

All workers to be used on the project must have AHERA Worker training with one worker trained to the AHERA Contractor-Supervisor level. Copies of worker certifications shall be provided as part of the pre-start submittal package or to the FACS on site project manager prior to work commencing.

Personal Protection Equipment

All personnel entering the regulated work area shall wear tight-fitting full-face powered air purifying respirators (PAPR) fitted with HEPA (P-100) filters. Disposable coveralls with attached hood and booties and har hats shall be worn in addition to respiratory protection.

Supervisor shall monitor air flow supplied to respirator to ensure it meets manufacturer requirements. Contractor shall provide no less than two batteries for each PAPR onsite to allow one battery to charge while the other is in use.

All PPE to be re-used and not disposed of when exiting the regulated area shall be decontaminated as part of the exit procedures.

All personnel wearing respiratory protection shall have a valid asbestos medical with respirator approval and a valid fit test for the respirator being worn. Copies of medical approval and respirator fit test shall be provided to the on site FACS project manager prior to donning of personal protection equipment.

Equipment

Contractor shall provide all necessary equipment and supplies required to meet the requirements of this specification and complete their scope of work in the allotted schedule. All equipment that arrives onsite shall be clean of all dust and debris and in proper functioning order. This means that HEPA-vacuums have empty bags, negative air machine is sealed and has a clean pre-filter without dust

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contamination, etc. Ladders must not be missing feet, cords must have grounds and intact insulation/jacketing, etc.

Any equipment that arrives onsite dirty or not in proper functioning order shall be removed at no additional cost to Owner or Owner's representatives. No additional time will be provided for delays due to failure of contractor to provide necessary equipment and supplies when they are needed for the project.

The intakes of any negative air machines not actively powered and operating shall be sealed with one layer of 6-mil poly. This seal may be removed only in the event that the machine is operating.

HVAC, Water, and Electricity

Contractor shall coordinate with General Contractor and/or Fresno Unified School District Project Manager prior to arrival onsite to ensure HVAC systems servicing the work area have been shut down and locked-out / tagged-out.

Water and electricity are available within the project area. Contractor shall provide necessary lengths of hose and cords to reach work area. Contractor shall ensure any power to ceiling mounted lights or equipment have been terminated prior to removal of ceiling materials.

Contractor shall install ground fault circuit interrupters at all primary connections of electrical trains for equipment. Hose washers shall be installed at all hose connections to prevent water leakage. Contractor is responsible for the costs of any repairs necessary due to use of the District's systems.

Pre-Cleaning

No pre-cleaning of asbestos-containing materials or debris is required for this project. Limited debris and dust may need to be cleaned to allow sufficient adherence of containment barriers to surfaces.

Safety / Security

The contractor is responsible for the safety of all employees and following all applicable regulations, namely Cal/OSHA. A tailgate safety meeting shall be held on the first day of the project by the crew supervisor to discuss all safety hazards on the project. A sheet signed by all attendees and the presenter with the topics discussed shall be provided to the FACS on site project manager.

Safety meetings shall be held at least weekly thereafter or in the event that job hazards change on the project or if an accident occurs on the project.

Contractor is responsible for the security of their equipment onsite and work area. This includes securing any openings used at exteriors for the exhaust of negative air machines. The openings used shall be secured with at least ½" plywood and tamper-proof bolts. Contractor may stage supplies and equipment in adjacent project areas, but no waste may be stored within a building.

Occupancy

The contractor will have sole access to the work area. Other trades may occupy nearby areas within the structure.

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Disposition and Storage of Items

The District will be responsible for the movement and replacement of all loose furniture and items within the work area.

Personal Air Monitoring

The contractor is responsible for the collection of personal air samples during the abatement of asbestos-containing materials in accordance with Cal/OSHA requirements. Contractor shall submit the samples to an AIHA-accredited laboratory daily on a 48-hour turnaround time. Copies of the laboratory results, along with chain of custody, shall be provided to the FACS on site project manager within 72 hours of collection.

Air Pressure Differential

All negative pressure enclosures shall be placed under an air pressure differential of at least -0.030" WC. This air pressure differential shall be established prior to work commencing and must be maintained through all phases of the project until clearance air sample results are received.

The air pressure differential shall be monitored on a recording manometer. Copies of the manometer reading shall be provided to the FACS on site project manager daily on 8.5" X 11" pieces of paper.

All negative air machines used to generate air pressure differential shall be exhausted to the exterior of the building using wire-reinforced flex ducting. Contractor is responsible for securing openings used for the negative air machines exhaust.

Decontamination System

For this project, the decontamination system shall be sited inside the MPR building. No additional security is needed for exterior containment beyond negative air machine exhaust ports.

The negative pressure enclosure shall have an attached three-stage decontamination system. This system shall be comprised of a "clean" chamber, functioning shower system, and "dirty" chamber. Each chamber shall be at least 3'x3'x7' and a curb of at least 4" shall exist between each chamber, including entry into containment area, to prevent the transfer of debris through the chambers. A self-sealing "z-flap" or similar shall be installed between each chamber and must completely seal in the event of power loss in the work area.

The shower system shall have both hot and cold water that is controllable with a shower head that provides sufficient water pressure to allow personnel to shower out of the containment area. The captured water from showers shall be filtered down to 5 microns prior to discharge into a storm drain. The contractor shall provide soap, shampoo, and towels for workers to use for showering. The decontamination system shall be kept clean at all times.

Water or other liquids may not be consumed in any part of the decontamination system. Workers that need to hydrate will need to shower and exit the decontamination system to access and drink fluids.

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Challenge Testing

All HEPA-filtered equipment to be used on the project shall be challenge tested onsite prior to use. Testing shall be performed by a contractor independent of FACS and the abatement contractor.

Results of the challenge testing shall be provided to the FACS on site project manager. Any units that fail to pass challenge testing, or does not meet the requirements above, shall be set aside and removed from the site at the conclusion of the day's shift.

Containment and Abatement Requirements

All sprayed-on ceiling abatement and removal of pipe insulation shall be completed within a single negative pressure enclosure.

1. Two layers of 6-mil poly shall be installed and sealed over all openings into the work area as critical barriers. This includes HVAC registers, doorways, exhaust fans, windows, etc.
2. Two layers of 6-mil poly shall be installed over the floor within the containment area. This floor poly shall be curbed up the walls at least 6 inches. The top layer does not need to be curbed up as it may be removed during detail cleaning.
3. One layer of 6-mil poly shall be placed over the wall surfaces for the abatement of materials. This poly shall be overlaid the curbed floor poly at least 4 inches.
4. One layer of 6-mil poly shall be installed over any fixed items that are not removed prior to containment setup.
5. Poly sheets shall be staggered over each other at least 4" at seams to prevent debris from falling out of containment barriers.
6. Viewports of sufficient size shall be installed into poly critical barrier walls as directed by the FACS onsite project manager. A minimum of two viewports will be required to be installed.
7. A sufficient number of negative air machines shall be installed to provide an air pressure differential of -0.030" WC in the containment area.
8. An airless sprayer and HEPA-vacuum shall be installed in the containment area prior to work commencing.
9. A fire extinguisher shall be installed as required by Cal/OSHA and at minimum at the entry/exit to the decontamination unit and inside the containment area.
10. A three-stage decontamination system shall be attached to the containment area. Requirements for this system are detailed above.
11. Asbestos danger signs shall be installed at all openings into the regulated work area and at the flap leading from the "clean" chamber to the shower in the decontamination system. Signs shall be posted after a pre-start visual inspection has been passed and prior to abatement commencing.
12. Materials shall be wetted with amended water during removal. Materials shall be wetted with an airless sprayer or similar; use of a hose to wet materials is prohibited.
13. Sprayed-on ceiling materials shall be removed as intact as possible using non-mechanical means. Removal of the material includes the plaster system down to the structural members.
14. Any overspray on structural members above the finish shall be cleaned to the point of no three-dimensional debris as part of the detail cleaning.
15. Any asbestos containing pipe insulation found throughout the containment area shall be abated. Material shall be removed as intact as possible and immediately packaged in waste bag.
16. A poly ceiling may be installed as ceiling areas are removed and cleaned or a poly ceiling may be installed in attic area once accessible. Any area to be covered by poly **MUST** be cleared by the FACS on site project manager prior to installation of poly.

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17. All asbestos waste shall be placed in 6-mil poly waste bags and all waste must be double-bagged. Details of waste disposal are provided below.
18. Once gross removal is completed, containment area shall be cleaned. Cleaning shall be completed by wet-wiping surfaces, HEPA-vacuuming, and wet-wiping surfaces one more time at minimum.
19. Detail cleaning includes the removal of any overspray not removed during gross removal, pipe insulation material that may be packed into pipe threads or around valves, etc.
20. The contractor may remove one layer of 6-mil poly from floor as part of detail cleaning.
21. Once a clearance visual inspection has been passed by the FACS project manager, the contractor may encapsulate the containment poly.

Waste Disposal

Contractor is responsible for providing a waste receptacle on site for the storage of all asbestos-containing materials. Waste bins to remain onsite past a work shift must be covered/enclosed with a hard-top lid and lockable to keep waste secured. The waste bins must arrive onsite clean of debris. Waste bins shall be load-worthy and the contractor is responsible for any costs associated with load loss. Plywood or similar material shall be installed below the feet / casters of the waste bin to prevent damage to concrete or asphalt surfaces. Contractor is responsible for any damage caused by waste bin delivery, storage, or collection from the site.

The waste bin shall be lined with one layer of 6-mil poly prior to loading of waste. This liner does not count as one layer of packaging for waste. All waste must be double-bagged in 6-mil poly waste bags. Waste bags shall be sealed in a “goose neck” fashion to create a leak-tight container. All waste shall be wet inside waste bags but may not contain “loose” water. Air within waste bags shall be evacuated using a HEPA-vacuum when sealing.

