

EXHIBIT C

HAZARDOUS MATERIAL SPECIFICATIONS FOR REMEDIATION
CHULA VISTA HIGH SCHOOL
ADMINISTRATION BUILDING (ELEVATOR ADDITION PROJECT)
820 FOURTH AVENUE
CHULA VISTA, CALIFORNIA 91911

PREPARED FOR:



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PROJECT NO. 190537002

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SECTION 13280 - HAZARDOUS MATERIALS REMOVALS

PART 1 - GENERAL

1.1 PROJECT SITE

- A. The project site is at the Administration Building (limited areas for the Elevator Addition project) within the Chula Vista High School campus located at 820 Fourth Avenue in the City of Chula Vista, San Diego County, California (the Project Site). The building is planned for limited renovation activities as part of an Elevator Addition project by the SUHSD.

1.2 SCOPE OF WORK

Refer to drawings and instructions to bidders for building components to be impacted. Work areas shall include areas where hazardous materials are to be impacted, as outlined in the bid documents and drawings provided by the client and architect; *in conjunction with where hazardous materials are present as outlined in the "Limited Hazardous Materials Survey Report" for the Project Site dated July 31, 2019, prepared for SUHSD by Vista Environmental Consulting, Inc. (VISTA), SUHSD's Environmental (Hazardous Materials) Consultant.*

- A. The goal for this project is the limited renovation of the project site building. All hazardous materials which will be impacted during the modernization at the Project Site are to be removed as part of the modernization project.
- B. All removal and disturbance of asbestos-containing materials shall be performed by an asbestos abatement contractor, using 32-hour asbestos certified workers (Asbestos Worker trained as outlined in 40 CFR 763). Abatement contractor's workforce shall be supervised by experienced persons trained, knowledgeable and qualified in the techniques of asbestos abatement, handling and disposal of asbestos-containing and/or asbestos-contaminated materials, and the subsequent cleaning of contaminated areas, including, at a minimum, Competent Person/Contractor Supervisor training as outlined in 40 CFR 763.
- C. All removal and disturbance of lead-based materials shall be performed by a state-licensed contractor, using CDPH-certified workers with at least one CDPH-certified Supervisor. All removal and disturbance of lead-containing materials (not meeting the definition of "lead-based) as defined in 8 CCR 1532.1, shall be performed by a state-licensed contractor, using lead-trained workers with certification of training meeting the requirements of 8 CCR 1532.1. Abatement contractor's workforce shall be supervised by experienced persons trained, knowledgeable and qualified in the techniques of lead abatement, handling and disposal of lead-containing and/or lead-contaminated materials, and the subsequent cleaning of contaminated areas.
- D. For Cal/OSHA compliance purposes, all other painted, varnished, and glazed surfaces identified in the Hazardous Materials Survey Report as lead-containing surface coatings (LCSCs) require that contractors performing activities that will disturb these surfaces/materials comply with the requirements of 8 CCR 1532.1. These surfaces were identified in the above-referenced report to have detectable levels of lead, at concentrations less than 1.0 mg/cm² lead (the LBP standard) by X-Ray fluorescence.
- E. Contractor shall utilize employees with HAZWOPER training, as outlined in 29 CFR 1910.120 and 8 CCR 5192, when handling PCB-containing light ballasts and mercury switches.

- F. Contractor shall furnish all labor, materials, services, insurance (specifically covering the handling and transportation of asbestos, lead, and other hazardous materials), and equipment which is specified, shown or reasonably implied for the removal, transport, and disposal of the hazardous materials identified.
- G. The Work includes the removal, transport, and disposal of the following contaminated Materials:
 - 1. All hazardous materials to be impacted during the modernization of the Project Site as indicated on project drawings, project specifications and instructions to bidders.
 - 2. All materials used for work area preparation.
 - 3. All discarded personnel protective equipment.
 - 4. All other potentially contaminated materials.
- H. Other items of work shall include:
 - 1. As per agreement between Contractor and Owner.
- I. Replacement of removed materials:
 - 1. As per agreement between Contractor and Owner. Where replacement applies, replacement materials shall be free of asbestos, lead, and any other material deemed hazardous by the State of California.
- J. Furnishings, cabinets, moveable objects, and equipment temporarily removed to gain access to hazardous materials shall be reinstalled to original location upon completion of work, unless other arrangements and approval have been provided by the Owner.
- K. Damages caused during the performance of abatement activities shall be repaired by Contractor (e.g. paint peeled off by barrier tape, nail holes, water damage, etc.) at no additional expense to Owner, unless other arrangements and approval have been provided by the Owner.
- L. Listed quantities are for budgetary information and are not to be solely used for bidding purposes. The abatement contractor has the responsibility for confirming the location, quantity and degree of difficulty in removing the identified materials. Any discrepancies between the contractual bid set documents and site visits must be submitted in writing **PRIOR** to bidding.

1.3 WORK TO BE PERFORMED BY OTHERS

- A. As per Project Specifications.

1.4 RESPONSIBILITIES OF OWNER

- A. The Owner will provide daily oversight of and environmental monitoring surrounding the abatement/removal operations.
- B. The Owner will provide existing water, at no cost to the Contractor, for construction purposes, unless otherwise stated in the Owner's Bid Documents.

