



Asbestos Abatement Specifications

Various Archdiocesan School Sites
C-2 E-Rate Consortium

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Asbestos Abatement Specifications

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1.0 Introduction

Pacific Environmental Company (PEC) has prepared these abatement project specifications for the removal of asbestos-containing materials (ACMs) that will potentially be impacted by the installation of networking and telecommunications equipment in various Archdiocesan schools in conjunction with the E-rate program. This Specification is a performance-based document and is not intended to replace Federal, State, or local requirements and regulations. Regulations are referenced in this document as points of emphasis and are not intended to delete or replace regulations not referenced. The purpose of this Specification is to provide a guideline for the abatement contractor on the proper removal of ACMs at the site. Sections 2 through 5 discuss abatement of ACMs identified at the sites. No other hazardous materials are included in this specification.

The school sites have been inspected in compliance with the AHERA Program and we have provided summaries of asbestos-containing materials and site plans in conjunction with our effort.

All asbestos abatement and cleaning activities must take place within regulated work areas. Prior to commencing abatement activity, the contractor shall construct decontamination units, and regulate the work area. A high efficiency particulate air (HEPA) filtered vacuum must be present at each work location when asbestos abatement and/or clean-up activities are being performed. All asbestos abatement activity must be performed utilizing wet methods, and per attached Asbestos Abatement Execution Requirements summarized in Section 4.

Asbestos abatement clearances will be conducted by PEC's Certified Asbestos Site Surveillance Technician or Certified Asbestos Consultant and will include a visual inspection and/or clearance air sampling. Asbestos clearance air samples will be collected in general accordance with Asbestos Hazard Emergency Response Act (AHERA) regulations, and analyzed by phase contrast microscopy (PCM) or transmission electron microscopy (TEM). All clearance air samples must be less than 0.01 fibers per cubic centimeter (f/cc) by PCM analysis, or an average of 70 structures per square millimeter (s/mm²) by TEM analysis to be considered passing. Clearance criteria for lead- abatement activities will consist of a visual inspection, and/or lead dust wipes following the removal of lead-based painted materials.

Prior to beginning abatement work, the contractor must show proof that all HEPA filtered equipment such as air-filtration devices and vacuums, have been efficiency leak-tested within the last 6 months by a firm independent of the asbestos abatement contractor. All such equipment used on site must meet American National Standards Institute (ANSI) Z9.2 standards.

1.1 PRE-ABATEMENT SUBMITTAL ITEMS CHECKLIST

1. Abatement work plan and schedule.
2. Notification to South Coast Air Quality Management District (SCAQMD) or applicable APCD
3. Notifications to California Division of Occupational Safety and Health (Cal- OSHA) (intent to conduct asbestos work)

4. California Contractors License.
5. Cal-OSHA Asbestos Contractor Certification.
6. General Liability Insurance.
7. Worker's Compensation Insurance
8. Negative exposure assessments (NEA), when applicable.
9. Worker/Supervisor AHERA training accreditation.
10. Asbestos Worker/Supervisor training accreditation.
11. Worker's respirator fit testing documentation.
12. Material Safety Data Sheets (MSDS) for all supplies to be used on the job site.

A copy of the items listed above must be sent to the parties listed below prior to commencement of abatement activities.

Pacific Environmental Company

28202 Cabot Road, Suite 300
Laguna Niguel, CA 92677
mike@pacificenvironmental.com

1.2 POST-ABATEMENT SUBMITTAL

The abatement contractor shall submit a post-abatement package summarizing the abatement work plan for the project to the above-mentioned parties. Documents to be included within the post-abatement submittal include, but are not limited to: worker exposure personal air sampling results conducted during the course of the project; daily sign-in forms; daily progress logs; copies of waste manifests with signatures of receipt from the waste disposal facility.

2.0 GENERAL REQUIREMENTS – ASBESTOS ABATEMENT

2.1 DESCRIPTION OF WORK

The work covered by these abatement specifications includes abatement and disposal of ACMs from that will be impacted by the planned E-Rate work. This document is intended to be used as a “master abatement specification” and varying conditions at the particular locations will dictate the scope of work.

In addition to the scope and application of applicable Federal, State, and local regulations, this document includes a summary of the incidental procedures and equipment required to protect workers, occupants of a building or area, and nearby populations from exposure to airborne asbestos fibers. This document is not a comprehensive manual on the state-of-the-art practice for asbestos abatement procedures, equipment, or materials. The selected Contractor represents, by acceptance of this work, that the Contractor is aware of the various state-of-the-art practice procedures, equipment, and materials acceptable by regulatory agencies that are also efficient, effective, and protective of human health and the environment.

The specific Scope of Work is described in Section 5.0; information on types and locations of ACMs to be removed is also presented in Appendix B.

2.2 CODES AND REGULATIONS

General Applicability of Codes and Regulations and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable Federal, State, and local codes, regulations, and standards have the same force and effect (and are made a part of the contract documents) as if copied directly into the contract documents, or as if published copies are bound here within. Regulation references in the text are federal regulations except where the State of California codes are listed in this section. Where the federal and state regulations differ, the more stringent regulation shall be relevant to this Specification.

Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and local regulations. The Contractor shall hold the Owner, Project Manager, and Consultant harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of the Contractor, the Contractor’s employees, and the Contractor’s subcontractors.

Federal Requirements:

OSHA: United States Department of Labor, OSHA, including but not limited to:

Code of Federal Regulations (CFR): Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules:

29 CFR1910.1001	General Industry Standard
29 CFR1926.1101	Construction Industry Standard
29 CFR1910.134	Respiratory Protection
29 CFR1910.20	Access to Employee Exposure and Medical Records
29 CFR1910.1200	Hazard Communication
29 CFR1910.145	Specifications for Accident Prevention Signs and Tags

DOT: United States Department of Transportation (DOT), including but not limited to:

49 CFR171 and 172 Hazardous Substances

EPA: United States Environmental Protection Agency (US EPA), including but not limited to:

40 CFR763 Sub-part E Asbestos Abatement Projects; Worker Protection Rule

40 CFR763 Sub-part E AHERA Regulation Asbestos Containing Materials in Schools Final Rule & Notice

40 CFR763 Sub-part E Training Requirements of (AHERA)

Appendix C Regulation Asbestos Containing Materials in Schools Final Rule & Notice

40 CFR61 Sub-part A National Emission Standard for Hazardous Air Pollutants (NESHAPS)

and Sub-part M (Revised Sub-part B) National Emission Standard for Asbestos

Public Law 101-637 Asbestos School Hazard Abatement Reauthorization Act (ASHARA), enacted November 28, 1990

State Codes:

California OSHA: Cal-OSHA, including but not limited to: California Code of Regulations (CCR):

8 CCR 1529 Construction Standard

8 CCR 3203 Injury, Illness Prevention Plan

8 CCR 5144 Respiratory Protection

8 CCR 5194 Hazard Communication

8 CCR 5208 General Industry Safety Orders, Asbestos Regulations

Title 8, Article 2.5 Asbestos Related Work Registration

Title 22, Division 4, Chapter 30 Minimum Standards for Management of Hazardous and Extremely Hazardous Waste

California Department of Toxic Substances Control:

Transport and Disposal Regulations

Local Requirements: Abide by all local requirements, which govern asbestos abatement work or hauling and disposal of asbestos waste materials, including:

Rule 1403 - SQAQMD

Send written notice at least 10 business (working) days prior to beginning any work on Regulated ACMs (RACMs) (for friable materials) to the SQAQMD as required by US EPA NESHAPS Regulations (40 CFR 61, Subpart M):

South Coast Air Quality Management District – Asbestos Notifications
File # 55641, Los Angeles, California 90074-5641

Send written notice at least 24 hours prior to beginning any asbestos-related work to the local Cal-OSHA office:

Los Angeles Cal-OSHA District Office
320 West 4th Street, Suite 850, Los Angeles, CA 90013 fax (213)576-7461

Other Standards:

ANSI
25 West 43rd Street, 4th Floor
New York, NY 10036
(212) 642-4900
Fundamentals Governing the Design and Operation of Local Exhaust Systems
Publication Z9.2-79
Practices for Respiratory Protection Publication Z88.2-80

2.3 DEFINITIONS

Refer to Appendix A for terms and definitions applicable to this Project Specification.