All waste packages shall be labeled in accordance with Cal/OSHA and DTSC requirements as necessary for hazardous (regulated) asbestos-containing waste being disposed. All waste must be manifested and the contractor shall provide at least 24-hour notice of waste manifest needing to be signed to allow coordination with District personnel for signatures.

Clearance

At the conclusion of abatement, the crew supervisor shall perform own visual inspection of the regulated work area to ensure all materials have been abated and the work area is clean of all dust and debris. Once they pass their own visual inspection, they may request a visual inspection from the FACS on site project manager. To pass a final visual inspection, all materials need to be abated, the containment area must be dry to prevent the “hiding” of dust, and no dust or debris may be present within the containment area. In addition, no waste bags shall still be in the containment when conducting inspection to prevent the hiding of debris.

Clearance air sampling will be performed in accordance with US EPA AHERA requirements the day following a passing visual inspection. For this project, five (5) clearance air samples will be collected in an aggressive manner within the work area and analyzed by transmission electron microscopy as required by AHERA, by a laboratory independent of FACS and the Contractor. To pass clearance air sampling criteria, the average for the sample set collected must be below 71 structures per square millimeter (S/mm^2).

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Once the Contractor is notified that clearance air sampling results have been received, they will dispatch a crew to the work site to either remove containment or re-clean to allow collection of additional clearance air samples no more than 24 hours after notification. The Contractor is responsible for all costs associated with the cleaning and collection of additional clearance air samples (both labor to collect, transport, and rush laboratory analysis fees) beyond the initial clearance set until passing clearance air samples are obtained.

Written by: Eric Farnsworth, Project Manager CAC #19-6643
Reviewed by: Chris Chipponeri, Local Director CAC #10-4633

ASBESTOS GENERAL REQUIREMENTS

Forensic Analytical Consulting Services, Inc.
207 McHenry Avenue
Modesto, CA 95354
209-551-2000
forensicanalytical.com

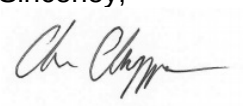
January 1, 2019

To whom it may concern,

The enclosed specifications were created by Hazard Management Services, Inc.(HMS, Inc. or HMS). HMS, Inc. is now Forensic Analytical Consulting Services, Inc. (FACS).

This document has not been updated to reflect our new company name. Any references within this document to Hazard Management Services, Inc., HMS, Inc., or HMS should be presumed to now refer to FACS. If there is any ambiguity or if any clarification is needed regarding this issue, please contact me via email or by phone.

Sincerley,



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GENERAL ASBESTOS REQUIREMENTS

SECTION 1. 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

AHERA - Asbestos Hazard Emergency Response Act (40 CFR 763)

AIHA - American Industrial Hygiene Association

Air Filtration Device - 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. At a minimum, the air intake for the air filtration device, must have a pre-filter on it which can be changed within the containment area.

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

Air Monitoring - The process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure normally utilized for asbestos follows the NIOSH Standard Analytical Method for Asbestos in Air Method 7400. For clearance air monitoring, transmission electron microscopy methods may be utilized for detection of smaller fibers 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. The air sampling professional must be a Cal/OSHA Certified Asbestos Consultant or Certified Site Surveillance Technician. This individual shall not be affiliated in any way other with the contractor performing the abatement work.

Ambient Air - The air outside 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

Approval/Acceptance - A written means of approving/accepting a product, containment set-up, work practice. Approval/Acceptance by HMS, Inc. Project Manager may be given verbally, if followed in written format. Failure of HMS, Inc. Project Manager to address an issue either verbally or in writing does not imply Approval/Acceptance.

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

Asbestos-Containing Construction Material (ACCM) - Cal/OSHA term used to describe construction materials that contain asbestos in amounts greater than one-tenth of one percent (0.1%) either alone or mixed with fibrous or non-fibrous materials. With the exception of waste issues, for the purposes of this contract the terms ACM and ACCM shall be interchangeable.

Asbestos-Containing Material (ACM) - Term used by Cal/OSHA, and U.S. EPA to include any material containing more than one-percent (1%) asbestos. With the exception of waste issues, for the purposes of this contract the terms ACM and ACCM shall be interchangeable.

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

Asbestos Project Manager - An individual who is qualified by virtue of experience and education, designated as the Owner's representative and responsible for overseeing the asbestos abatement portion of the project. This person is generally the same as the HMS, Inc. Project Manager.

ASTM - American Society for Testing and Materials

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 has submitted a bid. If bid walk is mandatory, bidder must attend the walk in order for bid to be considered responsive.

Cal/OSHA - California Division of Occupational Safety and Health. Acronym of DOSH is interchangeable with this term.

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

Cleaning Barriers - Cleaning barriers are used in addition to critical barriers and are primarily to aid in the decontamination of the area after the completion of asbestos removal work. Cleaning barriers are normally comprised of plastic sheeting placed over non-asbestos-containing surfaces (e.g. walls, floors, ceilings, casework, etc.), and asbestos-containing surfaces not scheduled for removal, in the regulated area.

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. Also, the term includes uncontaminated area or room of a Waste Transfer Airlock.

Competent Person - The Contractor's employee who meets the requirements of and is responsible for the activities of the Competent Person as described in Title 8 CCR 1529. The includes but is not limited to an individual who has current AHERA Contractor/Supervisor accreditation and has the responsibility and authority to ensure that the Contractor's employees comply with the contract documents and all relevant Cal/OSHA regulations.

Containment - The temporary 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 Contractor is the person or entity identified as such in the Contract Documents; references to "Contractor" include the Contractor's authorized representative.

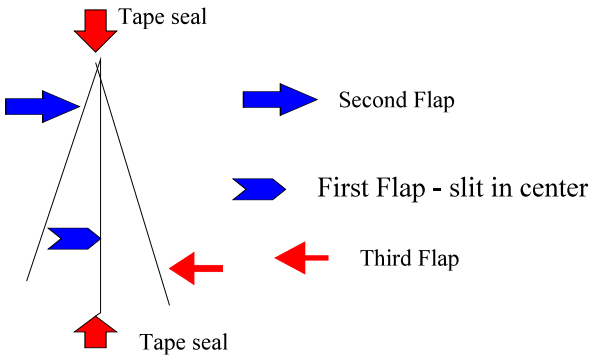
Contractor/Supervisor - A person who successfully completed an initial U.S. EPA and/or state-approved five-day AHERA-accreditation course and who has maintained that training through approved annual refresher training, and possesses current and valid AHERA-accreditation documentation as a AHERA-accredited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

Cal/OSHA 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. Please see diagram:



Other designs are permissible, if approved by the HMS, Inc. onsite project manager.

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.

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

Demolition - The wrecking or taking out of any load-supporting structural member, casework, items or surfaces of a facility together with any related handling operations and disposal.

Dust or Debris - Material visible to the HMS, Inc. Project Manager. Dust and debris may be contaminated with asbestos, and may affect the asbestos work practices, containment or clearance air samples required on this project, whether contaminated with asbestos or not.
Encapsulant, Bridging/Penetrating - A liquid material which can be applied to asbestos-containing

material to control the possible release of asbestos fibers from a material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).

Encapsulant, Lock-down - A liquid product designed to mist the air within a contained area after the containment has passed visual clearance by the HMS, Inc. Project Manager. Lock-down encapsulant is designed to bind asbestos fibers together and to create a tacky surface causing non-visible asbestos fibers, settling out of the air, to adhere to containment poly.

U.S. 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, consisting of a clean room, washroom and holding area.

Equipment Room - A contaminated area or room which is part of the worker/equipment 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 item (pipe, duct, boiler, tank, reactor, turbine, furnace, etc.) at or in a facility, any portion of a facility or any structural member in or at a facility.

Federal 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, or will not be removed by Owner's decision, from the work area.

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

Glovebag Technique - A method with limited applications for removing small amounts of friable asbestos-containing materials from ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces. The glovebag assembly is a manufactured or fabricated device consisting of a glovebag (typically constructed of 6 mil transparent polyethylene or polyvinylchloride plastic), two inward projecting long sleeves, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. Glovebags must meet the specification requirements for glovebags as listed in 8 CCR 1529. All workers who are permitted to use the glovebag technique must be highly trained, experienced and skilled in this method. All techniques and procedures employed by the contractor shall be approved by the HMS, Inc. Project Manager.

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.

HMS, Inc. Project Manager - An individual, employed by (or sub contracted to) Hazard Management

Services, Inc., who is qualified by virtue of experience and education, designated as the Owner's representative and responsible for overseeing the asbestos abatement, and/or other activities.

Holding Area - A clean space where clean supplies and equipment are stored before being placed into containment. Also, a contaminated space, adjacent to a shower or equipment washing chamber, where dirty equipment or packaged waste is stored prior to removal from containment.

Lock-down - To mist the air and to wet surfaces with an agent designed to bind asbestos fibers together and to create a tacky surface causing non-visible asbestos fibers, settling out of the air, to adhere to containment poly.

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

Manometer - See "Magnehelic gauge". This project requires at least one properly calibrated and fully functioning recording manometer.

Mil - An abbreviation for millimeter. Generally used when referring to the thickness of plastic (poly) sheeting used to contain the regulated area.

Mini-Enclosures - Mini-enclosures may be used where glovebag setups are not feasible. The use of them must be approved by the HMS, Inc. Project Manager. Mini-enclosures shall be constructed of six-mil polyethylene (attached with tape and/or glue to walls and floors) and shall be small enough for a maximum of two workers who can enter the enclosure one time, complete the abatement exercise, pass out the containerized debris and exit. The workers shall have available a change room contiguous to the work area where they can remove their 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) Collecting core samples of encapsulated or bridged materials.
d) Collecting other bulk samples during and following abatement.
e) Sampling substrata following abatement.
f) Inspection of abatement contractor's, and contractor's employees, work practices for compliance to these and other specifications and applicable regulations.