- C. The Owner will provide existing electrical power, at no cost to the Contractor, for construction purposes, unless otherwise stated in the Owner's Bid Documents.
- D. The abatement contractor shall coordinate with the Owner and/or school representatives for the location of equipment storage, staging and waste storage locations.

1.5 REQUIRED LICENSURE

- A. Contractor shall be licensed by the State of California, Contractors State License Board and be registered to perform asbestos related work with the Division of Occupational Safety and Health, Department of Industrial Relations. At a minimum contractor shall hold the following license classifications:
 - 1. ASB - Asbestos Certification or C-22 - Asbestos Abatement Certification
- B. Transportation of Friable and Non-Friable Asbestos Containing Materials: Contractor shall itself be or have a subcontractor who is a registered hazardous waste transporter with the State of California, Department of Toxic Substances Control.
- C. Subcontractors shall hold all licenses applicable to specified trade work.

1.6 PERMITS

- A. As required by California Division of Occupational Safety and Health (Cal/OSHA).
- B. As required by the San Diego Air Pollution Control District (SDAPCD), as applicable.
- C. As required by California Department of Public Health (CDPH), as applicable.
- D. As required by local agencies for specific tasks.

1.7 NOTIFICATIONS

- A. Contractor shall make all required written notifications to regulatory agencies including the following:
 - 1. Cal/OSHA
 - 2. SDAPCD, as applicable.
 - 3. CDPH, as applicable.

1.8 INSURANCE REQUIREMENTS

- A. *Contractor and all subcontractors shall maintain, at a minimum, workers compensation insurance at the statutory limits required. This shall, at a minimum, include the limits necessary to maintain their DOSH Asbestos Certification in good standing.*
- B. *Contractor shall maintain general liability insurance with a minimum rating of A RATING, with a limit of \$1 Million per occurrence and \$1 Million aggregate coverage, or per Contract or Owner's Requirements.*
- C. *Contractor shall maintain pollution and environmental liability insurance with the same limits and rating requirements as the general liability insurance requirements in Item 1.8.B, above.*
- D. *Contractor and all subcontractors shall maintain, at a minimum, auto insurance with a minimum rating of A RATING, and a limit of \$1 Million per occurrence and \$1 Million aggregate coverage, or per Contract or Owner's Requirements.*

1.9 BONDING REQUIREMENTS

- A. *Please refer to Sweetwater UHSD General Conditions and Requirements from Purchasing.*

1.10 PROJECT SCHEDULE

- A. Project Start Date: To Be Determined (TBD) Project Completion Date: TBD
- B. All work shall be performed as per agreement between Contractor and Owner.
- C. For the purposes of this Work Plan "submittal due date" shall mean the day on which submittals required by Article 1.12 shall be received by the Construction Manager, "start work" shall mean the day Contractor arrives on the project site, and "completion date" shall mean the day Contractor leaves the project site including final clearance testing and demobilization.
- D. Contractor to indicate the number and duration of shifts required to perform abatement as part of the bid document. Costs associated with hazardous materials abatement monitoring, beyond those pertaining to the project duration indicated in the Contractor's Bid, may be deducted from Contractor's Contract Amount.

1.11 APPLICABLE REGULATIONS

- A. Contractor shall perform all Work in compliance with the most recent edition of all applicable federal, state, and local regulations, standards and codes governing asbestos abatement, transport, and disposal of asbestos containing/contaminated materials, lead-based/containing surface coatings and contaminated materials, and all other hazardous materials.
1. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.
- B. Regulations, Standards, and Codes (General):
1. General applicability of federal, state, and local regulations, standards and codes governing hazardous materials abatement, demolition, transport, and disposal, except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable regulations, standards, and codes 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 herewith.
- C. 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, transport, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site.
1. The contractor is responsible for providing training, medical examinations and maintaining training/medical records of personnel as required by the applicable federal, state, and local regulations, including personal air monitoring for all work practices.
2. The Contractor shall hold the Owner and Project Environmental Consultant harmless

for failure to comply with any applicable hazardous materials abatement, transport, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

1.12 SUBMITTALS

- A. No later than five (5) days prior to commencement of work, Contractor shall submit (three copies, unless otherwise specified) to the Project Environmental Consultant documentation that includes, without limitation, the following:
1. Current Copies of licenses and registrations required by Article 1.5 Required Licensure (include copies of subcontractor's licenses).
 2. Copies of written notifications to the following regulatory agencies:
 - a. Cal/OSHA
 - b. SDAPCD, as applicable.
 - c. CDPH, as applicable.
 3. Current Proof of insurance coverage required by Article 1.8 Insurance Requirements (include proof of insurance for subcontractors).
 4. Current Proof that required permits, site location and arrangements for transport and disposal of asbestos containing waste materials have been made.
 5. Current Proof of legal right to use patented equipment or processes
 6. Current Manufacturer's certification that HEPA vacuums, differential pressure air filtration devices and other local exhaust ventilation equipment conform to ANSI Z9.2-79.
 7. Current Documentation showing that Contractor's employees, including foreman, 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 asbestos abatement activities, have received training as required by 29 CFR 1926.1101 and 8 CCR 1529.
 8. Current Documentation showing that Contractor's employees, including foreman, supervisor, and any other company personnel or agents who may be exposed to airborne lead dust or who may be responsible for any aspects of lead abatement activities, have received training as required by 29 CFR 1926.62 and 8 CCR 1532.1.
 9. Current Documentation from Physician (signed by an M.D.) showing that all employees or agents who may be exposed to airborne asbestos fibers in excess of background levels have received medical monitoring to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. 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.
 10. Current Documentation of respirator fit-testing for all Contractor employees and agents who must enter the work area. This fit-testing shall be conducted annually and in accordance with procedures as required by 29 CFR 1910.134 and 8 CCR 5144.