2.4 QUALITY ASSURANCE

Laboratory Qualification: The laboratory shall be regularly engaged in asbestos testing and personnel used for monitoring airborne concentrations of asbestos fibers shall be proficient in this field. This proficiency shall be demonstrated by current acceptable participation in the Proficiency Analytical Testing (PAT) program and each analyst shall have taken the National Institute for Occupational Safety and Health (NIOSH) 582 Course (Sampling and Analysis for Asbestos) or the equivalent. The laboratory that performs PCM or TEM sample analysis must be accredited by National Voluntary Laboratory Accreditation Program (NVLAP).

Asbestos Fiber Concentration Control Limits:

Inside Enclosed Work Area: Air concentrations of asbestos shall not exceed an eight- hour time weighted average (TWA) of 1.0 f/cc of air by PCM for personnel selected as Most Contaminated Worker. Air concentrations of asbestos shall not exceed the 30- minute excursion level of 1.0 f/cc of air.

Outside Asbestos Work Area: Air concentrations of asbestos fibers shall be maintained at an eight-hour TWA at or below 0.01 f/cc of air (by PCM). This applies to all areas outside the buildings and/or contained work areas while work is in progress, except for the asbestos work area.

Area Clearance Sampling: Asbestos abatement clearance will be conducted by PEC's Certified Site Surveillance Technician or Certified Asbestos Consultant and will include a visual inspection and/or clearance air sampling. All clearance air samples must be an average of 70 s/mm² by TEM analysis.

If the first set of asbestos abatement clearance samples for a given work area do not meet the clearance criteria, the area must be re-cleaned and re-sampled at the expense of the asbestos abatement contractor. Twenty-four (24) hours time must be allotted for clearance air sample collection and analysis.

Alternative methods of clearance may be considered only in the event that other factors, such as airborne fibers within make-up air, are suspected to have influenced clearance air sampling results.

Differential Pressure Monitoring: Daily monitoring of the pressure differential within the contained work areas shall be accomplished with a differential pressure meter (manometer) equipped with a continuous recorder. The meter shall be equipped with a warning buzzer, which will sound if pressure differential drops below 0.02 inches of water relative to the pressure outside the enclosure. Placement of the meters relative to the fan units equipped with HEPA filters shall be shown in the design plan prepared by the contractor, for approval by the Consultant.

Contractor and/or Contractor's Certified Industrial Hygienist (CIH):

The Contractor or Contractor's CIH is responsible for the following:

1. Review of the Project Specifications.
2. Assign air monitoring personnel to sample Contractor's employee exposures and an analytical laboratory that conforms to this Section.
3. Maintain complete air sampling records, keep a daily activity log, and provide a report, which contains all personal air sampling results.
4. Monitor air fiber concentrations inside and outside negative pressure enclosures daily. Daily smoke-test the negative pressure enclosures and visually check for leaks. Any holes or openings discovered in containment walls are to be immediately patched or repaired.

The Contractor will provide to the Consultant, on a regular basis, any observations regarding the integrity of all barriers; decontamination facilities and protective coverings; work and safety plans; emergency evacuation procedures; and proper performance of measures used to protect the facility and employees, including: isolation, removal techniques, encapsulation, patching, disposal and state-of-the-art procedures. The Consultant shall be informed immediately of operational problems or deviations from the Project Specification, initially by telephone and then in writing.

Violations: If, at any time the Contractor's Competent Person or CIH determines that practices are in violation of pertinent and applicable regulations or that air results exceed specified allowable levels, they will notify the Consultant supervising the project and the Project Manager immediately. All work activity in the affected area(s) will cease until corrective actions have been taken. The Consultant and Project Manager shall notify the Owner.

Any cost resulting from such a stop work order issued by the CIH or Consultant will be borne by the Contractor and will not be considered as a basis for an increase in the contract amount.

The Contractor is responsible for the safety of all persons in or around the regulated area or within the areas the Contractor is using for ingress and egress.

2.5 TITLE OF WASTE MATERIAL

All asbestos and asbestos contaminated materials resulting from abatement activities, except as specified otherwise shall be the property of the generator (Owner) and shall be disposed of by the Contractor as required by applicable Federal, State and local regulations. Hazardous waste manifests will be signed by the Owner or his agent. Copies of all hazardous waste manifests are to be maintained by the contractor as part of the required "Close-Out" documents, and forwarded to the Project Manager after completion of the project. In addition, the Contractor will be required to submit copies of all hazardous waste manifests to PEC's representative during the project. Contractor will submit name, location and EPA identification number for waste disposal site chosen by the Contractor. In addition, the Contractor will submit a letter from the disposal site certifying that the disposal site is legally authorized by the Regional Water Quality Control Board to receive asbestos containing materials scheduled to be removed from the project site.

2.6 PROTECTION OF EXISTING STRUCTURES

The contractor shall perform asbestos abatement work without damage or contamination of adjacent areas. Prior to any removal activity, all equipment remaining in rooms shall be covered with two layers of six-millimeter fire-rated polyethylene sheeting and sealed to preclude contamination during removal.

2.7 MEDICAL REQUIREMENTS

The Contractor shall provide workers with a comprehensive medical examination as required (29 CFR 1926.1101(m) and (n)(3)). Contractor will submit one copy of most recent physical examination for each employee the Contractor will employ on the project. Physician's certificate must permit employee to work using a respirator and be dated within the last 12

months.

2.8 TRAINING

The Contractor will ensure and certify that all workers performing asbestos abatement activities shall have successfully completed an EPA-approved asbestos training/refresher course and have in their possession a valid Asbestos Worker Training Certificate or Contractor/Supervisor Certificate, issued by an EPA-accredited trainer within the past 12 months. All certifications must be in compliance with the recent Model Accreditation Plan (MAP) provisions (29 CFR 1926.1101(n) and (o)). Contractor will be required to submit a copy of each employee's training records to the Consultant prior to start of project and maintain a copy of all certifications on site for the duration of the project.

2.9 PERMITS, LICENSES, NOTIFICATIONS, AND PATENTS

Secure necessary permits for asbestos removal, hauling, and disposal and provide timely notification of such actions as may be required by Federal, State, regional, and local authorities. Copies of such notification shall be provided to the Project Manager and Consultant prior to commencement and following completion of work (see pre- abatement and post-abatement submittal checklist in Section 1.1 and 1.2). Post all notices required by applicable Federal, State and local regulations at the jobsite where asbestos abatement work will be performed. Maintain two (2) copies of applicable Federal, State and local regulations and standards. Maintain one copy of each at job site. Keep on file in Contractor's office one copy of each.

The Contractor is responsible for retaining written permission from the Owner's Consultant for use of equipment, engineering controls, negative pressure enclosures, designs, etc. All associated costs for these items shall be borne by the Contractor. The Contractor shall notify the Consultant that the contractor does maintain such documentation prior to the commencement of work, and produce such documentation in a timely manner (but within five business days) upon request.

2.10 SAFETY COMPLIANCE

In addition to the requirements of this specification, the Contractor shall comply with laws, ordinances, rules, and regulations of Federal, State, regional, and local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the work.