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 Emission Standards for Hazardous Air Pollutants (40 CFR Part 61, Nov. 20, 1990)

NIOSH - The National Institute for Occupational Safety and Health

Outside Air - The air outside of containment. See also Ambient Air.

Owner - The Owner includes the individual or entity that owns the property and, unless otherwise stated, the Owner's authorized representatives, including the HMS, Inc. Project Manager, the Owner's Board of Trustees and the Owner's officers, employees, agents and representatives.

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

Poly - Polyethylene sheeting.

Pre-start Meeting - Meeting held before the beginning of the project in which final details of the project are discussed and Contractor provides Project Monitor with pre-job submittal packet.

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 - An area established by a contractor to demarcate areas where the contractor's employees may conduct Class 1, 2, or 3 work as described in 8 CCR 1529 or 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, or applicable regulations, regardless of airborne asbestos concentration levels.

Regulations - shall include all relevant federal, state, and local regulations including but not limited to:

a. U.S. Environmental Protection Agency Regulations for Asbestos (Title 40, Code of Federal Regulations, Part 61, Subparts A & B)
b. 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.
c. "Asbestos Hazard Emergency Response Act", U. S. Environmental Protection Agency, 40 CFR, Part 763. Final Rule and Notice.
d. Applicable local county Air Pollution Control Districts and Air Quality Management Districts or other local NESHAPs Enforcement.

Removal - The stripping of any asbestos-containing materials from surfaces, substrates or components of a facility. As per various regulations, the ground is considered a substrate.

Regulated Area- An area where asbestos-containing materials are going to be disturbed and may release asbestos fibers into the air and whose entrances have been posted. A regulated area is required for all Class I, II, or III work as described in 8 CCR 1529 or whenever the work may release asbestos in concentrations over the OSHA Permissible Exposure Limit (PEL) or Excursion Limit.

Renovation - Altering in any way one or more facility components.

Scope of Work - Job specific information and specifications used in combination with these Asbestos General
Requirements. If conflicts exist between the Scope of Work and these specifications, the stricter requirement will be enforced unless the conflict is specifically addressed in wirting in the Scope of Work for this project.

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 - The secured area outside of containment where clean equipment and supplies are stored. Waste must not be stored within the staging area unless placed within an additional lockable container or area approved by the HMS, Inc. Project Manager.

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, in-progress and post job documents submitted by contractor to Owner's representative as indicated in General Requirements and Bidding Requirements.

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

Temporary Enclosure System - A system by where 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"

TEM - Transmission Electron Microscopy according to AHERA specifications for Level II analysis on all AHERA projects. Non-AHERA projects may employ other levels of TEM analysis.

Visible Emissions - Any emissions, whether containing particulate asbestos material or not, 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 loadout 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 15 for proper use of waste Load-out/Transfer System.

Wet cleaning - The process of eliminating asbestos contamination and visible dust and debris from building surfaces and objects by using cloths, mops, or other utensils which have been dampened with water and afterwards thoroughly decontaminating them or disposing of them 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 or temporary enclosure is a work area that is isolated from the rest of the facility by the use of critical barriers and cleaning barriers, a decontamination system, and additional means of signs and barriers to reduce access by unauthorized persons. A contained work area is a work area which has been sealed, polyed, and equipped with a decontamination enclosure system. The work area includes all decontamination chambers, waste transfer system and the abatement area. A non-contained work area is an isolated or controlled-access work area which has not had poly installed nor been equipped with a decontamination enclosure system.

Worker - A person who successfully completed an initial U.S. EPA and/or state-approved four-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 asbestos worker.

SECTION 2. NOTIFICATIONS, SUBMISSIONS, POSTINGS

2.1 Site Investigations

By submitting a bid to the primary contractor, and being listed by the primary contractor as the sub-contractor 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 District 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 District is not responsible for any conclusions or interpretations made by the asbestos abatement contractor on the basis of the information made available by the District.

2.2 Notification

Prior to commencement of work the Contractor shall send notices of the 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-start meeting.

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

EPA, Region 9 Asbestos Program Enforcement 75 Hawthorne Street San Francisco, CA 94105	Chief Compliance Division California Air Resources Board P.O. Box 2815 Sacramento, CA 95812 (for non-EPA delegated counties)
Local Air Pollution Control District (APCD) or Local Air Quality Management District (AQMD)	

For compliance with 8 CCR 1529 and 8 CCR 5203, send written notice at least one day prior to start of work to:

State of California
Department of Occupational Safety and Health
District Office

These notices shall include, at a minimum, the name and address of the contractor, the name and address of the worksite, 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.

2.31a Prestart Submittals - Contractor

A. Contractor shall provide a copy of the notification for NESHAP compliance along with a receipt of fees paid.

B. Contractor shall provide a copy of the notification for Cal/OSHA compliance along with the fax confirmation receipt.

C. Contractor Notification to Local Hospital, Police, and Fire Department

D. Contractor shall provide a copy of their active CSLB License with Asbestos Certification.

E. Contractor shall provide a copy of their active Cal/OSHA (DOSH) registration.

F. 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.

G. Submit copies of insurance certificates which meet requirements as outlined below:

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.

Contractor shall submit proof of coverage for the asbestos abatement contractor and subcontractors under the Worker's Compensation insurance system of the State of California or other similar benefit acts.

Contractor shall submit a certificate of general liability insurance protecting against liability for bodily injury and property damage arising from the 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 Hazard Management Services, Inc. (HMS, Inc.) 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 and HMS, Inc. shall be given thirty days advance written notice.

(d) The insurance certificate must state that the insurance includes liability coverage for asbestos abatement work.

H. Copy of Contractor's Bonding for Project

I. 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 bin location, or variances for scheduled work hours are required, this should be stated in writing and submitted to the Owner.

J. Submit Subcontractors information or statement that subcontractors will not be required or used during this project. This statement should also include that if it becomes necessary to use a subcontractor during this project that the subcontractor will not be allowed to perform work until all required documentation has been submitted for review by the Owner or HMS, Inc., and the Contractor receives written approval for use of the subcontractor on this project.

K. 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 rental equipment will be used on the project. The statement should also include that, if it becomes necessary to use rented equipment, written statements from each rental company will be provided to the Owner prior to its use, indicating the rental company's acknowledgment that the equipment is provided for and may be used in areas where airborne levels of asbestos may be present.

L. Submit emergency and non-emergency telephone numbers for the appropriate Police, Hospital, and Fire Departments. This list of numbers shall also include the name, pager or cell phone numbers of the onsite supervisor and his immediate company supervisor.

M. 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.

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

O. 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.

P. 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.

Q. Submit to the Owner shop drawings, on projects where requested in the Scope of Work, for layout and construction of decontamination enclosure systems and barriers for isolation of the work area as detailed in this specification and required by applicable regulations.

R. Submit Material Safety Data Sheets (MSDS) 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.

S. 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 manufacturer's documentation pertaining to the capability of waste water filters to filter particles of 1.0 micron in size.

T. 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.

U. 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.

V. With the Owner's representative, inspect the premises wherein all abatement and abatement related activities will occur and submit a statement signed by both, agreeing on building and fixture condition prior to the commencement of work.

W. Submit a copy of the Contractor's Injury and Illness Prevention Program

X. Submit a copy of written Respiratory Protection Program

2.31b Pre-Start Submittals-Contractor Waste Documentation

Section 7, C. 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.

Section 7, D. 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.

2.31c Pre-Start Submittals-Worker Certifications (Section 5, Letter B)

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, action level, or the PEL 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 or quantitative 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 each of the following and other pre-abatement documents required above, unless exempted in the scope of work or the bidding requirements, prior to the start of abatement. This list is to be used a checklist only and specific requirements are outlined in Sections 2.31a, b, and c of the General Requirements.

2.31a Checklist

A. _____ Notification to Regional Air Resource Board, Regional EPA, or local APCD/AQMD

B. _____ Notification to CAL/OSHA (prior to start)

D. _____ Contractor notification to Local Police, Hospital, Fire Department

E. _____ State Contractor's license with asbestos certification

F. _____ Contractor Cal/OSHA Registration

G. _____ Notification of Prior Environmental Citations/LegalProceedings/ContractTermination

H. _____ Insurance Certificate

a) General liability

b) Asbestos liability certificate

c) Automobile Insurance

d) Workers' compensation insurance

e) Client and HMS, Inc. named as additional insured

H. _____ Payment or Performance Bonds (if required)

I. _____ City permits e.g. parking or dumpster (when required)

J. _____ Names of all Subcontractors, license numbers and copies of general liability insurance with a minimum coverage of $1,000,000.00. Client & HMS, Inc. named as additional insured.

K. _____ List of Rental Equipment and acknowledgment from Rental Company

L. _____ Emergency and non-emergency phone list

M. _____ Written Directions/Map to nearest Hospital

N. _____ Written emergency plan

O. _____ Written Work Plan

P. _____ Project Schedules

Q. _____ Contractor Map/Drawings for Containment Setup

R. _____ Material Safety Data Sheets

S. _____ Manufacturers' Equipment Specification Sheets

T. _____ Contractor Laboratory Accreditations

U. _____ Contractor OSHA Air Monitoring Statement

V. _____ Pre-Start Site Condition Statement

W. _____ Contractor Injury and Illness Prevention Program

X. _____ Contractor Written Respiratory Program

2.31b Checklist

_____ Name and number of transporters

_____ Name and EPA number of Waste Sites

2.31c Checklist

_____ Training records - AHERA (Supervisor and worker)*

_____ Respiratory fit tests for each employee*

_____ Medical records for each employee*

Note *No contractor worker will be allowed inside containment prior to verification of AHERA, respirator and medical documentation. This verification must either be onsite or faxed to HMS, Inc.'s office prior to entry.