11. An emergency preparedness plan as required by Article 1.15 - Emergency Planning.
 12. Master schedule, showing phasing, number of shifts, time for air clearances, tear down and manpower loading to be utilized for the duration of the project.
 13. A site specific work plan based on scope of work. Include a diagram showing containment set-up, decontamination unit(s), location of negative air machine and exhaust placement.
- B. During abatement activities, Contractor shall submit to Project Environmental Consultant documentation that includes, without limitation, the following:
1. Copies of the work area entry/exit log book. Log book must record name, affiliation, time in, and time out for each entry into the work area.
 2. Copies of logs documenting filter changes on respirators, HEPA vacuums, differential pressure air filtration devices, water filtration device, and other engineering controls.
 3. Copies of Safety Data Sheets (SDS) for solvents, encapsulants, wetting agents, replacement materials, and other substances brought by Contractor to the Project Site. SDSs shall be available the first day that subject materials/substances are present on the project site.
 4. Results of all required OSHA compliance air monitoring. Results shall be available prior to the start of the following shift and within 72 hours of completion of the last shift.
 5. Copies of all accident/incident reports where injury or damage has occurred on or to the Owner's property.
 6. Copies of daily logs indicating location(s) worked, type of materials removed, quantity of materials removed and number of personnel conducting the aforementioned activities.
 7. Copies of all transport manifests, trip tickets and disposal receipts for all asbestos waste materials removed from the work area within 48 hours of the transport, to:

A. ***Sweetwater Union High School District
Ms. Heather A. McMillan
Planning Project Manager
Planning and Construction
1130 Fifth Avenue
Chula Vista, California 91911***
 8. Abatement contractor is responsible for profiling all waste streams at the start of the project. Results must be submitted to the Environmental Consultant for verification of proper disposal.

1.13 NOTICES

- A. Post in the clean room area of the worker decontamination enclosure a list containing the names, and telephone numbers of Owner, Construction Manager, Abatement Contractor, and Project Environmental Consultant.
- B. Post in the clean room area of the worker decontamination enclosure a list of all persons authorized to enter the work area.
- C. Additional postings shall include:
 - 1. Visitor Entry and Exit Log.
 - 2. Employee Daily Sign in Log.
 - 3. Entry and Exit Procedures.
 - 4. Emergency Procedures.
 - 5. Copies of permits required in Article 1.6 of this document and copies of notifications required in Article 1.7 of this document.
 - 6. As required by the Department of Labor.

1.14 SITE USE AND SECURITY

- A. Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond which areas on which work is indicated are not to be disturbed.
- B. The work area shall be restricted only to authorized, trained and protected personnel, including Contractor, Contractor's employees, Owner employees, Owner, Construction Manager, Project Environmental Consultant, State and Local Inspectors.
- C. Entry into the work area by unauthorized individuals shall be reported immediately to the Project Environmental Consultant.
- D. Contractor shall be responsible for Project site security during abatement operations in order to protect work efforts and equipment.

1.15 EMERGENCY PLANNING

- A. Emergency planning and procedures shall be developed by Contractor prior to abatement initiation.
- B. Emergency procedures shall be in written form and prominently posted. Contractor shall ensure that all persons entering the work area read these procedures and understand the Project site layout, location of emergency exits and emergency procedures.
- C. Emergency planning shall include considerations of fire, explosion, electrical hazards, slips, trips and falls, confined spaces, school emergencies and heat related injury. Written procedures shall be developed and employee training in procedures shall be provided by Contractor.
- D. Employees shall be trained in evacuation procedures in the event of work place emergencies.

1. For non-life-threatening situations, employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the work place to obtain proper medical treatment.
2. For life-threatening injury or illness, worker decontamination shall take least priority. After measures to stabilize the injured worker, remove him from the work place and secure proper medical treatment.
3. Telephone numbers of all emergency response personnel and map to closest hospital shall be prominently posted in the clean and equipment rooms.

1.16 FIRE PROTECTION

- A. All plastic, spray-on strippable coatings, and structural materials used in the asbestos abatement process shall be UL-approved and certified as fire retardant or noncombustible.
- B. Wood shall be pressure impregnated and certified as fire retardant.
- C. Safety Data Sheets (SDS) for fire retardant materials shall be made available upon request.
- D. All combustible rubbish and debris, including properly bagged asbestos shall be properly disposed of at the end of each working day.
- E. A minimum of one (1) 4A/60BC dry-chemical extinguisher shall be maintained at each of the following locations:
 1. At each corner of the work area. Where no clear corners exist, four (4) extinguishers shall be placed around the exterior wall of the work area so that they are approximately 25 percent of the total distance apart.
 - a. Exception: Where total contained work area is less than 1,000 square feet, two (2) 4A/60BC extinguishers shall be provided. All extinguishers shall be clearly identified with red tape.
 2. Contractor shall ensure that on site personnel are aware of the location and proper use of all extinguishers and other fire/life safety equipment.
- F. All existing fire detection, alarm systems, connections and standpipes shall remain in place, active and unobstructed. Any alteration to this equipment must be approved by Project Environmental Consultant.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Generally, Contractor shall carefully adhere to the following:
 1. All plastic, spray-on strippable coatings and structural materials used shall be UL-certified as fire retardant or non-combustible.

2. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and brand name (where applicable).
3. Fire-retardant polyethylene sheeting utilized for worker decontamination and construction/containment barriers shall be a minimum of six-mil in thickness.
4. Disposal bags shall be of six-mil polyethylene, pre-printed with labels as required by EPA regulation 40 CFR 61.152 (b) (I) (iv) or applicable Cal/OSHA requirements.
5. Stick-on labels as per EPA or Cal/OSHA requirements for disposal drums.
6. Warning signs as required by Cal/OSHA shall be utilized.
7. Disposal drums shall be 55-gallon DOT A1A (DOT 17H) with locking ring tops and will meet the requirements of 49 CFR 172-178.

B. Removal and Encapsulation:

1. Surfactant (wetting agent) shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent, mixed in proportion of 1 fluid ounce to 5 gallons.
2. The encapsulating agent to be applied shall adhere to the substrate surfaces from which asbestos-containing material has been stripped.
3. The encapsulating agent shall not be flammable and should not be solvent-based or utilize a vehicle (the liquid in which the solid parts of the encapsulant are suspended) consisting of hydrocarbon.
4. If utilized, mastic removal solvents shall **NOT** be or create a RCRA waste, and shall be of the low odor variety.

C. Replacement:

1. Submit manufacturers certification indicating that replacement materials (if used) do not contain asbestos or more than 600 parts per million (dry weight) of lead.

2.2 EQUIPMENT

A. General:

1. A sufficient quantity of HEPA vacuums and/or differential pressure air filtration devices equipped with HEPA filtration and operated in accordance with ANSI Z9.2-79 (local exhaust ventilation requirements) and EPA guidance document EPA 560/5-83-002 Guidance for Controlling Friable Asbestos Containing Materials in Buildings. To calculate total air flow requirement:

$$\text{Total ft}^3/\text{min} = \frac{\text{Vol. of work area (in ft}^3\text{)}}{15 \text{ min}}$$

To calculate the number of units needed for the abatement:

$$\text{Number of units needed} = \frac{[\text{total ft}^3/\text{min}]}{[\text{capacity of unit in ft}^3/\text{min}]}$$

2. At a minimum, full-face powered air-purifying respirators (PAPRs) with P-100 cartridges shall be utilized during all friable/Class I asbestos removal and for all removal of lead-containing paints/substances involving abrasive removal techniques.
3. At a minimum, half-face air-purifying respirators with P-100 cartridges shall be utilized during all ceramic tile or lead-containing paint removal/impact except abrasive removal, or for the removal of all non-friable/Class II asbestos removal.
4. Respirators shall be furnished to the abatement workers by Contractor. The respirators shall have been tested and approved by National Institute of Occupational Safety and Health (NIOSH) for use in asbestos atmospheres.
5. Full body disposable protective clothing, including head, body, and foot coverings shall be furnished to visitors in sizes adequate to accommodate movement without tearing.
6. Additional safety equipment as supplied in accordance with 8 CCR 1514 through 8 CCR 1522, (e.g. hard hats, eye protection, safety shoes, hand protection, hearing protection, body protection, etc.), as necessary, shall be furnished to all workers and authorized visitors.
7. Non-skid foot wear shall be furnished to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.
8. Furnish a sufficient supply of disposable mops, rags, and sponges for work area decontamination.

B. Removal:

1. A sufficient supply of scaffolds, ladders, lifts and hand tools (e.g., scrapers, wire cutters, brushes, utility knives, wire saws, etc.) shall be furnished as needed.
2. Rubber dustpans and rubber squeegees shall be furnished for cleanup.
3. Brushes utilized for removing loose asbestos-containing material shall have nylon or fiber bristles, not metal.
4. A sufficient supply of HEPA filtered vacuum systems shall be furnished during cleanup.

C. Encapsulation: Encapsulants shall be sprayed using airless spray equipment or hand pressurized sprayer.

D. Enclosure: Hand tools equipped with HEPA filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports if there is any need to disturb asbestos

containing materials during this process. As an alternative asbestos material may be partially removed following controlled removal procedures approved by the Project Environmental Consultant.

PART 3 - EXECUTION

3.1 CLASS I ASBESTOS REMOVAL WORK

The following procedures shall be utilized for all removal of friable and/or Class I ACM, and from non-friable ACM utilizing mechanical removal methods from all impacted areas.