1. Emergency Evacuation: The Contractor shall develop and submit an Emergency Evacuation Plan for each area of work or area in which the Contractor expects to use for ingress and egress. After approval of this plan by the Consultant, it shall be distributed and read by all personnel required to enter the enclosed abatement area. In addition, the Contractor shall post this plan at the entrance to the abatement areas.
2. Hazard Communications: Post warning signs and labels and ensure the employees are properly trained and outside contractors are properly notified. Contractor will conduct "tail-gate" health and safety meetings prior to work each shift to review the health and safety plan and discuss new hazards, if applicable.
3. The Contractor is hereby notified that the site structure will be unoccupied during abatement activities. The Contractor will institute all necessary precautions so that no unauthorized personnel enter the regulated areas by mistake or design. The site will be fenced and security personnel will be onsite after work hours. When the work site is unattended, the regulated area shall be locked so that unauthorized personnel cannot enter the area.

2.11 RESPIRATOR PROTECTION

The employer shall comply with the above regulations at a minimum and provide and ensure the proper use and selection of respirators, perform required respiratory fit tests and institute a respiratory program. The Contractor will be required to submit one copy of most recent fit test results for each employee who the Contractor will employ on the project. Evidence of successful fit test within the last year (from the start date of the project) must be provided for each employee.

3.0 PRODUCTS

3.1 RESPIRATORS

Respirators shall be used as specified in 29 CFR 1926.1101. Initial selection of a respirator must follow regulations regarding a negative exposure assessment for the work described in this Project Specification. The prior data must be from “workplace conditions that ‘closely resembles’ the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractors current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit (29 CFR 1926.1101 (f)). The minimum level of respiratory protection for this project is a half-face negative pressure respirator with P100 cartridges.

3.2 POLY SHEETING

All poly sheeting must be six-millimeter and fire retardant and shall be polyethylene material sized in lengths and widths to minimize the frequency of joints. Drop sheets used inside a negative pressure containment must be fire retardant material. The minimum thickness shall be as follows:

Application	Minimum Thickness
Wall & Floor barriers	Two layers of six-millimeter, fire-retardant
All others (vents, etc.)	Two layers of six-millimeter, fire retardant

3.3 POLY BAGS

Poly bags shall be a minimum six-millimeter transparent polyethylene printed with warning labels per DOT and EPA regulations.

3.4 DISPOSABLE CONTAINERS

Waste containers shall be suitable to receive and retain any asbestos containing or contaminated materials until disposal at an approved site. The containers shall be labeled in accordance with Federal, State and local regulations. Containers must be lockable, closed top bins – both airtight and watertight.

3.5 GLOVEBAGS

Glove bags shall be a minimum of six-millimeter polyvinyl chloride (PVC) or polyethylene and specially designed for removal of asbestos-bearing insulation as defined in 29 CFR 1926.1101.

3.6 EYE PROTECTION

Full-face masks or goggles must be provided to personnel engaged in asbestos operations. Eye protection must be worn during abatement of any materials or operations that may present risk or damage to the eyes.

3.7 SPECIAL CLOTHING

Abatement workers must be provided with fire retardant disposable protective whole body clothing, head coverings, gloves (including disposable poly or rubber gloves to protect hands, when necessary) and foot coverings. Cloth gloves may be worn inside the poly or rubber gloves for comfort, but shall not be used alone. Sleeves must be secure (at the wrists) and foot coverings secured (at the ankles) by the use of duct tape. Patch all tears with duct tape as soon as discovered.

3.8 WARNING SIGNS

Warning signs should be printed and used at a minimum as described in 29 CFR 1926.1101 (e) and (k)(7) and any local regulations (see example below). Warning signs shall be posted at all approaches to regulated areas, and as required by

Federal, State, regional and local regulations. Locate signs that can be clearly visible from twenty (20) feet so that personnel may read the sign and take the necessary protective steps required before entering the area. Postings shall be in English and Spanish, and in any language used by any of the Contractor's employees as the primary language of communication. Provide labels and affix to all asbestos materials, scrap, waste, debris, and other products contaminated with asbestos. All labels affixed to waste bags will be original adhesive labels. Photocopying of labels and affixing to waste bags will not be acceptable.

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

3.9 CAUTION LABELS

Provide labels of sufficient size to be clearly legible, displaying the following legend to be used on waste containers in accordance with 1926.1101 (k)(8):

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

The DOT requires the following language on waste containers:

HAZARDOUS WASTE, SOLID N.O.S., ORM-E, NA 9188 (ASBESTOS)(RQ)

Additional labeling requirements are specified in 49 CFR 171 and 172.

3.10 OTHER MATERIALS, TOOLS AND EQUIPMENT

The Contractor shall provide standard commercial quality of all other materials such as lumber, nails, and hardware, which may be required to construct and dismantle the decontamination area and the barriers that isolate the work area, and as required to complete the work as specified. It is the contractor's responsibility to secure adequate sanitary facilities for persons associated with the abatement project at the site. The contractor shall provide and maintain an adequate number of portable toilets on site for use by persons associated with the abatement project.

Additional materials, tools and equipment that may be used on the site include the following:

Water Sprayer: For amended water application, the water sprayer shall be an airless or other low-pressure type.

Airless Sprayer: An airless sprayer suitable for application of encapsulating material shall be used during the project.

Exhaust Air Filtration System: No air movement system or air equipment shall discharge asbestos fibers outside the work area. The equipment shall be capable of at least 1,700 cubic feet per minute (CFM) under load and shall have at least two stages of pre-filtration ahead of the HEPA filter. It shall be equipped with an elapsed time indicator (hour meter), static pressure gauge with low flow alarm, and be overload protected. Dioxyphthalate (DOP) efficiency leak-testing testing (or an industry- recognized equivalent) shall be performed on negative pressure filtration units at the site, prior to the start of abatement for each containment. Acceptable criteria for negative pressure filtration units for use at the site will be trapping and retaining 99.97% of all particles larger than 0.03 microns.

Provide a local exhaust system in the regulated area in accordance with ANSI Z9.2. Equip the exhaust with absolute HEPA filters (99.97 efficient). Local exhaust equipment must maintain a minimum pressure differential of minus 0.02

inches of water relative to the adjacent outside work area. In no case shall the building ventilation system be used as the local exhaust system for the regulated area. Filters on vacuums and exhaust equipment shall conform to ANSI Z9.2.

Vacuum Equipment: All vacuum equipment utilized in the work area shall use HEPA filters on the discharge and shall be suitable for wet/dry usage.

Scaffolding: Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations.

Transportation Equipment: Transportation equipment, as required, shall be suitable for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property.

Other Tools and Equipment: The Contractor shall provide other suitable tools for the removal, enclosure, encapsulation, patching, and disposal activities, including but not limited to hand-held scrapers, brushes, sponges, and rounded-edge shovels.

Electrical: Electrical tools and equipment shall meet all applicable codes and regulations. Ground fault protection or assured grounding programs, as required by OSHA shall be in effect at all times. The Contractor shall take all additional precautions and measures to insure a safe working environment during wet removal. This includes shutting off all live electrical lines in the work area and locking the service box.

4.0 ASBESTOS ABATEMENT SPECIFICATION - EXECUTION

4.1 WORK PROCEDURE

Perform asbestos related work in accordance with 29 CFR 1926.1101 and as specified herein. Use wet removal procedures. Properly notified and trained personnel shall wear and utilize protective clothing and equipment. Eating, smoking, or drinking shall not be permitted in the regulated area or the site buildings. Personnel of other trades not engaged in the abatement of asbestos shall be notified of the presence of asbestos in accordance with Title 8 CCR Section 1529 Subsection K. Radios are not allowed within the site buildings, other than two-way radios for communication purposes.

Shut off all air-conditioning and building ventilating systems, if any, to the abatement area and disconnect electrical service. Contractor shall be responsible for knowing how and where emergency shut off valves for water, gas, and electrical utilities are located. It will be the Contractor's responsibility to provide the necessary water supply and electrical power during each phase of asbestos removal for the project if not supplied at the site. It is also the responsibility of the Contractor to provide adequate electrical power to the Consultant for sampling pumps and other equipment as needed, during abatement oversight and clearance air monitoring.