2.32 Prestart Submittals - Owner

Owner shall provide to the Contractor prior to commencement of work:

a. Any available pre-abatement air sampling data to Contractor.

b. List of Owner's employees/agents who will or may require worksite access.

c. Data on equipment access protection and/or shutdown procedures.

2.4 Submittals During the Work Process

The following documentation shall be submitted to the HMS, Inc. Project Manager:

A. The contractor shall submit daily- a copy of the worker roster identifying all employees onsite and the hours worked.

B. The contractor shall submit daily - a copy of a one page summary of job progress. This summary must include a brief description of the work completed at the site(s), number of employees, and any issues that arose. This summary is in addition to the daily documentation required to be submitted by OSHA and AHERA regulations and other HMS, Inc. specifications.

C. The contractor shall submit daily - copies of work site entry/exit logbooks with information on worker and visitor access.

D. The contractor shall submit daily - copies of the air-differential manometer readings

E. The contractor shall submit results of air sampling data collected during the course of the abatement including OSHA compliance air monitoring results. Contractor shall submit sample results within 72 hours of collection of the samples for samples to be considered valid indicators of employee exposures within containment. Lack of valid exposure assessments may, at HMS, Inc. Project Manager's discretion, result in the contractor being required to raise worker personal protection levels.

F. Submit weekly copy of on-site safety meeting documentation. Each safety meeting must be signed by all employees working on the project for that week.

G. Proof of DOP or equivalent (Challenge) testing of HEPA-filtered units

H. Contractor shall submit copies of any Regulatory Agency Inspection/Enforcement Documents

I. Accident Report Forms

J. Other Contract Documents as required by Scope of Work

K. Construction Meeting Minutes

2.41 Submittals During the Work Process-Waste Disposal (Section 7)

A. The contractor shall submit copies of all transport manifests, Land Ban Certifications, trip tickets, weights and disposal receipts for all asbestos hazardous waste materials.

B. The contractor shall submit copies of all transport manifests, trip tickets, weights and disposal receipts for all asbestos non-hazardous waste materials.

2.5 Clean-Room Area Postings

Postings may be in a prominent area adjacent to the clean room, but must be visible to workers entering and exiting the containment.

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

Contractor	Testing Laboratory
Air-sampling Professional	Owner's representatives
Asbestos Project Manager	Any other designated by the Owner
Regulatory Agency Personnel	

A copy of the daily entry/exit log book shall be maintained in the clean room area of the worker decontamination system and provided to the HMS, Inc. Project Manager weekly or as otherwise requested.

Telephone numbers, other than 911, of all emergency response personnel shall be prominently posted in the clean change area and equipment room. The locations of the nearest telephones shall be indicated on a map or diagram.

Written emergency procedures shall be posted in the clean room.

Written entry/exit procedures shall be posted in the clean room and equipment room. (See Section 9)

All of the contractor's personnel and area air sampling results shall be posted in the clean room area within 72 hours of collection, unless otherwise noted.

A copy of the CAL-OSHA and EPA or Local APCD notification shall be posted in the clean room area.

A CAL-OSHA Information poster and a CAL-OSHA Construction Site poster shall be posted in the clean room area.

Copies of Material Safety Data Sheets (MSDS) for all materials onsite shall be posted in the clean room area. Bag out/load out/waste transfer procedures must be listed in writing at the load out exit.

A copy of the contractor's written Respiratory Protection Program shall be posted in the clean room.

2.6 Job Site Documents

The following shall be available at each job site:

1. List of all AHERA-accredited workers and supervisors entering the regulated area.
2. An updated list of all contractor and subcontractor employees who have worked on this job.
3. All contract specifications, Scope of Work, addendums, change orders, etc.. Contractor competent person must sign a document stating he has full knowledge of the Scope of Work and contract specifications.
4. Written Injury and Illness Prevention Program.
5. Training records.
6. Medical records.
7. Written Respiratory Protection Program
8. Fit test records for all contractor employees

2.7 Project Close-out Documentation and Submittals

The Contractor shall generate a demolition "as built" drawing detailing all walls, floors, ceilings, mechanical items, plumbing, wiring and structural components which were removed, to what extent each of these items was removed (e.g. entire wall demolished from floor to ceiling), and in what areas. The contractor must provide this drawing to the Owner and HMS, Inc. at the conclusion of the interior asbestos abatement activities when required in the Scope of Work or requested by HMS, Inc. or Owner. Digital pictures of remaining conditions would be helpful, but are not required.

Unless submitted during the project, the Contractor shall submit the following post-job submittals to the Owner within thirty (30) days of the completion of asbestos abatement work.

_____ Copies of revised notifications to regulatory agencies.

_____ Receipts and weight tickets from the landfill operator acknowledging the Contractor's delivery of wastes and including dates, container types and quantities, and tarred weights of material delivered, and all appropriate signatures.

_____ 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. Include a signed cover sheet certifying that the copy is a complete copy of the log from the job.

_____ Copies of all accident reports submitted during the course of work.

_____ A copy of worker exposure monitoring results collected in compliance with Cal/OSHA regulations (Title 8 CCR, Section 1529) including daily/representative/full-shift/breathing-zone air samples and 30-minute excursion samples. Include a cover sheet signed by an authorized representative of the testing laboratory performing the work, indicating that the data is complete and accurate.

_____ If applicable, a copy of the asbestos waste documentation showing dates, times, manifest numbers, quantities of wastes, types of containers removed from the work area, the hauler, and the signature of the recorder.

_____ A Land Disposal Restrictions Notification and Certification.

_____ Completed Uniform Hazardous Waste and Non-Hazardous Wasteforms including information required for the Waste Shipment Record.

_____ A complete record of the air filtration devices used certifying DOP testing (if performed) and printed record, indicating continuous operation and documenting differential air pressure.

_____ All submittals required before, during, or after the project that have not been submitted must be received by HMS, Inc. prior to HMS, Inc. signing off on contractors final payment or pay retention release.

_____ Copies of Prevailing Wage Certification Records (unless project is not a prevailing wage project)

SECTION 3. SITE SECURITY

The regulated area shall be restricted to authorized, trained personnel wearing appropriate personal protective equipment.

If required in the Scope of Work and whenever an entire building is placed under containment, the work area(s) under construction must be isolated from the remainder of the property and/or adjacent properties with temporary chain link fencing. This fencing does not eliminate or reduce plywood barrier requirements for any portion of containment that exists on exteriors of buildings. Temporary fencing must be supported at least once every section of fencing by concrete block or equivalent.

Unless exempted in the Scope of Work any portion of containment on the exterior of the buildings must be protected by a burglar resistant, lockable plywood structure. This structure must have a roof and be

at least 8 feet tall. This plywood barrier must be solid plywood and be constructed in a manner sufficient to withstand expected weather conditions (i.e. wind, rain, etc.). A soffit overhang may be used for the roof of this structure, barrier walls must extend completely up to soffit overhang ceiling.

Entry into the work area by unauthorized individuals shall be reported immediately to the Owner by the Contractor.

A log book shall be maintained in the clean room area of the worker decontamination system. Anyone who enters the work areas must record name, affiliation, time in, and time out for each entry. A copy of the daily log shall be provided to the HMS, Inc. Project Manager daily or as otherwise requested.

Access to the work area shall be through a worker decontamination system. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from the work area. The only exceptions for this rule are the waste loadout 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. These 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, 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 asbestos containing debris, hazardous or not, 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 bins.

All Owner policies and procedures regarding site security and safety shall be strictly adhered to by the Contractor.

Keys and/or lock combinations to all lockable enclosures and waste bins must be provided to the HMS, Inc. Project Manager prior to the start of abatement.

SECTION 4. EMERGENCY PLANNING

Emergency planning and procedures shall be developed by the Contractor prior to abatement initiation and agreed to by Contractor and Owner.

Emergency procedures shall be established and presented to all employees and the HMS, Inc. Project Manager prior to the beginning of any work. A written emergency plan must be posted.

Emergency planning shall include written notification of police, fire, and emergency medical personnel of planned abatement activities, work schedule and layout of work area, particularly barriers that may affect response capabilities. Emergency planning shall include considerations of fire, explosion, toxic atmospheres, electrical hazards, slips, trips and falls, and heat related injury. A copy of the written Injury and Illness Prevention Program shall be on the work site.

Employees shall be trained in evacuation procedures in the event of workplace emergencies. Telephone numbers of all emergency response personnel shall 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. At least one fire extinguisher shall be present outside of the containment and at least one fire extinguisher shall be present inside containment. Additional extinguishers shall be distributed according to Cal/OSHA requirements or as identified in the Scope of Work.

An emergency blast horn shall be placed inside of any containment comprising more than a single building space for emergency evacuation in the event of a fire or other emergency.

If required in the Scope of Work, a means of radio communication shall be established between inside and outside of containment whenever a containment has a section(s) not directly visible from a clear-sight view window. This requirement may be met through walkie talkies or by wired communication systems. HMS, Inc. project monitor is to be given a communication device tied into communication system used by the contractors crew.

The contractor shall clearly mark emergency egress routes in brightly colored spray paint, tape, or equivalent, within the containment area. When required by the specification, or deemed necessary by the HMS, Inc. Project Manager, the contractor shall station flashlights throughout the work area to be used in the advent of an electrical power outage. Tools that can be used to cut containment poly must be placed at each emergency egress location.

Emergency exit signs, and arrows painted, taped or otherwise marked shall be located approximately three feet from the floor level. This will make signs visible for standing workers as well as workers required to crawl to emergency egress location.

In the event of a power and/or water interruption all abatement work, other than cleanup of debris on the ground, is to stop. Work disturbing asbestos cannot continue until the power and/or water is restored or the Project Manager authorizes emergency procedures

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.