- A. Contractor shall coordinate all items of work with the Project Environmental Consultant.
- B. Contractor shall shut down and lock out all heating, cooling, and air conditioning system (HVAC) components that are in supply or pass through the work area. In the event that there is any impact to the HVAC system (such as an air intake), the HVAC system shall remain off during the project.
- C. Contractor shall shut down and lock out electric power to all Work Areas. Contractor shall provide temporary power and lighting sources, insure safe installation of temporary power sources and equipment by compliance with all applicable electrical code requirements and Cal/OSHA requirements for temporary electrical systems. Protect each circuit with a Ground Fault Circuit Interrupter (GFCI) of proper size located in the temporary panel.
- D. Install worker decontamination unit described in Article 3.8 or as agreed upon with Project Environmental Consultant.
- E. Post warning signs meeting the specifications of 8 CCR 1529, 8 CCR 5208, and 29 CFR 1926.1101, at any location and approaches to a location where airborne concentration of asbestos fibers may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from a work area to permit a person to read the sign and take necessary protective measures to avoid exposure.
- F. Asbestos Handlers shall don personnel protective equipment as required in Article 2.2 - Equipment.
- G. Pre-clean all vertical and horizontal surfaces within the work area using a HEPA-filtered vacuum and/or wet cleaning techniques, as appropriate. Contractor shall not use any methods that would raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, and shall not disturb asbestos-containing materials during the pre-cleaning phase.
- H. Seal off all windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and any other openings between the Work Area and uncontaminated areas outside of the Work Area with two layers six-mil fire retardant polyethylene sheeting and tape.
- I. Cover floors in the area, as follows (cover floors where flooring finishes, such as floor tile and/or mastic, are to be removed, during Class I activities).

1. Two layers of six-mil (minimum) sheeting. Additional layers of sheeting may be utilized as a drop cloth to aid in cleanup of bulk materials, and/or to ensure protection from water leaks.
 2. Containment plastic shall be sized to minimize seams. If the floor area necessitates seams, those on successive layers of sheeting shall be staggered to reduce the potential for water to penetrate to the flooring material. A distance of at least 6 feet between seams is sufficient. Do not locate any seams at wall/floor joints.
 3. Floor sheeting shall extend at least 12" up the side walls of the Work Area.
 4. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material.
- J. Cover all immovable items (plumbing, etc.) and/or construct walls in the Work Area with fire retardant polyethylene sheeting and seal with duct tape. Walls that will be demolished do not necessarily need protection (check with Project Environmental Consultant). Walls shall be decontaminated using HEPA vacuums and wet cleaning techniques. Walls with mortar joints (e.g., tile) are considered porous. Openings through these walls, including louvers in Mechanical Rooms, must be sealed by critical barriers.
1. Walls shall be covered with two layers six-mil fire-retardant polyethylene sheeting (sealed airtight with duct tape).
 2. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet.
 3. Wall sheeting shall overlap floor sheeting by at least 12 inches beyond the wall/floor joint to provide a better seal against water damage and for negative pressure.
 4. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This will require additional support/attachment when Negative Pressure Ventilation Systems area utilized.
 5. Where necessary for structural support, plywood sheeting and/or 2x4 lumber shall be utilized to ensure the structural integrity of the containment and critical barriers.
 6. Fire exits shall be clearly labeled as required by Regulations.
- K. Install the minimum number of 2' x 3' clear view windows that will provide visual access to ALL areas of each enclosure.
- L. Install and initiate operation of negative pressure air filtration differential as required in Article 2.2 - Equipment. Negative pressure differential shall be at a minimum of -0.02" of water column at all times during asbestos removal operations.
- M. Install and maintain a manometer equipped with a strip chart recorder. Manometer shall be capable of detecting at least 0.02" of water column.
- N. The Contractor shall carry out all asbestos removal activities in a manner that will minimize pulverizing, breaking or creation of dust. Generally, manual removal methods will be preferred, although larger systems, such as power washers, are acceptable, as long as they are equipped with proper HEPA-filtration equipment and do not create an undue hazard.

- O. Keep the ACM's being removed wet throughout removal operations by the use of an airless sprayer. In the event that visible dust is generated during the abatement process, also mist the air within containment periodically with water or an amended water solution with an airless sprayer to reduce airborne asbestos fiber concentrations.
- P. Once all removal activities have been completed, clean-up of the work areas shall be conducted in accordance with Article 3.7 - Clean-Up.
- Q. Encapsulate entire work area with a penetrating and/or lock-down type encapsulant following acceptance of clean-up activities.
- R. Dispose of all asbestos containing/contaminated waste in accordance with Article 3.9 - Disposal Procedures.

3.2 CLASS II ASBESTOS REMOVAL WORK - GENERAL

The following procedure shall be utilized for all removal of non-friable/Class II ACM from all impacted areas. Class II removal of roofing products is addressed in Article 3.3, below.

- A. Contractor shall coordinate all items of work with the Project Environmental Consultant.
- B. Contractor shall shut down and lock out all heating, cooling, and air conditioning system (HVAC) components that are in supply or pass through the work area. In the event that there is any impact to the HVAC system (such as an air intake), the HVAC system shall remain off during the project.
- C. Contractor shall shut down and lock out electric power to all Work Areas. Contractor shall provide temporary power and lighting sources, insure safe installation of temporary power sources and equipment by compliance with all applicable electrical code requirements and Cal/OSHA requirements for temporary electrical systems. Protect each circuit with a Ground Fault Circuit Interrupter (GFCI) of proper size located in the temporary panel.
- D. Install worker decontamination unit described in Article 3.8 or as agreed upon with Project Environmental Consultant.
- E. Post warning signs meeting the specifications of 8 CCR 1529, 8 CCR 5208, and 29 CFR 1926.1101, at any location and approaches to a location where airborne concentration of asbestos fibers may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from a work area to permit a person to read the sign and take necessary protective measures to avoid exposure.
- F. Asbestos Handlers shall don personnel protective equipment as required in Article 2.2 - Equipment.
- G. Pre-clean all vertical and horizontal surfaces within the work area using a HEPA-filtered vacuum and/or wet cleaning techniques, as appropriate. Contractor shall not use any methods that would raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, and shall not disturb asbestos-containing materials during the pre-cleaning phase.