The local exhaust (HEPA filtered) system shall be equipped with a pressure regulator/warning device (manometer) that allows continuous monitoring of system operation to preclude exposure of adjacent unsealed area to asbestos fiber concentrations in excess of 0.01 fibers/cc of air. The pressure differential shall be maintained above 0.02 column inches of water relative to pressure outside the enclosure. Any malfunction of the local exhaust system shall be reported to the on-site Competent Person and shall be cause for cessation of asbestos abatement until the cause is discovered and remedied. The Consultant will be notified immediately.

Contractor is required to show documentation of recent DOP testing of all HEPA filtration equipment (negative air machines, vacuums) upon request, prior to starting abatement activities. Contractor will provide certification labels on all equipment found to pass the test. Equipment that does not have appropriate documentation and labeling will be removed from the work area.

4.2 REGULATED AREA - ENCLOSED

Seal openings in areas where the release of airborne asbestos fibers is expected. Establish a regulated area with the use of curtains, portable partitions, or other enclosures to prevent the escape of asbestos fibers from the contaminated regulated area. Provide observation window(s) that allow a view of the entire containment area. In all possible instances, control area development shall include protective covering of walls and ceilings with a continuous membrane of one layer of minimum six-millimeter fire retardant poly sheeting (for floors and walls) and four-millimeter fire retardant poly sheeting (for ceilings) sealed with tape to prevent water or other damage. Provide two layers of six-millimeter poly sheet over floors and extend layers a minimum of 12 inches up the walls. Seal all joints with tape. Provide a local exhaust system in the regulated area. View ports shall be constructed in accordance with regional and local regulations. Openings will be allowed in enclosures of regulated areas for the supply and exhaust of air for the local exhaust system. Exhaust the negative air machines to the outside of the building. Notify the Consultant if unable to exhaust in this manner. Replace filters as required to maintain the efficiency of the system. Cleaning of items that must remain in the work area shall be done using HEPA filtered vacuuming devices and then covered with six-millimeter poly sheeting.

4.3 REGULATED AREA- OPEN

In certain circumstances, where establishment of a closed regulated area is not possible, and only after the Site Surveillance Technician / Consultant approval, an open (regulated) area may be considered. The Site Surveillance Technician / Asbestos Consultant will be notified if the Contractor determines that the most appropriate abatement of

certain materials would incorporate the use of an open regulated area. In no event shall the use of an open regulated area be in conflict with applicable Federal, State, regional, or local regulations, unless a waiver of the specific activity proposed is provided by the appropriate regulatory agency.

Establish designated limits for the asbestos work area and barricade the designated area from non-asbestos workers with the use of rope, caution tape or other continuous barriers. Maintain all other requirements associated with removal and disposal of asbestos as applicable. Also, where an enclosure is not provided, area monitoring of airborne asbestos fibers will be taken during the work shift at the designated limits of the asbestos work area, and at such frequency as specified herein.

If the quantity of airborne asbestos fibers monitored at the designated limits at any time reaches the (time weighted average) maximum allowed in these specifications, stop work immediately. Notify key personnel and proceed with clean-up activities. If adjacent areas are contaminated, clean the contaminated areas, monitor and visually inspect the area as specified herein.

4.4 DECONTAMINATION

Decontamination procedures shall not include HEPA filtered vacuuming of workers in lieu of a shower room. HEPA filtered vacuuming and double suiting is allowed if a remote shower facility must be utilized. All workers shall remove protective clothing and wash all exposed parts of their person before leaving the area. Eating, smoking, drinking or other activities are prohibited since these activities may potentially result in exposure to asbestos fibers. Showers, washbasins or buckets shall be provided with towels to clean respirators daily. The Contractor shall ensure that the workers take proper care of their assigned respirators and safety equipment.

Provide a decontamination room to provide a storage area for workers clothes that are used in the negative-pressure enclosure. A separate air-lock room can be constructed for larger equipment and waste bags; however, use of this room still requires proper decontamination procedures. Personnel ingress and/or egress from the negative pressure enclosure area through the equipment air-lock room will be prohibited. The industry standard three-stage decontamination chamber shall be constructed for all NPE systems for this project. The decontamination systems shall consist of a clean changing area (outermost chamber), shower, and dirty equipment storage area (innermost chamber). Double layers of plastic sheeting (fire retardant) shall be taped/spray-glued securely in place. Plastic sheeting minimum thickness six-millimeter, each layer, shall be used throughout. Construction shall conform to requirements of 29 CFR 1926.58, AHERA, and Title 8 CCR Section 1529, Cal/OSHA Asbestos Standard. Job specific waivers for less than full NPE system containment must be approved in writing by Consultant.

A shower shall be provided with proper drainage, conventional shower fixtures (fixed shower head and mixer valve), soap and water heated to a temperature of 85 degrees Fahrenheit.

Individual clean towels shall be provided for employees and representatives of the Owner who visit the site. Disposable towels are acceptable and recommended.

Shower rinse water shall either be drummed and disposed of as contaminated hazardous waste or filtered to 5 microns prior to discharging to the septic onsite. The Contractor must provide notice to the Project Manager and Consultant prior to the filtering and discharging of liquid waste. No liquid waste may be discharged to the storm sewer.

A remote decontamination unit may be used for workers involved in glove bag or mini- enclosure operations. Remote units must be placed within the regulated area where unauthorized personnel will not cross the path from the work area to the remote unit. Consultant reserves the right to approve use and placement of remote units for asbestos abatement.

4.5 ACCESS TO WORK AREA

The Asbestos Abatement Contractor shall make available to the Consultant any personal protective equipment (not including respirators unless supplied air respirators are required) as required herein for entry to the regulated area at all times for observation of the regulated area. Access to the work area shall be regulated as follows:

Access to Isolated Work Areas by Others: Except for an emergency and the Contractor's authorized personnel, the Contractor shall limit access to the work area to authorized representatives of the Consultant. At no time shall any personnel enter an enclosure without notifying the on-site Competent Person first and signing the site entry log.

Visitor Communications: All inquiries concerning the work site, asbestos abatement project and other job activities shall be directed to the on-site Competent Person. The Contractor shall notify the Consultant of visitors (i.e. regulatory inspectors, OSHA personnel, law enforcement, personnel, press, etc.) that visit the site during the project. If the Contractor is cited by a regulatory agency, the Contractor shall immediately notify the Project Manager and Consultant.

Audio-Visual Surveillance: The contractor shall provide an observation window (in accordance with applicable regulations) for enclosures so that the supervisor can monitor work activity. In areas where visual access is not possible, the Consultant may require headsets or walkie-talkies for audio communications.

4.6 AIR MONITORING

Monitoring of airborne concentrations of asbestos fibers shall be in accordance with the specified regulations, Section 2.4 of this document, and as specified hereafter (29 CFR 1926.1101 (f)). An initial exposure assessment shall be performed for each area unless previously sampled or in areas shown not to present concentrations exceeding the permissible exposure limit (PEL) under the given work conditions.

Area air monitoring may be conducted by the Owner's Consultant based on observations of abatement work practices. Clearance air monitoring is required after clean up and encapsulation ("Lock Down") and the employer must demonstrate the airborne concentrations are below the US EPA Clearance Criteria for PCM or TEM. For this project, clearance air samples will be analyzed by National Institute for Occupational Safety and Health (NIOSH) Method 7400A or NIOSH Method 7402.

4.6.1 Records

Documentation shall be kept for each filter sample procured as to worker sampled, respiratory protection equipment used, work area location, date and time taken, volume of air drawn through filter, pump identification number and calibration. Documentation shall indicate whether tests were taken in isolated work areas, in glove bag work areas, in occupied public spaces, etc., and shall be part of the permanent record provided at project completion.