In the case of fire, or other life threatening situations, all decontamination requirements are null and void. Immediate preservation of life takes precedence over decontamination requirements.

If emergency personnel (fire, police, paramedics, etc.) are called to the project site, they must be informed of the fact that the project is an asbestos abatement project and whether containment has been established and/or breeched.

SECTION 5. PRE-START MEETING (See also Section 2)

The successful Bidder, his on-site supervisory personnel, and Air Sampling Professional (if applicable), representatives of the Owner, Owner's Asbestos Project Manager, and other individuals as necessary shall be present at a pre-start meeting **TIME AND PLACE AS NOTED IN THE SCOPE OF WORK OR TO BE DETERMINED**.

Responsibility for notification of building occupants regarding impending activity shall be determined at this meeting.

At this meeting the Contractor shall provide all required submittals, as indicated in Section 2, Part 2.31a, b, and c.

The Contractor's supervisory personnel must be given a complete copy of the Scope of Work, and attached abatement specifications (including these Asbestos General Requirements), and must be familiar with them prior to the pre-start meeting. Delays caused by an onsite contractor foreman not

being familiar with the requirements of these specifications will not extend the Contractor's completion date.

In addition, contractor shall be prepared to provide detailed information on preparation of work area, personal protective equipment, employee experience, training and assigned responsibilities during the project. Contractor must also be prepared to discuss 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. A sequence of work and performance schedule, procedures for dealing with heat stress and emergency procedures shall also be submitted.

If applicable, a detailed work-area-by-work-area schedule must be submitted at this time. The schedule shall have, at 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.

SECTION 6. MATERIALS AND EQUIPMENT

6.1 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, 4-mil thick for walls and 6-mil 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, fire-rated poly. This includes all poly used for decon setups whether or not they are erected inside of the building.

Polyethylene 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 HMS, Inc. Project Manager determines one is needed.

Disposal bags shall be of 6-mil polyethylene with labels required by OSHA, DOT, Department of 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 dumpsite.

Stick-on labels as per DOHS 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 polyoxethylene ester or equivalent, mixed and used according to the manufacturer's directions.

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 of this specification.

All HEPA filtration equipment must be tested with DOP or an equivalent testing agent (see Section 12).

The contractor will provide adequate number of respirators for the work force. These respirators will include, when specified:

a. Full face piece supplied air respirators with HEPA-filtered disconnects operated in positive pressure or pressure demand mode.
b. Full face piece, tight-fitting, powered air-purifying respirators with HEPA-filters,
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.

Contractor shall provide full-body disposable protective clothing, including head, body, and foot coverings, such as Tyvek, or equivalent, to all workers and authorized visitors in sizes adequate to accommodate movement without tearing. No street clothes, unless excepted by Scope of Work or other portions of this specification are allowed to be worn under disposable protective clothing.

The Contractor shall provide additional safety equipment (e.g., hard hats, eye protection, safety shoes, disposable PVC gloves), as necessary to all workers and authorized visitors.

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

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. Only fiberglass ladders shall be used within the work area. Wooden ladders and wooden handled tools shall not be allowed within the work area.

Rubber dustpans and rubber squeegees shall be provided for cleanup.

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

The HMS, Inc. Project Manager 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.

All product data sheets and all Material Safety Data sheets (MSDS) shall be submitted for all products and materials prior to their use on the job site.

All contractor equipment and supplies must arrive on site clean and dust free. Equipment must be inspected and accepted by HMS, Inc. Project Manager 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. Chipped and/or rusted equipment will not be accepted even if it is to be used outside of containment. 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 decision of the Owner, HMS, Inc. Project Manager or the Owner's representative on all equipment and supplies shall be final.

6.2 Rental Equipment and Supplies

Any equipment rented and delivered to the site for the purpose of conducting 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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager must be informed 24 hours prior to the delivery of any rental equipment.

The decision of the Owner, HMS, Inc. Project Manager or the Owner's representative on all rental equipment and supplies shall be final.

SECTION 7. 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 including pants and shirts. No21hing suits or disposable coveralls are allowed to be worn to use the sanitary facilities.

At no-time will workers be allowed to exit the containment area, once abatement has begun disturbing asbestos, without showering prior to entering the clean chamber of the decon. (Exception to this may be made, at HMS, Inc. project manager's discretion, for Project Manager and Contractor's supervisor for conducting a clearance visual during which the HMS, Inc. Project Manager may allow street clothes to be worn under disposable overalls).

At no time shall workers exit the clean room/changing area wearing anything other than street clothes, including pants and shirt.

The Owner shall provide water for construction purposes, unless stated otherwise in the Scope of Work. Contractor shall connect to existing Owner system.

The Owner shall provide the electrical source. Contractor is responsible for all connections and disconnection of electrical power. All electrical power supplied to the containment area must be ground fault interrupter protected. Loss of power due to contractor activities will require contractor to supply electrical power at his own expense.

The Owner or its representative shall specify the waste water discharge location and location of waste bins. The owner, when applicable, shall specify acceptable routes of travel.

The Contractor shall be required to place footing materials of sufficient thickness, strength, and size under the casters, footings, and/or runners of waste bin(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 bin. Damaged property shall be repaired to equal or better condition than was present prior to the activity causing the damage. This may be amended in scope of work for this project.

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

SECTION 8. 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 worksite.

The HMS, Inc. Project Manager, his or her onsite representative, or the Owner or their representative may deny access to the regulated area to anyone who, in the final judgement of the HMS, Inc. Project Manager, 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 HMS, Inc. Project Manner 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 HMS, Inc. Project Manager 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 conducting 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 HMS, Inc. Project Manager 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 conducting 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 HMS, Inc. Project Manager, 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 glovebag or other work, he or she must demonstrate to the HMS, Inc. Project Manager that personal air sampling results from that project prove that airborne fibers levels are below the Cal/OSHA Permissible Exposure Limit. The Project Manager 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 Project Manager 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 conducting 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 HMS, Inc. Project Manager 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 Project Manager 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 Project Manager will have final authority regarding whether or not the respiratory protection may be reduced or eliminated. For example, the HMS, Inc. Project Manager 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 HMS, Inc. Project Manager 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 HMS, Inc. indicate higher than expected levels, the Project Manager is authorized to increase the level of required respiratory protection.

The HMS, Inc. Project Manager 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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager.

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.

RESPIRATOR SELECTION	**PROTECTION FACTOR**
Half-mask air purifying respirator equipped with high efficiency particulate air (HEPA) filter - P-100	10
Full-face air purifying respirator equipped with HEPA filter - P-100	10
Half or full-face, powered air purifying respirators equipped with HEPA filter - P-100	1,000
Type C continuous flow supplied air	1,000
Full facepiece, supplied air respirator operated in pressure demand mode	1,000
Full facepiece, supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus	10,000

Workers shall be provided, as a minimum, with personally issued and marked respirators equipped with high efficiency particulate air (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 estimated to be greater than 0.01 f/cc inside their respirator 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 HMS, Inc. Project Manager weekly.

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 HMS, Inc. Project Manager 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.

SECTION 9. 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.

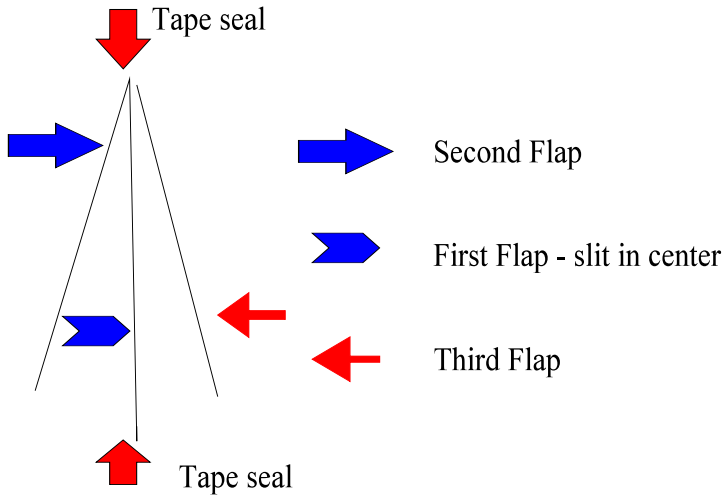
Hard hats, protective eye-wear, proper protective gloves, rubber boots and/or other footwear shall be provided by the Contractor as required for workers and authorized visitors. Safety shoes may be required for some activities.

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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager, 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 10. WORKER DECONTAMINATION ENCLOSURE SYSTEMS (WASTE TRANSFER DECON)



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. . All decontamination units shall have, at least, two layers of 6-mil polyethylene sheeting.

Unless stated otherwise in the Scope of Work, all decontamination units, pressure differential units, and other portions of containment outside the building shall be covered with a 2"x 4" wood studs and 1/2" 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 HMS, Inc. Project Manager and mounted through a solid surface, such as plywood. Entry and exit from all airlocks and decontamination enclosure system chambers shall be through doorways designed to restrict air movement between chambers when not in use.

Each decontamination chamber shall have, at least, a four inch lip of poly from the floor up the wall to prevent possible transfer of water and debris between chambers. Excess plastic at the corners of this floor is to be fitted to the sides of the chamber by folding plastic and taping, as opposed to cutting away excess poly and taping seams. In addition to this four inch lip of poly the shower chamber shall have an overflow pan, in which the shower unit sits, that is capable of holding two inches 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.The dirty side shall have an extra layer of 6-mil polyethylene sheeting on the floor as a "drop cloth" and it shall be replaced at least daily.

The clean room shall be sized and equipped to adequately accommodate the work crew and personal protection equipment. Minimum size of clean and dirty chambers shall be three feet by three feet, minimum size may be increased by requirements in the Scope of Work. 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), nor as office space.
Shower room shall contain one or more operable showers as necessary to adequately accommodate workers, minimum of one shower for every ten (or portion there of) 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 1.0 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 7' tall.