- H. Seal off all windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and any other openings between the Work Area and uncontaminated areas outside of the Work Area with two layers six-mil fire retardant polyethylene sheeting and tape.
- I. Cover floors in the area of vapor barrier removal with fire retardant polyethylene sheeting (do not cover floors where flooring finishes, such as floor tile and/or mastic, are to be removed).
 - 1. A single layer of six-mil (minimum) sheeting. Additional layers of sheeting shall be utilized as a drop cloth to aid in cleanup of bulk materials.
 - 2. Containment plastic shall be sized to minimize seams. If the floor area necessitates seams, those on successive layers of sheeting shall be staggered to reduce the potential for water to penetrate to the flooring material. A distance of at least 6 feet between seams is sufficient. Do not locate any seams at wall/floor joints.
 - 3. Floor sheeting shall extend at least 12" up the side walls of the Work Area.
 - 4. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material.
- J. Cover all immovable items (plumbing, etc.) and/or construct walls in the Work Area with fire retardant polyethylene sheeting. Walls that will be demolished do not necessarily need protection (check with Project Environmental Consultant). Walls shall be decontaminated using HEPA vacuums and wet cleaning techniques. Walls with mortar joints (e.g., tile) are considered porous. Openings through these walls must be sealed by critical barriers.
 - 1. Walls shall be covered with two layers six-mil fire-retardant polyethylene sheeting (sealed airtight with duct tape).
 - 2. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet.
 - 3. Wall sheeting shall overlap floor sheeting by at least 12 inches beyond the wall/floor joint to provide a better seal against water damage and for negative pressure.
 - 4. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This will require additional support/attachment when Negative Pressure Ventilation Systems area utilized.
 - 5. Fire exits shall be clearly labeled as required by Regulations.
- K. Install the minimum number of 2' x 3' clear view windows that will provide visual access to ALL areas of the enclosure.
- L. Install and initiate operation of negative pressure air filtration differential as required in Article 2.2 - Equipment. Negative pressure differential shall be at a minimum of -0.02" of water column at all times during asbestos removal operations.

- M. Install and maintain a manometer equipped with a strip chart recorder. Manometer shall be capable of detecting at least 0.02" of water column.
- N. The Contractor shall carry out all asbestos removal activities in a manner that will minimize pulverizing, breaking or creation of dust. Generally, manual removal methods will be preferred, although larger systems, such as bead-blasters for mastic removal activities, are acceptable, as long as they are equipped with proper HEPA-filtration equipment.
- O. Keep the ACMs being removed wet throughout removal operations. In the event that visible dust is generated during the abatement process, also mist the air within containment periodically to reduce airborne asbestos fiber concentrations.
- P. Once all removal activities have been completed, clean-up of the work areas shall be conducted in accordance with Article 3.7 - Clean-Up.
- Q. Encapsulate entire work area with a penetrating and/or lock-down type encapsulant following acceptance of clean-up activities.
- R. Dispose of all asbestos containing/contaminated waste; debris shall be kept wet at all times and be bagged while wet in accordance with Article 3.9 - Disposal Procedures.

3.3 CLASS II ASBESTOS REMOVAL WORK – ROOFING PRODUCTS

The following procedure shall be utilized for all removal of non-friable/Class II asbestos-containing roofing products.

- A. Contractor shall coordinate all items of work with the Project Environmental Consultant.
- B. Contractor shall shut down and lock out all heating, cooling, and air conditioning system (HVAC) components that are in supply or pass through the work area. In the event that there is any impact to the HVAC system (such as a fresh air intake), the HVAC system shall remain off during the project.
- C. Contractor shall shut down and lock out electric power to all Work Areas. Contractor shall provide temporary power and lighting sources, ensure safe installation of temporary power sources and equipment by compliance with all applicable electrical code requirements and Cal/OSHA requirements for temporary electrical systems. Protect each circuit with a Ground Fault Circuit Interrupter (GFCI) of proper size located in the temporary panel.
- D. Install worker decontamination unit described in Article 3.8 or as agreed upon with Project Environmental Consultant. If installation cannot occur on the roof, installation shall occur as close to the roof access as possible, with polyethylene sheeting laid-down between the decontamination unit and the roof access.
- E. Post warning signs meeting the specifications of 8 CCR 1529, 8 CCR 5208, and 29 CFR 1926.1101, at any location and approaches to a location where airborne concentration of asbestos fibers may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from a work area to permit a person to read the sign and take necessary protective measures to avoid exposure (generally, at roof accesses, or at least twenty feet from removal, if on roof).