4.6.2 Air Samples (The following refers to the different type of air samples):

Area Air Sampling: Area air samples shall be collected by the Owner's Consultant to evaluate the integrity of the containment structure. Area air samples for glove bag operations shall be conducted at 10% of the locations abated. The sampling protocol shall conform to the NIOSH 582 standards and 40 CFR Part 763. The Owner's Consultant may conduct area air monitoring based on observations of work practices during abatement.

Personal Air Samples: The Contractor is responsible for monitoring its employees' exposure and maintaining the proper records (29 CFR 1926.1101 and 1910.1001).

Results of all area air monitoring shall be made available to the Consultant within 48 hours of sampling. Results of all personal air monitoring shall be made available to the Consultant within one week of the completion of the project, unless the PEL is exceeded, in which case results should be made immediately available to the Consultant.

If the results of PCM analysis exceed the established limits, the Contractor will be required to initiate additional air and surface cleaning procedures, as instructed by the Consultant to reduce fiber concentration below these limits. Contractor shall notify Consultant immediately by phone and fax if the PEL is exceeded. The Contractor may resume abatement work in that area only after he receives authorization from the Consultant. Any costs resulting from high air sampling results above the regulatory criteria shall be borne by the Contractor and will not be a basis for an increase in the contract amount.

The Consultant will collect "clearance" air samples at the conclusion of the asbestos abatement activities for each of the containment areas for this project. The number and placement of samples will be determined by the Consultant. If the results of air sample cassette analysis indicate the Contractor failed final clearance TEM analysis, the Consultant will require the Contractor to re-clean the containment area prior to re-sampling. Alternative methods of clearance may be considered only in the event that other factors, such as airborne fibers within make-up air, are suspected to have influenced clearance air sampling results. This activity shall be performed by the Contractor and shall not be cause for change order.

Costs associated with additional TEM analysis and re-sampling due to failed clearance samples will be the responsibility of the Contractor, and will not be cause for a change order. Active demolition work will not occur for the buildings until all asbestos abatement activities are completed. If, at a later date, it is established that active demolition work will occur in conjunction with asbestos abatement activities to expedite the project schedule, TEM analysis may need to be used for all air samples collected.

4.7 ASBESTOS HANDLING PROCEDURES DURING REMOVAL

General Procedures: Follow procedures described in Sections 4.1 through 4.10. Sufficiently wet asbestos material with a fine spray of amended water during removal, cutting, or other handling to reduce the emission of airborne fibers. Remove material and immediately place in poly disposal bags. Where unusual circumstances prohibit the use of poly bags, submit an alternate proposal for containment of asbestos fibers to the Consultant for approval. Contractor shall properly notify their employees of the ACM content and train them in the standard of practice procedures for removal of the ACMs and RACMs in accordance with Federal, State, and local regulations. Reference 29 CFR 1926.1101 (g), Methods of Compliance.

Cleaning objects prior to abatement: All moveable objects must be HEPA vacuumed and wet wiped prior to scheduled removal and prior to abatement cleaning, temporary storage and relocation must be conducted according to Consultant instructions. All immovable objects must be pre-cleaned by HEPA vacuum and wet wiping. Fixed building materials that may be damaged by wet wiping shall be HEPA vacuumed only.

Sealing and Removal of Asbestos Contaminated Items for Disposal: Remove any remaining contaminated architectural, mechanical, and electrical appurtenances such as window blinds, full-height partitions, carpeting, duct work, pipes and fittings, radiators, light fixtures, conduit, panels, and other contaminated items designated for removal by first, HEPA vacuuming, and then, completely coating the items with an asbestos sealer at the demolition site before removing the items from the regulated area. The asbestos sealer shall be tinted a contrasting color. It shall be spray-applied by the airless method. Thoroughness of the sealing operation shall be visually gauged by the extent of colored coating on exposed surfaces.

Abatement methods for various types of asbestos containing materials (ACMs, containing at least one percent asbestos) at the site buildings to be affected by the renovation/demolition work included in this scope of work are described below:

Friable Sprayed Acoustic Ceiling and Fireproofing Materials: The removal of friable spray-applied acoustic ceiling material and spray-applied fireproofing materials is considered OSHA Class I Work. These materials must be abated within a NPE system. Poly sheeting must be attached to the wall at the point closest to the ceiling. Use a fine spray or

mist of amended water to thoroughly saturate the material. The wet material should then be removed and bagged immediately. After removal, the substrate must be cleaned using brushes, wet wiping, and HEPA vacuum, until all asbestos residue is gone. The substrate should then be sprayed with an encapsulant. The sprayed acoustic ceilings shall be scraped of the material and immediately placed in the disposal bags. In addition to the items mentioned in the previous paragraph, PEC requires that local HEPA exhaust be used at the point of actual removal along with the dedicated negative air machines. Neither shall be used in lieu of the other.

Floor tiles: The removal of floor tiles is considered OSHA Class II work. Vinyl floor tile (VFT) removal can be removed with critical barriers and splashguards in place. However, removal of VFT in poor condition or removed mechanically must be removed under a NPE system, with wet removal techniques. The Consultant shall approve such work before it commences. Vinyl floor tiles shall be removed by manual methods, which do not create dust. Do not sand, grind, bead blast, mechanically chip, or abrade floor tiles, during abatement. A mini-containment may be used for removing small areas of floor tiles, such as a 3-foot by 3-foot area. Removal of floor tiles by mechanical means will be conducted in accordance with applicable federal, state, and local requirements, including but not limited to requiring the construction of a NPE system; SCAQMD notification of removal as a RACM; and clearance air sampling for areas planned for re-occupancy. Negative Pressure Enclosure shall comply with the requirements listed in Paragraph 4.0.

Flooring Mastics: The removal of flooring mastics is considered OSHA Class II work. Flooring mastics shall be removed only by wet methods, using approved solvents. Please note that mastic removal chemicals may require special respiratory protection and, thus, this protection must be implemented along with the proper notification and training.

If the mastic must be removed using chemicals and/or mechanical devices, then the material must be removed as described in the previous paragraph; under a NPE. The Consultant shall be notified if mechanical bead blasting or mechanical floor buffers will be used for the removal of the mastic/glue. Federal, State, regional and local regulatory agency regulations that restrict the use of mechanical bead blasting and mechanical buffer equipment including indicating appropriate containment for these activities shall be obeyed. In the event that the use of unauthorized abatement methods, equipment, or containments results in a notice of violation issued by a regulatory agency, the contractor shall be responsible for costs associated with the payment of the fine, and other legal costs that may arise as a result of the notice of violation. These costs are not to be cause for a change order. It is assumed that the Contractors submitting bids for the abatement of materials included in these specifications are knowledgeable and proficient in regulations applicable to their industry. All materials removed shall be wrapped in two layers of six-millimeter plastic or double bagged and sealed with tape. Assure that all bundles and bags are labeled and disposed of complying with waste disposal instructions for asbestos containing waste.

Category II (“cementitious”) Non-friable ACM (Transite): The removal of ACM transite is considered OSHA Class II work. Where asbestos cement panels, counter tops, exterior siding, or pipes, are rigid and removal may involve breaking, cutting and damaging the material so that fibers are released, the Contractor shall remove this material under modified full containment, or mini-enclosure, and sealing of critical barriers. Negative air machines, wet removal techniques shall be used. Alternative procedures must be approved by the Consultant before removal. The rigid ACM can be cut and broken into smaller pieces for ease of handling utilizing appropriate work practices, although breaking these materials should be minimized as much as practical to minimize the potential for releasing airborne asbestos fibers. Work practices that create dust or otherwise release airborne asbestos fibers shall be avoided.

Construction mastics and adhesives (except flooring): The removal of construction mastics (roof penetration mastics in this case) is considered OSHA Class II work. If mastic is considered non-friable by the Consultant, then removal may be completed without containment as long as the mastic ‘blob’ is removed intact. construction mastic/adhesive shall be properly bagged and disposed.