Abatement work will be stopped if decon 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 11. 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.

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 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. All clothing items, including underwear or hair coverings must be removed and disposed of prior to entering the shower.

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. Contaminated footwear shall remain within the equipment room for the duration of the project. Cleaned footwear may be removed from containment, but must be approved by HMS, Inc. Project Manager.

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 12. DIFFERENTIAL AIR PRESSURE SYSTEMS (See also Section 13)

12.1 Negative Pressure Requirements

Negative pressure shall be maintained at -0.04" 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 -0.04" 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 -0.04" water differential or better.

In the event that containment cannot be brought up to -0.04" 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 HMS, Inc. project manager agrees that contractor has tried all possible remedies, HMS, Inc. project manager may grant reduction in negative pressure requirement. HMS, Inc. project manager 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.

12.2 Challenge Testing (DOP or equivalent

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 HMS, Inc., on-site and prior to use. All vacuums and pressure differential units shall meet A NSI Z9.2, using an appropriate testing agent. Documentation of these tests shall be provided to the HMS, Inc. Project Manager 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 HMS, Inc. 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 draft.

12.3 Differential Pressure Recording Instruments

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 HMS, Inc. Project Manager. 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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager 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.

12.4 Differential Pressure System

Exhaust air shall be vented only to the exterior of the building at locations approved by the Owner unless otherwise noted or directed in the Scope of Work or by arrangement with the HMS, Inc. Project Manager. Such outlets shall not be near or adjacent to other building intake vents or louvers or at entrances to building. Openings made in the enclosure system to accommodate these units shall be made air-tight with tape and/or caulking as needed. They shall NOT be exhausted into occupied areas of the building. Twelve inch (12") extension ducting shall be used to reach from the work area to the outside when required. Careful installation by the contractor, air monitoring by HMS, Inc. and daily inspections by the contractor shall be done to ensure that the ducting does not release fibers into uncontaminated building areas.

The work area shall have a differential air pressure of -0.04 inches water differential 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 flex ducting shall be used within the containment area for exhausting of filtered air. Contractor may not construct ducting using poly or other materials.

All interior of containment air pressure differential units and flex ducting 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.
Flex ducting 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 13. EXECUTION

13.1 Execution

Contractor and Owner 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 oe deemed necessary by the HMS, Inc. Project Manager. 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 HMS, Inc. Project Manage 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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager. 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 HMS, Inc. Project Manager 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 HMS, Inc.

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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager will approve quantity and placement of these inspection windows. HMS, Inc. Project Manager has the right to require more clear sight windows or rquire 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 HMS, Inc. Project Manager 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 -0.040 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 ducting 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 ducting does not release fibers into uncontaminated building areas.

All flex ducting, protected by poly during abatement or not, pre-filters and intermediate filters shall be manifested and discarded as friable, hazardous asbestos-containing materials. A flex 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 HMS, Inc. Project Manager, a written explanation of how and why the containment is to be altered must be submitted to the HMS, Inc. Project Manager 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 project manager from outside the containment. This window shall measure approximately 1' wide by 2' high. It shall be installed at a location approved by the HMS, Inc. Project Manager. 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.

13.2 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. Decon 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:

- Generator must not violate any local noise ordinances nor disturb adjacent building occupants.
- 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.

13.3 Work Schedule

A detailed work area by work area schedule must be submitted at the pre-start meeting. The schedule shall have, at 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.

Contractor's request to change this schedule must be submitted to HMS, Inc. in writing at least 48 hours prior to the proposed addition, deletion or change in hours of a work shift. This would include working more than one shift per day, working extra days in the week, changing work hours or work days, etc. If 48 hours notice is not given, the proposed work shift may be canceled by HMS, Inc. Project Manager. The Owner and/or HMS, Inc. Project Manager 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 onsite without notifying HMS, Inc. Project Manager 24 hours in advance, the contractor becomes responsible for all HMS, Inc. Project Manager travel fees, onsite time fees, and other associated project management fees for that day.

SECTION 14. REMOVAL PROCEDURES

Contractor shall 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 shall be removed in manageable sections. Removed material should be containerized immediately (as soon as removed). Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up. Gross debris shall be cleaned up and bagged prior to any work stoppage, such as for breaks, lunch, end of each shift, or project shut down (voluntary or not).

Material removed from building structures or components shall not be dropped or thrown onto unprotected floors at any time. Floors shall be covered with poly regardless if they are being removed after ceiling or walls. Material should be removed as intact sections or components whenever possible and carefully lowered to the floor.

Containers (6-mil polyethylene 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.

Drums shall be used to dispose of asbestos-containing waste with sharp-edged components (e.g., nails, screws, metal lath, tin sheeting). Waste must be double bagged and goose-necked within drums.

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. Unprotected flooring surfaces shall not be encapsulated unless otherwise noted in the Scope of Work or indicated by the HMS, Inc. Project Manager.

After asbestos-containing materials have been removed from floor surfaces. These floor surfaces shall be washed with a TSP solution, or similar detergent acceptable to the Client, follow-up flooring contractor, and HMS, Inc, Project Manager, prior to clearance air tests.

SECTION 15. 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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager 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 16. CLEAN-UP PROCEDURE AND VISUAL CLEARANCE CRITERIA

16.1 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 HMS, Inc. 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 HMS, Inc. Project Manager and client.

16.2 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.

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 HMS, Inc. Project Manager 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 17 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 school 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 HMS, Inc. Project Manager 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.

HMS, Inc. Project Manager 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 HMS, Inc. Project Manager. HMS, Inc. may supply additional personnel for inspection in order both to speed the inspection and to more thoroughly inspected the containment areas.

Owner, contractor and HMS, Inc. Project Manager shall jointly review the work area and make a damage assessment, after clearance air samples have passed and containment has been torn down.

SECTION 17. CLEARANCE AIR MONITORING

Following the completion of clean-up operations, the contractor shall notify the HMS, Inc. Project Manager 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 HMS, Inc. Project Manager 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 (ie 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 HMS, Inc. Project Manager 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 Project Manager'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 HMS, Inc. personnel to collected the air samples and the cost of laboratory analysis.

Roof Removal: No clearance air monitoring required. Only a visual inspection of the roof for roofing debris will be provided.

Tar-like Pipe Wrap Removal: This non-friable material will only be removed by cutting the clean ends of the pipe it is insulating. No clearance air monitoring required.

TSI Removal: When removal is less than three linear feet within a single glovebag (or similar) containment, no clearance air monitoring will be required.

Regardless of the method used, when removal exceeds three linear feet within a single containment clearance air monitoring will be performed prior to the removal of the containment barriers.

Drywall Removal: Regardless of the asbestos content, when the quantity of drywall removed exceeds 3 square feet, clearance air monitoring will be performed prior to the removal of the containment barriers.

VFT & Mastic Removal: When the quantity removed exceeds 3 square feet, clearance air monitoring will be performed prior to the removal of the containment barriers.

SECTION 18. MONITORING

Owner reserves the right to perform air and performance (contractor work practices, house keeping, record keeping, etc.) monitoring at any time.

Contractor shall conduct personal air monitoring in accord with OSHA regulations. Results shall be made available to the HMS, Inc. Project Manager within 72 hours of collection. Hard copies of these results shall be supplied to HMS, Inc. Project Manager within 7 days of collection. Failure to supply these sample results in the specified time may cause work to be stopped until all delinquent results have been submitted. Loss of contractor work time because of non compliance of the provisions of this paragraph will not extend the date for work completion.

Owner 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 the Scope of Work, General Specifications, General Requirements, or other Project Specifications.

In areas where soil contamination may be present, soil samples must meet specified criteria in Scope of Work prior to clearance air samples collection.

Owner, or HMS, Inc. Project Manager, 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 19. DISPOSAL PROCEDURES

19.1 Disposal Procedures

Waste transport and disposal personnel must wear at least half mask HEPA-cartridge type respirators when handling intact sealed bags.

Disposal bags shall be of 6-mil polyethylene, pre-printed with labels as required by California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) regulations.

Disposal drums shall be plastic, metal or fiber board with locking ring tops. If heavy duty card board boxes are allowed in the Scope of Work, they may replace the barrels. Cardboard boxes must be sturdy enough not to be deformed or compromised by the weight of the materials disposed within them.

All containers, including bags and barrels or boxes must be labels the same as the ACM waste disposal bags.

All waste shall be double bagged in 6-mil polyethylene bags and goose-necked. These bags will then be placed into disposal drums as described above.

Contractor shall provide stick-on labels for disposal containers that meet the Cal/OSHA, NESHAPS, and DTSC requirements for hazardous and non-hazardous waste container labeling.

All waste bags shall have visibly damp materials but shall not contain loose water. In the event loose water is discovered within a waste bag, it shall be absorbed with kitty litter, saw dust or similar product prior to the bag being sealed.

All asbestos waste, hazardous or not, shall be manifested. Non-hazardous waste shall be manifested on a non-hazardous waste manifest.

All waste containers (barrels or boxes) shall be sealed in a manner that allows them to be opened for inspection of sealed bags within by HMS Project Manager, Regulatory personnel and Dumpsite personnel.

Waste placed into boxes or barrels at the project site must be disposed of within the same boxes and barrels at the dumpsite. Removal of waste from these boxes and barrels is not allowed. As the work progresses, to prevent exceeding available storage capacity onsite, 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 NESHAPS and applicable State and Local guidelines and regulations, including the California State Environmental Protection Agency, Toxic Substances Control Division regulations.
Transport vehicles shall be marked with the sign prescribed by NESHAPS regulations 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 the Owner's 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 Owner's agent.