- F. Asbestos Handlers shall don personnel protective equipment as required in Article 2.2.A. Double-suiting is recommended if decontamination unit is not on roof.
- G. Pre-clean all vertical and horizontal surfaces within the work area using a HEPA-filtered vacuum and/or wet cleaning techniques, as appropriate. Generally, this will include roof-mounted duct work and equipment only; there is no need to pre-clean surfaces to be removed. Contractor shall not use methods that would raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, and shall not disturb asbestos-containing materials during the pre-cleaning phase.
- H. Seal off all windows, doorways, drains, ducts, skylights, roof penetrations, and any other openings between the Work Area and uncontaminated areas outside of the Work Area with six-mil fire retardant polyethylene sheeting and tape.
- I. Cover all immovable items (plumbing, etc.) and/or construct walls around immovable objects with fire-retardant polyethylene sheeting. Walls, where present, shall be decontaminated using HEPA vacuums and wet cleaning techniques. Walls with mortar joints (e.g., tile) are considered porous. Openings through these walls must be sealed by critical barriers.
 - 1. Walls shall be covered with six-mil fire-retardant polyethylene sheeting (sealed airtight with duct tape).
 - 2. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet.
 - 3. Wall sheeting shall overlap floor sheeting by at least 12 inches beyond the wall/floor joint to provide a better seal against water damage and for negative pressure.
 - 4. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This will require additional support/attachment when Negative Pressure Ventilation Systems area utilized.
 - 5. Fire exits shall be clearly labeled as required by Regulations.
- J. The Contractor shall carry out all asbestos removal activities in a manner that will minimize pulverizing, breaking or creation of dust. Generally, manual removal methods will be preferred, although larger systems, such as mechanical shears for cutting membranes into strips, are acceptable, as long as they are equipped with proper shrouding and HEPA-filtration equipment.
- K. Keep the ACM's being removed wet throughout removal operations. In the event that visible dust is generated during the abatement process, also mist the air within regulated area periodically to reduce airborne asbestos fiber concentrations.
 - 1. Bags of asbestos waste shall not be dropped or thrown from the roof, but carefully lowered to the ground.
- L. Once all removal activities have been completed, clean-up of the work areas shall be conducted in accordance with Article 3.7 - Clean-Up.

- M. Encapsulate entire work area with a penetrating and/or lock-down type encapsulant following acceptance of clean-up activities.
- N. Dispose of all asbestos containing/contaminated waste in accordance with Article 3.9 - Disposal Procedures.

3.4 CLASS III ASBESTOS DISTURBANCE

Asbestos-related disturbance is the drilling, coring, removal or similar disturbance of asbestos-containing construction materials (ACCM) or asbestos-containing materials (ACM) not to exceed three (3) square feet in any one opening and not to disturb 100 square feet or greater cumulatively on any one project (contract). Asbestos-related disturbance work is considered to be Class III work in accordance with Title 8, Section 1529 (Asbestos) of the California Code of Regulations. In the event that disturbance greater than 3 square feet or 100 square feet total is required, the asbestos-related work shall be considered Class I or Class II asbestos abatement and require the use of an asbestos abatement contractor using 40-hour asbestos-trained workers and notification to the San Diego Air Pollution Control District (SDAPCD) per Regulation XI, Subpart M, Rule 361.140, et seq., as required, (See Sections 3.1, 3.2, and 3.3 of this specification).

- A. Minor disturbance activities must be performed, at a minimum, by personnel possessing current 16-hour asbestos operations and maintenance (O & M) training. ACM waste must be disposed of as hazardous/non-hazardous asbestos-containing waste. ACCM waste generated during minor disturbances can be disposed of as non-regulated construction waste.
- B. The following buildings will have ACM or ACCM impacted by drilling and coring during the planned Modernization Project
 - Refer to drawings and instructions to bidders for building components to be impacted.
- C. Shut off air handling equipment to rooms where work will occur.
- D. Demarcate the work area with plastic "Caution" tape. Provide and post signs at the entrance to the work area affected. The signs shall comply with Cal/OSHA regulations.
- E. Clean the area immediately under the location to be disturbed.
- F. Move any moveable furniture or objects from immediately beneath the area to be disturbed.
- G. At a minimum, 6-mil plastic sheeting shall be placed on the floor below the work area. The plastic sheeting will be secured to the closest wall and floor surface with tape. The plastic sheeting shall extend away from the work area a sufficient distance so that debris is confined to the plastic and that debris is not tracked onto adjoining flooring or carpeted surfaces.
- H. For Class III disturbances requiring the cutting of an opening of 1 square foot or greater, but less than 3 square feet, through ACM or ACCM, or into an asbestos-contaminated space, provide an enclosure around the area of disturbance. This may include, but is not limited to:
 - 1. Mini-enclosure where not more than two persons may occupy for the purpose cutting holes in walls or ceilings.
 - 2. For drilling, coring, sawing or similar disturbance, an enclosure shall be placed over the area

of disturbance of sufficient size to cover that area and contain the tools used. This can include drilling with a shroud, through a wet sponge, through a plastic enclosure, or similar designs which will ensure control of Asbestos fibers and other dust. Drilling or coring with the use of a vacuum collection device shall be equipped with a HEPA filter.

- I. A HEPA-equipped vacuum shall be used for all disturbance, decontamination, and debris clean-up work.