Thermal System Insulation (TSI) - Friable Materials: The removal of TSI is considered OSHA Class I Work. These materials must be abated and disposed using wet methods and other dust control measures necessary to comply with Federal, State, and local regulations. Contractor shall remove this material under full containment, negative air pressure, and wet removal techniques and with personnel using safety equipment for head, eyes and ears as specified. Alternative procedures must be cleared by the Consultant before removal. The rigid ACM can be cut and broken into smaller pieces for ease of handling utilizing appropriate work practices. Creating dust shall be avoided.

TSI may also be removed using proper glove bag procedures. Glove bags may not be moved or slid along a pipe run. A smoke-test may be performed on every other installed glove bag to check for air leaks. The bare pipe shall be detail cleaned and encapsulated after the asbestos insulation is removed.

Pipe insulation may be removed by using a wrap and cut method of removal, if approved by the Consultant and the contractor bears all costs associated with capping and draining the pipes prior to cutting. Apply amended water and double wrap the pipe to be cut and removed with six-millimeter poly sheeting and sealed with duct tape and spray adhesive. Use usual glove bag procedure on either end where the pipe will be cut, usually in 8 to 10 foot lengths. The sealed bag shall be properly labeled.

Plaster/Stucco: The removal of plaster or stucco is considered OSHA Class I work. These materials must be abated within a NPE system. Poly sheeting must be attached to the floor at the point closest to the wall. Use a fine spray or mist of amended water to thoroughly saturate the material. The wet material should then be removed and bagged immediately. After removal, the substrate must be cleaned using brushes, wet wiping, and HEPA vacuum, until all asbestos residue is gone. The substrate should then be sprayed with an encapsulant. PEC requires that local HEPA exhaust be used at the point of actual removal along with the dedicated negative air machines.

Linoleum: The removal of linoleum is considered OSHA Class I work. These materials must be abated within a NPE system with wet removal techniques. Do not sand, grind, bead blast, mechanically chip, or abrade linoleum during abatement. Negative Pressure Enclosure shall comply with the requirements listed in Paragraph 4.0.

Drywall and Taping Mud Systems: The removal of wall or ceiling systems with ACM taping mud is considered OSHA Class II work. Wall systems where the asbestos content is greater than 0.1% shall be removed under full containment or a NPE system, using wet methods and other dust control measures necessary to comply with applicable Federal, State, regional, and local regulations. Please note that joint compound may be considered non-friable for notification purposes but will be considered friable for abatement purposes. The Contractor is responsible for notifying their employees. For those areas where the drywall and taping mud systems contain "trace" amounts of asbestos (less than 1%), and no texture, skim coat, or spray-applied ceiling materials are present on the wall, the materials can be discarded as non-ACM waste. However, the handling of these materials shall not be in violation of Cal-OSHA regulations or "visible emissions" provisions within applicable regulations. These materials shall be kept in labeled containers while at the site (property).

Duct Expansion Material: The removal of duct expansion material is considered OSHA Class II Work. This material shall be removed under full containment; however, if feasible, a mini-containment can be constructed to remove the material. In either case, negative pressure shall be used and the ducting shall have a critical seal. The furnace or blower shall be shut down and tagged out. Coordinate this procedure with the building engineer. Amended water shall be applied to the fabric before work is commenced. This friable material shall be removed intact by dismantling the material from the duct or cutting the sheet metal as close to the edge of fabric as feasible. The material shall be immediately bagged. Once the ACM is removed, the remaining ducting within the containment area shall be HEPA vacuumed and wet-wiped. The ducting shall be spray encapsulated; however, if the furnace or blower is to be reused, then the Contractor shall not encapsulate the equipment. These materials must be abated under containment and disposed using wet methods and other dust control measures necessary to comply with Federal, State, and local regulations.

Boiler insulation: The removal of boiler insulation is considered OSHA Class I Work. The abatement of internal and exterior boiler and other vessel insulation shall be accomplished according to current applicable regulatory requirements. Because the abatement of ACMs associated with boilers may be accomplished in several ways, including but not limited to the removal of the whole boiler as ACM, dismantling of the boiler to expose ACMs, or other methods, the Contractor shall provide a written abatement plan for insulation associated with boilers. The Contractor will not proceed with the abatement or removal of boilers without receiving written authorization from the Project Manager or Owner.

Insulated Wiring: The removal of insulated wiring is considered OSHA Class II Work. Contractor shall coordinate with building engineer to ensure that the wiring to be removed and nearby wiring has been de-energized and tagged out. Disconnect each end of the wiring so that the wiring may be pulled through the conduit and properly bagged. Water shall not be used until a section of wiring is completely removed and placed in the disposal bag.

Fire doors: The removal of intact fire doors is not considered OSHA Asbestos Work. However, the removal of fire doors with exposed asbestos cores, due to damage or the removal of hardware, is considered OSHA Class II Work. The building component should be handled and stored in a careful manner, with caution exercised not to damage or breach the fire doors. Fire doors in good condition should be removed intact for appropriate disposal as asbestos containing waste. Damaged fire doors should be removed as friable ACM waste.

OSHA work classes I to IV are applicable to ACMs containing more than one- percent asbestos. However, provisions for the removal of materials containing less than one percent asbestos (ACCMs) and materials containing detectable asbestos, even below one percent, are enforced by OSHA/Cal-OSHA. These general provisions include, but are not limited to the use of wet removal methods, prompt clean-up of wastes, use of HEPA-vacuums, appropriately trained asbestos workers, and personal air monitoring of workers.

4.8 ENCAPSULATION / LOCKDOWN

Contractor shall apply encapsulant or fiber lockdown material to all surfaces from which asbestos was removed. Adjacent surfaces, which are not intended to be sprayed, shall be protected. Encapsulant shall be compatible with the substrate upon which it will be sprayed. Encapsulant shall be applied as specified by the manufacturer.

4.9 DISPOSAL

The Contractor shall determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. The Contractor must comply fully with these regulations and all DOT and EPA requirements. Material will be delivered directly to the pre-designated disposal site within five days for burial. All labels and signs shall be in accordance with EPA, OSHA, and DOT regulations as described in Sections 3.8 and 3.9. The Contractor shall fill out manifest forms for the Owner's (Generator) signature. Original disposal receipts and manifests must be turned in at project completion to the Project Manager. Copies shall be forwarded to the Consultant.

Containers: Sealed containers may be stored in the bag holding and decontamination enclosure system until a sufficient volume of waste has accumulated for disposal but not to exceed five days. This storage area will be prominently designated and waste containers will be covered with polyethylene sheeting. Waste should be stored out of sight of the public in a secure area.

Disposal containers shall then be labeled, sponge cleaned, and removed to the Contractor's staging area.

Transportation and Disposal: Decontaminated containers shall be removed from site staging area and work site at the end of each workday. Workers unloading the sealed bags and machinery operators shall wear respirators when handling material at the disposal site and shall be a state certified asbestos worker.

Disposal Site: The disposal site chosen for friable materials (hazardous waste) shall be permitted to receive this type of waste. Non-friable materials may be disposed as non- hazardous construction waste at a disposal site permitted to

receive the waste. The Contractor shall notify the receiving non-hazardous waste landfill of the type and nature of the asbestos debris to be disposed.

4.10 GENERAL PROCEDURES

The Contractor shall implement procedures that comply with or exceed Federal, State, and local regulations. The procedures, while not specifically described here, shall be protective of employees, site occupants, other contractors, and site improvements and equipment.

Coordinate all electrical and water service connections with the Project Manager. The Contractor shall be responsible for ensuring that air-handling systems in the work area are isolated and shut down for the duration on the project. The Contractor shall coordinate with the Owner with respect to site security, emergency shut off of water, and building fire suppression systems. The Contractor shall not violate the fire code as it relates to the site building. Interior electrical systems shall be powered off, with lock- down/tag-out procedures implemented during the removal of interior ACMs utilizing NPE systems.