19.2 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 dumpster, which has been lined with 6-mil polyethylene (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-facepiece, 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 onsite which contain other hazardous waste, or hazardous waste from another owner. Waste from multiple sites of the same 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 dumpster 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 dumpster 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.

Dumpster truck or storage bin must be locked at all times except when being filled.

It is the contractor's responsibility to see that all dumpsters, trucks, and storage bins arrive onsite completely free from debris.

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

19.3 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, barrels 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-facepiece, 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. Polyethylene sheeting shall be removed and discarded, along with contaminated cleaning materials and protective clothing, in bags or drums at the disposal site.

SECTION 20. 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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager shall make the determination as to what which requirements and/or specifications are more stringent.

20.1 General Repair of Damaged Thermal System Insulation (TSI) Procedures

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

1. Contractor shall establish a regulated area according ti the requirements of 8 CCR1529 and as enhanced by this specification and the Scope of Work, including but not limited to the posting of the area and allowing on authorized personnel into the work area.

2. Piece of 4-6 mil poly sheeting shall be placed directly under the area to be worked to collect any fallen debris or repair compound.

3. Half-masks and disposable suits (at a minimum) shall be used during this work.

4. The area shall be restricted to those personnel involved in the work, so posting of the accesses is required. In some cases, poly shall be used to cover the access points.

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

6. If work is performed indoors, the ventilation system shall be off in the areas worked in to prevent fiber distribution. Ventilation supply and exhaust ducts shall be covered with poly sheeting.

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

8 If appropriate, contractor shall HEPA-vacuuming the damaged section will collect all loose, hanging, friable insulation material prior to any further repair work.

9 Very small cracks, holes, nicks, and cuts can be repaired with only joint compound or with a single layer of wettable cloth and appropriate bridging encapsulant. Larger sections of damaged pipewrap, particularly where pipe hangers or metal channel have damaged the insulation, will require at least two layers of wettable cloth.

10. Where the pipewrap cannot be removed completely from penetrations in the walls, floors, or

ceilings, the pipewrap shall be removed at least one inch into the opening and sealed with a bridging encapsulant to grade. The Contractor may choose to fill large gaps with fiberglass insulation, prior to sealing with the encapsulant.

11. All of the Contractor's materials, including poly sheeting, tape, joint compound, etc. shall be removed at the completion of the work performed.

20.2 Glovebag Technique Requirements

Where the glovebag technique is specified for removal of Thermal System Insulation (TSI), or in those areas where the Contractor opts to use glovebags, all of the following conditions must be met:

1. The Contractor shall develop a regulated area that meets the requirements of 8 CCR 1529 regarding posting and limited access.

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

3. All critical openings within the regulated area shall be sealed prior to set up of the containment.

4. At least one layer of 6 mil poly must be used to contain the abatement area.

5. Stationary objects in the immediate area of the room which cannot be removed from the work area must be covered with at least one layer of 4 mil poly sheeting after being pre-cleaned.

6. A minimum three stage decontamination unit with a shower shall be contiguous with the containment for areas requiring removal of more than 6 linear feet of TSI, or 10 square feet of surfacing material.

7. Negative pressure shall be established and a circular graph recording manometer shall be attached to the containment per Section 13.

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

9. Glovebags may not be used on surfaces where temperatures exceed 150 degrees Fahrenheit.

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

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

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

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

14. The Contractor shall apply a sufficient volume of amended water to all pipewrap scheduled for removal while it is enclosed in the glovebag.

15. A sliding valve or other device shall separate the waste bag from the hose to ensure no exposure when the waste bag is disconnected.

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

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

18. Where pipes enter walls, floors, or ceilings which are not within the scope of the project, the pipewrap shall be removed at least 1" into the structure and the pipewrap end must be sealed with bridging encapsulant and/or wettable cloth.

19. If the Contractor chooses to use a Negative Pressure Glove Bag System, Negative Pressure Glove Box System, or Water Spray Process System in lieu of the traditional Glovebag System, the Contractor shall submit to Owner's agent/site representative detailed written procedures on those systems which will be used. In addition, air sampling data, generated by the Contractor, must be provided to Owner's agent/site representative. Owner's agent/site representative must provide prior approval to alternate techniques and approaches to those specifications detailed here.

20. The Contractor is responsible for salvage and decontamination of all pipe system supports, hangers, brackets, saddles, etc. These items shall be inventoried by the Contractor, and verified by the Owner's agent/site representative before and after abatement. The Contractor will be responsible for replacement of any items lost or damaged.

21. The Contractor shall be responsible for ensuring the piping system remains adequately supported at all times. This may be achieved by readjusting existing hanger brackets as insulation is removed, or by other approved methods, such as inserting wood blocks to replace the thickness of the removed insulation.

20.3 Mini-Cube Enclosure Requirements

1. For the purposes of these specifications, "mini-cube enclosure", "mini-enclosure", and "mini-cube" are all used interchangeably and mean the same. The mini-cube enclosure is required to be constructed whenever small sections of walls, ceilings, or pipe insulation are to be removed for electrical, plumbing, mechanical, etc., work. The purpose is to create an enclosed and controlled work environment while removing asbestos or accessing an attic space which is contaminated.

2. Enclosure walls and floors must be constructed of at least two layers of fire-rated 6 mil poly sheeting. No visible holes, cracks, penetrations, etc. shall be within this enclosure. The upright frame shall be adjustable in order to butt the top of the enclosure to the wall or ceiling area. A single drop layer of 6 mil poly sheeting shall be put down and removed daily at the end of the work shift. For work involving removal of TSI by glovebag technique, only one layer of 6 mil poly sheeting is required for construction of the mini-enclosure. All mini-enclosures, mini-cubes, etc. must have a view port that allows the HMS, Inc. Project Manager to view the activities going on inside the regulated area. The placement, number, and size of the view port(s) must be acceptable to the HMS, Inc. Project Manager.

3. At least two chambers shall be present, separated by flapped poly sheeting doors. The first chamber upon entrance will be called the "clean" chamber, while the second chamber will be called the "dirty" chamber.

4. Since the top of the enclosure must be open in the chamber where ceiling access will take place, special care must be taken prior to moving the enclosure. If the mini-enclosure is designed to be portable, the enclosure must be sealed at the top prior to being moved to the next location. This may be achieved by temporarily sealing the top of the chamber with poly and tape from the inside.

5. Dirty chamber must be sealed around work area in a fashion that creates an air-tight seal without causing damage to floor, walls, ceilings or other materials. This may be achieved by use of a pliable material, such as non-porous foam rubber, or other methods approved by the HMS, Inc. project

manager. A tight seal must be maintained without damage to the remaining materials (this may be difficult if tape is used).

6. For access to an attic space, position the enclosure at the location to be worked. The enclosure must be butted up to the ceiling surface to form a semi-seal between the top of the enclosure and the ceiling. The enclosure can then be completely sealed to the ceiling, using tape. After a seal has been established, access into the ceiling can then proceed.

7. A HEPA vacuum shall be used to establish "negative pressure" or airflow into the enclosure. This shall be verified by using ventilation smoke tubes.

8. The following equipment and materials, at a minimum, must be present inside the mini-enclosure "dirty" chamber:

   6 mil poly bag with clean rags for cleaning.

   Amended water in a Hudson-like sprayer for the rags.

   Empty bag for disposal of items.

   Flashlights or drop light as appropriate.

   Personal Protective Equipment including extra suits incase of multiple entry/exits

   Amended water in a properly labeled Hudson Sprayer

   Daily change of 6 mil poly sheeting drop layer.

   Other tools needed to perform task.

9. The following equipment and materials, at a minimum, must be present inside of the mini-enclosure "clean" chamber:

   Clean potable water in a Hudson-like sprayer which is labeled "Clean Potable Water Only". A new container must be designed for potable water only. No container used previously to hold liquids will be allowed. No open containers will be allowed.

   Clean disposable shower or hand towels for drying hands, arms, and face.

   6 mil poly bag for disposal of towels and other items.

   Any other tools the Contractor requires, such as tape, screwdrivers, etc.

10. The work area must be delineated with the proper barrier tape and the outside of the poly-flapped entry to the mini-cube must be posted with OSHA required warning signs for a regulated area.

11. Clean disposable coveralls must be worn entering the mini-enclosure, and must be removed prior to leaving the mini-enclosure. Depending upon the work being performed, the Contractor may choose to "double suit" in disposable coveralls. All workers shall use the Clean Room and its supplies for personal hygiene prior to exiting the enclosure.

12. For work involving removal of more than 6 linear feet of TSI, or greater than 10 square feet of surfacing material (regardless of method to be used), a shower must be attached to the mini-cube enclosure and be contiguous with the work environment, and comply with all other decontamination

requirements in related sections of this specification.

13. If there is removal of greater than 3 linear feet of TSI, or greater than 3 square feet of surfacing material (regardless of the method used), the enclosure must remain in place until a final visual is passed, and clearance air samples are collected by Owner's agent/site representative. Where work involves less than these quantities, only a visual inspection by Owner's agent/site representative will be required prior to removal of the mini-enclosure. Mini-enclosure shall be constructed in a fashion that will stay in place, remain intact and under negative pressure for numerous days while awaiting clearance air sample results.

20.4 Roofing Abatement Requirements

General Requirements

1. Except as amended here and in the Scope of Work, all other Sections of this Exhibit 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 reroofed 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 onsite project manager. 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 reroofed, 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 Exhibit. Unless otherwise stated, the buildings will be reoccupied each morning Monday through Friday.

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 Exhibit.

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 and for fall protection for those working near the perimeter of 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

9. 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.

10. 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.

11. 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 the Scope of Work.

12. The Contractor is responsible for damage to the roofing substrate, and will be responsible for repair or replacement if damaged.

13. 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 the Scope of Work. 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 the areas affected to industry standards using non-asbestos materials.