Setup, abatement, disposal, and demobilization shall be performed so that ACMs and RACMs are not disturbed unless they are in a negative pressure containment in the process of being abated. Setup procedures may require the use of respirators with P100 filters or HEPA filtered air purifying negative pressure fans, critical barriers, and decontamination facilities.

The use of drugs, alcohol, or prescription medication that may impair judgment or otherwise compromise the safety of workers or any persons on the site is strictly prohibited. Smoking is not allowed on the jobsite.

5.0 ASBESTOS ABATEMENT SPECIFICATION - SCOPE OF WORK & IDENTIFIED ACM MATERIALS

5.1 ASBESTOS-CONTAINING MATERIALS

The work covered by these abatement specifications includes abatement and disposal of ACMs from that will be impacted by the planned E-Rate work. This document is intended to be used as a “master abatement specification” and varying conditions at the particular locations will dictate the scope of work.

5.2 SPECIAL INSTRUCTIONS AND REQUIREMENTS

Applicable Regulations: The Contractor is responsible for proper performance under all applicable Federal, State and local regulations for the removal and disposal of asbestos at this facility. The most stringent requirements will govern.

Execution: In addition to the work procedures in the specifications in this document for asbestos abatement, the following shall apply:

1. Compliance with the work schedule is critical to allow the complete renovation of the structure in a timely fashion. The Contractor shall coordinate with the appropriate representatives of the School the specific days and times work is to be performed. The Contractor shall coordinate closely with PEC and Archdiocese of Los Angeles during the abatement project.
2. Negative pressure units must be used at the site of removal activity as required. Exhaust shall be directed outside of the buildings. All work areas must be secured daily at the end of work.
3. No unauthorized persons allowed on the site. The Contractor is responsible for security of their containment areas and equipment during the project.
4. Each area requiring a NPE system shall be maintained under negative pressure until cleared. Final clearance will consist of visual observation and air sampling. The enclosure must be left in place until passing air clearance results have been received and the supervisor is instructed to tear down by the Consultant. Regulated areas not requiring negative-pressure enclosures (e.g. roof of building, modified full enclosures) may be cleared by visual observation only.
5. The Contractor shall make all necessary notifications to the appropriate regulatory agencies of the abatement project and pay the appropriate fees for permits.
6. The Contractor is required to provide personnel and area air monitoring per OSHA regulations. The air monitoring outlined in Section 4.6 is considered part of surveillance for proper performance and contract compliance.

5.3 PACIFIC ENVIRONMENTAL COMPANY SCOPE OF WORK

PEC will be the Consultant described in the Abatement Specification.

PEC will record and report on abatement activities on a full-time and/or as needed basis, conduct periodic visual inspections during abatement, post-abatement visual assessments, and perform clearance air sampling.

PEC will review change order requests by the Contractor for legitimacy and submit addenda to the Abatement Specification as warranted.

6.0 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of PEC's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. PEC makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This specification may be used only by Archdiocese of Los Angeles (Client), the Project Manager, and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

The work performed was based on project information provided by Client. If Client does not retain PEC to review any revisions or modifications to the plans and specifications, PEC assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, Client must obtain written approval from PEC's engineer that such changes do not affect our recommendations.

PEC offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of site conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this specification will indicate that Archdiocese of Los Angeles has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of PEC's services, hazardous materials may have been discovered. PEC assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring PEC to assume the status of an Owner, operator, or generator, or person who arranges for disposal, transport, storage, or treatment of hazardous materials within the meaning of any governmental statute, regulation, or order. Archdiocese of Los Angeles is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of PEC's services.

APPENDIX A

TERMS AND DEFINITIONS

Abatement: Controls and procedures used to lessen fiber release from asbestos- containing material (ACM), which include encapsulation, enclosure and removal, but especially removal.

Accredited or Accreditation: (when referring to a person or laboratory): A person or laboratory accredited in accordance with section 206 of Title II of the Toxic Substances Control Act (TSCA). Also refer to 40 Code of Federal Regulations (CFR) Part 763, Asbestos Model Accreditation Plan (Federal Register, Thurs., February 3, 1994) text dealing with training requirements and possession of valid accreditation.

Action Level: An airborne concentration of asbestos of 0.1 fibers per cubic centimeter (fibers/cc) of air calculated as an eight hour time weighted average (TWA). Above this level, employers must initiate certain compliance activities such as employee training and medical surveillance. See also Permissible Exposure Limit (PEL) below.

Aerosol: A system consisting of particles, solid or liquid suspended in air.

Air Cell: Insulation normally used on pipes and ductwork that is comprised of corrugated cardboard which frequently is comprised of asbestos combined with cellulose or refractory binders.

Air Monitoring: The process of measuring the airborne asbestos fiber content of a specific volume of air in a stated period of time.

Air Sampling Professional: Professional employed to provide technical advice and information and to conduct personal and area air monitoring or analysis schemes. Supervision of air sampling shall be conducted by a Certified Industrial Hygienist (CIH), Certified Asbestos Consultant (CAC), or personnel under the direct supervision of the CIH or CAC, with specialized experience in asbestos control. All personal and air sampling results shall be evaluated by the CIH or CAC.

Airlock: A system for ingress or egress without permitting air movement between a contaminated area and an uncontaminated area, consisting of two curtained doorways at least six feet apart.

Amended Water: Water to which a surfactant has been added to decrease the surface tension to 35 dynes or less.

Area Air Monitoring: Air monitoring of asbestos fiber concentrations outside the regulated area. Area air monitoring will be conducted on each shift by the Contractor. Consultant will conduct baseline air sampling and clearance air sampling.

Asbestos: The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (commonly known as amosite), anthophyllite, and actinolite- tremolite. For purposes of establishing respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

Asbestos-Containing Building Material (ACBM): Surfacing ACBM, thermal system insulation ACBM, or miscellaneous ACBM that is found in or on interior structural members or other parts of a building that contains more than 1% asbestos by area (40 CFR Part 763).

Asbestos-Containing Material (ACM): Any material containing more than 1% by area of asbestos of any type or mixture of types. Federal Occupational Safety and Health Administration (OSHA) defines “Asbestos Material” as any material containing at least one percent (1%) asbestos as determined by polarized light microscopy using the Interim Method of the Determination of Asbestos in Bulk Insulation Samples contained in Appendix A of Sub-part F in 40 CFR Part 763. Cal OSHA, however, has defined an ACM (referred to as an asbestos containing construction material or ACCM) more stringently as a building material containing more than 0.1% by weight.

Asbestos-Containing Waste Material: Any material, which is or is suspected of being or any material contaminated with an asbestos-containing material, which is to be removed from a work area for disposal.

Asbestos Debris: Pieces of ACM that can be identified by color, texture, or composition, or means dust, if the dust is established by an accredited consultant to be ACM. This also includes non-asbestos objects contaminated by damaged ACM prior to abatement and objects contaminated during abatement.

Asbestos Fibers: For this specification, asbestos fibers are those fibers having an aspect ratio (length to width) of 3:1 and 5 microns or longer (phase contrast microscopy [PCM] methodology). For Yamate Level II transmission electron microscopy (TEM) methodology a fiber refers to a structure as all fiber lengths and an aspect ratio of 5:1 or greater.

Authorized Visitor: The Owner, the Abatement Consultant, testing lab personnel, the Architect/Engineer, emergency personnel or a representative of any federal, state and local regulatory or other agency having authority over the project.

Barrier: Any surface that seals off the work area to inhibit the movement of fibers. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

Consultant: The Consultant is assigned to record and report on the progress of the asbestos abatement project. The Consultant, as the Owner's representative, is retained to conduct site visits, pre and post abatement visual surveys, and baseline and clearance air monitoring. The Consultant is also responsible for reviewing change order requests by the Contractor and preparing addenda for change orders.

Certified Industrial Hygienist (CIH): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene or in specific aspects covering asbestos removal with experience in asbestos management.