14. 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. The Contractor will not be required to remove silver paint or tar coating on conduit, roof jacks, heating, ventilation, and air conditioning (HVAC) equipment, flashings, etc. which will be reused by the Owner. Where flashing is to be reused, the Contractor shall carefully remove and save the flashing in an undamaged condition, unless otherwise required by the Owner. This section may be amended in the Scope of Work for this project.

15. The Contractor is responsible for removal and replacement of wood block or metal supports which may be present under conduit, gas lines, piping, HVAC units, ducting, etc. in order to perform the work. The Contractor is also responsible for temporarily installing wood blocks for any existing roof structures during the roofing removal, when it is necessary to remove existing support members to accomplish the work.

16. 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 the Owner's representative.

17. The Contractor is responsible for obtaining all necessary permits to perform this work, including any local permits for work in the evening/night hours.

18. 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, District'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 District'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 District 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

19. 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

20. Removal of non-friable asbestos-containing roofing is designated as Class II work. Half-masks and disposable coveralls shall be used at a minimum by all workers, at all times, when within the regulated area.

21. 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.

22. All roofing material shall be removed in an intact state to the extent feasible.

23. All roofing is to be removed wet by an amended water solution or encapsulant as necessary.

24. 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

25. 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 and cover an area extending out 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 Bins and Waste Bin Preparations

26. The Contractor is responsible for inspecting all waste bins delivered to the job site for load worthiness. The Owner’s agent/site representative reserves the right to refuse any waste bin 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.

27. The Contractor shall be required to place footing materials of sufficient thickness, strength, and size under the casters, footings, and/or runners of waste bin(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 bin. 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 the Scope of Work for this project.

28. 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 trucks, bins or dumpsters from the roof without the protection of a dust tight chute or other means acceptable to the HMS, Inc. Project Manager.

Posting and Label Requirements for:

Regulated Area Entry Points and Waste Bin Perimeters

29. 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 bin(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 bin(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

30. 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
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

General Requirements for Creating Roof Penetrations

31. All roofing penetration cuts (if any) shall be at the direction of the primary contractors' Job Foreman, and coordinated with Owner's agent/site representative as to the time of work. Any equipment to be used for the purposes of cutting, grinding, or sanding must meet or exceed all Cal/OSHA requirements regarding HEPA filtration and wetting/misting. Any equipment rented for the purpose of conducting asbestos 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 related work. This documentation will be submitted to Owner's agent/site representative prior to the equipment being used on the job site.

The penetration area shall be surrounded by a 10 foot wide section of at least 4 mil poly. This poly will help in the cleanup of small roofing material particles which may otherwise be mixed onto the surface of surrounding roof material. If the penetration is within 10 feet of the edge of the roof, poly shall be placed on the ground (or roof) directly below the work area. The Contractor shall secure the poly to the ground using tape, weights, or other means to secure the poly from wind and becoming a trip hazard.

Waste Disposal and Documentation Requirements

31. 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 dumpsters lined with a single layer of 6 mil poly sheeting. The Contractor shall completely enclose all roofing waste material commonly known as "burrito wrap" in the dumpster using 6 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 6 mil poly sheeting, the top of the dumpster shall be completely enclosed with a tarp which is secured to the vehicle for transport or storage onsite if left overnight. The type of material for the tarp shall meet all requirements for transport of hazardous materials.

32. 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.

20.5 Vinyl Asbestos Floor Tile (VFT) Removal Requirements

Contractor shall conduct VFT and/or mastic removal within a regulated area as defined by 8 CCR 1529.

1. The doors, windows, and penetrations into the rooms shall be sealed with polyethylene. All ventilation systems shall be locked-out and sealed as critical barriers. An attached three stage decon with operational shower is required. The Scope of Work may require more chambers depending upon the project size.

2. Baseboards shall be removed if necessary to access all VFT. If baseboard mastic contains asbestos, baseboards are not to be disturbed prior to start of abatement.

3. Half-mask respirators, rubber boots, gloves, and disposable coveralls are to be used as a minimum for worker protection.

4. The VFT's must be double bagged in 6 mil poly bags. It is acceptable to place several bags of VFTs into a barrel lined with a second 6 mil poly bag.

5. All VFT's and mastic must be sufficiently wetted with amended water when being lifted off the floor.

6. The mastic layer may be removed either by solvent or wet buffing with a solvent. If a solvent is used, the negative air unit exhaust shall be directed down wind as much as possible, or a sufficient length of exhaust hose will be required to prevent re-entrainment of the vapors. Any solvents used for removing mastic shall be non-toxic low odor and non-flammable. A material safety data sheet for the solvent shall be provided and subject to approval by the project manager prior to use. MSDS must match solvent being used on the current jobsite.

7. During removal of the mastic with solvent or other organic based liquid, combination respiratory cartridges (organic vapor/HEPA) shall be worn to protect against asbestos and the solvent.

8. If floors are removed after walls and ceilings, full enclosure of the walls and ceiling with poly will be required, no matter what method of tile and mastic removal is used. If floors are removed prior to walls and ceilings which will eventually be removed as asbestos containing materials, then critical barriers and splash guards are all that will be required. All surfaces and materials not being removed as asbestos containing material must be covered with poly no matter which order floors walls and ceiling are abated.

9. Following removal of all floor tile and mastic, the contractor shall wash the floors thoroughly using a solution of trisodium phosphate (TSP) and water. Sufficient water shall be used for final rinsing of the floor for a clean finish.

10. If the removal of the floor mastic is on a wood substrate (or this technique is required in the scope of work), contractor is to use a mixture of the low odor mastic removal chemical and diatomaceous earth or (equivalent) to form a paste. Mix the paste to a consistency that will still be effective on the mastic and reduce the absorption of the chemical into the wood substrate, or seepage under casework and into concrete crevasses.

11. No bead blasting or shot blasting is allowed to be performed on these projects.

20.6 Drywall Removal Requirements

1. The doors, windows, and penetrations into the rooms shall be sealed as critical barriers with 6-mil polyethylene. An attached three stage decon with operable shower is required. The Scope of Work may require more chambers depending upon the project size.

b) Powered air purifying HEPA respirators, rubber boots, gloves, and disposable coveralls are to be used as a minimum for worker protection.

c) 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 two layers of 6-mil polyethylene within the work area (interior) and one layer of 6-mil poly on the exterior of the building. Also seal any seams in system components that pass through the work area. Remove all HVAC system filters and place in labeled 6-mil polyethylene bags for storing and eventual disposal as asbestos-contaminated waste.

4. The drywall must be double bagged and “goose-necked” in 6 mil poly bags. It is acceptable to place several “goose-necked” bags of drywall into a barrel lined with a second 6 mil poly bag that is “goose-necked”.

5. All drywall must be sufficiently wetted with amended water when being removed.

6. Negative pressure shall be established, maintained and recorded. This shall be verified by using ventilation smoke tubes.

7. Contractor, in conjunction with the District/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 certified electrician shut down and lock out electric power, and setup temporary power and lighting sources. All cost for electric supply shall be paid for by the District/Owner.

8. Contractor shall have a certified plumber disconnect and cap all water and gas within the work area. Water shall be provided by the District from a location near the work area, but not within the work area.

9. 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.

10. A critical barrier only, negative pressure check shall be required prior to the set-up of interior containment.

11. 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 will be required to protect certain flooring materials -- carpets, hardwood floors, tiles, etc. At no time will wall or ceiling surfaces be permitted to be dropped onto unprotected floors. This includes areas where the floor surfaces contain asbestos.

12. Cover asbestos-containing walls in the work area with polyethylene sheeting if these walls are to remain or if these walls are non-asbestos containing and will remain. 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.

13. Cover asbestos -containing ceilings in the work area with polyethylene sheeting if they are to remain or if these ceilings are non-asbestos-containing and will remain. 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.

14. If floor tile and drywall are to be removed within the same work area the floor tile and mastic shall be removed first, followed by the drywall removal. If the contractor wishes to submit a different removal work plan it shall be submitted prior to the beginning of the project. The HMS, Inc. Project Manager will review this work plan and respond in writing if it is accepted, or if it is accepted under condition of amendment.

15. Asbestos Abatement Contractor is required to remove nails, screws and/or other wall/ceiling material attachments.

16. Asbestos Abatement Contractor may remove studs with asbestos containing materials still attached, as long as they are to be removed, and are disposed of as asbestos-containing material.

17. Asbestos Abatement Contractor may not cut any sheer wall for any reason, without prior consent from the project Architect.

18. No damage will be permitted to studs that are to remain in place. Wall surfaces are to be peeled away, not pounded. The Contractor shall be financial responsible for any damage caused to studs.

19. Contractor is responsible for clean-up of all texturing and joint compound found on studs and rafter, as well as other surfaces behind, or inset into, the drywall materials.

20. Adhere to other requirements as stated in Sections 1-19, 21 and 22.

21. Following removal of all drywall, the contractor shall encapsulate the area with an encapsulate that is compatible with the reinstallation of wall and/or ceiling surfaces. The floors shall not be encapsulated unless otherwise noted in the Scope of Work, or stipulated by the HMS, Inc. Project Manager.

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 HMS, Inc. Project Manager 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 HMS, Inc. Project Manager shall make the determination as to which requirements and/or specifications are more stringent. If the materials to be removed during the course of project do not relate to any of the procedures in Section 20 or multiple materials exist within the work area, the contractor shall follow those procedures outlined in Sections 1-19, 21 and 22.

SECTION 21. PATENTS AND PREVAILING WAGES

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 subcontractor's infringement of patent rights and shall indemnify Owner and Owner's representative from losses on account thereof.

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 apprenticeable occupations.

SECTION 22. PERMITS AND FEES

If any permits are required to be issued for any of the Work to be performed by Contractor, Subcontractor(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.