Class I Asbestos Work: Activities involving the removal of thermal systems insulation (TSI) and surfacing ACM.

Class II Asbestos Work: Activities involving the removal of ACM, which is not TSI or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III Asbestos Work: Repair and maintenance operations where ACM, including TSI and surfacing ACM, may be disturbed.

Class IV Asbestos Work: Maintenance and custodial activities during which employees contact but do not disturb ACM and activities to clean up dust, waste, and debris resulting from Class I, II, and III activities.

Clean Room: An uncontaminated area or room, which is part of the worker decontamination enclosure system, with storage for workers street clothes and uncontaminated protective equipment.

Competent Person: One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, as defined by OSHA, and who has the authority to take prompt corrective measures to eliminate them (as specified in 29 CFR 1926.32 (F)). Additionally, for Class I and Class II work who is specially trained in a training course which meets the criteria of United States Environmental Protection Agency's (US EPA) Model Accreditation Plan (40 CFR Part 763) for supervisor, or its equivalent and, for Class III and Class IV work,

who is trained in a manner consistent with US EPA requirements for training of local education agency maintenance and custodial staff set forth at 40 CFR 793192 (a)(2).

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

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

Decontamination Area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility and any related razing, removing, or stripping of asbestos products.

Disposal Bag: A properly labeled 6-mil thick leak-tight poly bags used for transporting asbestos waste from the work area to the disposal site.

Disposal: Procedures necessary to transport and deposit the asbestos contaminated material stripped and removed from the building, piping, and equipment in an approved waste disposal site in compliance with the US EPA regulations.

Encapsulant: A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.

Bridging Encapsulant: An encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.

Penetrating Encapsulant: An encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.

Encapsulation: Procedures necessary to coat all ACM with an encapsulant to control the possible release of asbestos fibers into the ambient air.

Enclosure: The construction of an airtight, impermeable, permanent barrier around asbestos-containing materials to control the release of asbestos fibers into the air. The purpose is to protect employees and others outside the regulated area. Also, with proper engineering controls and planning to minimize the possible exposure to asbestos by workers inside the barrier (29 CFR 1926.1101, Appendix F).

Equipment Room: A contaminated area or "dirty" room, which is part of the worker decontamination enclosure system, with storage for contaminated clothing and equipment.

Exhaust Air Filtration System: A P100 filtered portable ventilation system designed to exhaust and clean particulate from the enclosure before releasing it to the outside. A sufficient amount of air is exhausted to create a pressure of 0.02 inches of water within the enclosure with respect to the area outside the enclosure (preferably, outside the building). This ventilation system is operated 24 hours per day or until final clean up is completed and clearance observation and acceptable air monitoring results are received from the laboratory (29 CFR 1926.1101).

Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.

Friable Asbestos Containing Material: A building material that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

Glove bag System: A portable asbestos abatement system designed for isolation of small groups of pipe and fittings, etc., requiring asbestos removal. The bags are single use, transparent polyethylene poly with arms and protective gloves. The bags come with OSHA and EPA prescribed warning labels for bags used to dispose of asbestos.

Glove bag: An impervious poly bag-like enclosure no greater than 60x60 inches in size, typically constructed of 6-mil transparent polyethylene or polyvinylchloride poly with inward projecting long sleeved gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.

HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining fibers of 0.3 microns or larger. See P100 Filter Vacuum Collection Equipment (or vacuum cleaner).

HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of mono-dispersed particles greater than 0.3 microns in diameter. See P100 Filter below.

Homogeneous Area: An area of surfacing material or TSI that is uniform in color and texture and appears to have been installed at the same time.

Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

Most Contaminated Worker (MCW): The employee assigned the breathing zone air sample representing the highest daily exposure in each work area (8 hour TWA).

Negative Pressure Enclosure (NPE) System: The construction of an airtight, impermeable, barrier of any configuration around asbestos-containing materials to control the release of asbestos fibers into the air. The purpose is to protect employees and others outside the regulated area. Specifications deemed by OSHA regulations include: at least 4 air changes per hour; a minimum of -0.02 column inches of water pressure differential, relative to outside pressure shall be maintained within the NPE as evidenced by manometric measurements; the NPE shall be kept under negative pressure throughout the period of its use; and air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or collection device. Also, the NPE shall be designed with proper engineering controls and planning to minimize the possible exposure to asbestos by workers inside the barrier (29 CFR 1926.1101, Appendix F).

Negative Initial Exposure Assessment: A demonstration by the Contractor, which complies with the criteria in 29 CFR 1926-1101 (f)(2)(iii), that employee exposure during an operation is expected to be consistently below the PEL.

Negative Pressure Ventilation System: A pressure differential and ventilation system.

Non-friable Asbestos Material: Where a binder is still encapsulating the asbestos fibers and the material is not friable.

Category I Non-friable ACM (“non-cementitious”): Asbestos containing packing, gaskets, resilient floor coverings, and asphalt roofing products.

Category II Non-friable ACM (“cementitious”): ACM, excluding Category I non-friable ACM, that, when dry and in its present form, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Examples include "transite" board, pipe and asbestos cement products, plaster, stucco, paint and mastics.

Client: Archdiocese of Los Angeles.

P100 Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air filter (formerly known

as a HEPA filter, currently known as a P100 filter) vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining fibers of 0.3 microns or larger.

P100 Filter: A high efficiency particulate air filter (formerly known as a HEPA filter, currently known as a P100 filter) capable of trapping and retaining 99.97 percent of mono-dispersed particles greater than 0.3 microns in diameter.

Permissible Exposure Limit (PEL): The airborne concentration of asbestos (0.1 fibers/cc) at which the employer shall ensure that no employee is exposed. Where the PEL is exceeded the employer shall establish and implement a written program to reduce employee exposure to or below the limit by (1) engineering and work practice controls, and (2) use of required proper respiratory protection. No employee shall be exposed at any time to airborne concentrations of asbestos in excess of 1.0 fibers/cc during any 30-minute period, which is the excursion limit.

Personal Monitoring: Air monitoring for asbestos fiber concentrations within the breathing zone (within 9 inches of the mouth) of an employee.

Pressure Differential and Ventilation System: A local exhaust system, utilizing P100 (HEPA) filtration capable of maintaining a pressure differential with the inside of the Work Area at a lower pressure than any adjacent area, and which cleans recirculated air or generates a constant air flow from adjacent areas into the Work Area.

Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

Regulated Area: An area established by the Contractor to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the PEL. Requirements for regulated areas are set out in 29 CFR 1926.1101 (e).

Removal: The taking out or stripping of asbestos.

Repair: Returning damaged ACM to an undamaged condition or to an intact state so as to prevent fiber release.

Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.

Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold or warm running water and arranged for complete showering during decontamination. The shower room may comprise an airlock between contaminated and clean areas.

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

Surfacing ACM: Surfacing material which contains more than 1% asbestos.

Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

Tack Coat: A coat of penetrating encapsulant applied to all surfaces from which ACM has been removed.

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

Time Weighted Average (TWA): One or more samples representing full shift exposure for an employee in each work

area. Samples should be averaged over an eight-hour workday.

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

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

Wetting Agents: Amended water (surfactant) is used for all asbestos removal and disposal activities. Airless sprayers are used to apply amended water during removal procedures. Elimination of asbestos from building or equipment surfaces is by wetted cloths, mops and other cleaning tools.

Work Area: The area where asbestos-related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. Work area is a Regulated Area as defined by 29 CFR 1926.

Work Hygiene Facilities: A decontamination system for workers, equipment and clothing. It consists of a clean room; shower room and decontamination room and is normally contiguous with an enclosure.

Wrap and Cut: Removal of TSI by first double wrapping insulated pipe section with 6-mil poly sheeting and sealing both ends. The pipe section can then be cut at either end and then removed. The wrapped waste must be properly labeled.