3.5 LEAD IMPACTS – REMOVAL/DEMOLITION

This section applies to the removal of lead-bearing substances.

- A. Post warning signs meeting the specifications of 8 CCR 1532.1 and 29 CFR 1926.62 at any location and approaches to a location where airborne concentrations of lead dust may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from a work area to permit a person to read the sign and take necessary protective measures to avoid exposure. Barrier tape shall be utilized in conjunction with signs for exterior removal activities, to delineate the extent of regulated work areas.
- B. Prepare appropriate fall protection systems in accordance with the requirements of Title 8 California Code of Regulations, Sections 1669, 1670, 1724 and anchoring guidance from Title 8 California Code of Regulations, Section 3283 (where applicable).
- C. Install worker decontamination unit described in Article 3.8 or as agreed upon with Project Environmental Consultant.
- D. Lead-containing materials (LCM) handlers involved in removal procedures shall wear two disposable Tyvek suits, including gloves, hood and footwear. Minimum respiratory protective equipment shall be half-face air-purifying respirators equipped with P100 filters. Upon exiting the work area the handlers shall HEPA vacuum all visible debris from the outer suit, dispose of it as lead-contaminated waste, and proceed through the decontamination unit for full decontamination.
- E. Isolate work area by installing critical barriers or curtained doorways across all openings where airborne lead dust migration may cause secondary lead contamination (for work where components will be removed relatively intact, such as doors, downspouts, and wood trim, drop cloths will suffice).
- F. Cover floors in each work with fire retardant polyethylene sheeting (do not cover floors where flooring finishes, such as ceramic flooring, for example, are to be removed).
 - 1. A single layer of six-mil (minimum) sheeting.
 - 2. Containment plastic shall be sized to minimize seams.
 - 3. Where multiple layers of floor poly are utilized, sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material.
- G. Cover all immovable items and/or construct walls in the Work Area with fire retardant polyethylene sheeting. Walls that will be demolished do not necessarily need protection (check with Project Environmental Consultant).

1. Walls shall be covered with six-mil fire-retardant polyethylene sheeting (sealed airtight with duct tape).
 2. Plastic shall be sized to minimize seams.
 3. Wall sheeting shall overlap floor sheeting by at least 12 inches beyond the wall/floor joint to provide a better seal for negative pressure.
 4. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when Negative Pressure Ventilation Systems area utilized.
 5. Fire exits shall be clearly labeled with red tape or equivalent.
- H. Where manual demolition is employed for lead removal, such as ceramic tile demolition (for example), periodically mist the work area and materials to be impacted to maintain a wet condition and avoid the creation of airborne dust, which may carry lead.
- I. The Contractor shall carry out all impacts to lead-based surface coatings in a manner that will minimize pulverizing, breaking, abrading, or in any other way impacting lead-containing paints and generating airborne lead-containing dust.
- J. Once all removal activities have been completed, clean-up of the work areas shall be conducted in accordance with Article 3.7 - Clean-Up.
- K. Dispose of all lead-containing/contaminated waste in accordance with Article 3.9 - Disposal Procedures.

3.6 UNIVERSAL WASTE RULE IMPACTS (REFRIGERANTS, PCBs, Etc.)

This section applies to the removal of all Universal Waste Rule items, such as fluorescent light fixture ballasts, non-incandescent lamps (fluorescent light tubes), mercury switches, as well as other commonly encountered items, such as refrigerants.

- A. All fluorescent light fixtures to be disposed of shall be disassembled in a non-destructive manner. All fluorescent light tubes shall be removed intact, packaged, and disposed of in accordance with Title 22 of the California Code of Regulations, Sections 66243, et seq., and Sections 25157.8, et al, of the California Health and Safety Code.
- B. Once fluorescent light tubes have been removed from light fixtures to be disposed of, ballasts shall be visually inspected. All ballasts which are not clearly marked “No PCBs” or “PCB Free” shall be assumed to contain PCBs, and shall be removed intact, packaged, and disposed of in accordance with Title 22 of the California Code of Regulations, Sections 66243, et seq., and Sections 25157.8, et al, of the California Health and Safety Code. Any ballasts which are observed to be leaking shall be containerized, and shall be disposed via incineration as per 40 CFR 761. ***In spite of the small capacitor variance, land disposal of PCB-containing ballasts shall not be considered an acceptable disposal method, under any circumstances.***
- C. Mercury switches identified in thermostat controls and/or any other electrical switching equipment to be demolished shall be removed intact, packaged, and disposed of in accordance with Title 22 of the California Code of Regulations, Sections 66243, et seq., and Sections

25157.8, et al, of the California Health and Safety Code. *The Owner's preferred method of disposal shall be recycling.*

- D. All identified refrigerants shall be collected and disposed of in accordance with all applicable SDAPCD and federal EPA guidelines. *The Owner's preferred method of disposal shall be recycling.*
- E. All other Universal Waste Rule wastes shall be removed intact, where feasible, and shall be packaged and disposed of in accordance with Title 22 of the California Code of Regulations, Sections 66243, et seq., and Sections 25157.8, et al, of the California Health and Safety Code.

3.7 CLEAN-UP PROCEDURES

- A. Remove and containerize all visible accumulations of asbestos-containing material, LCM, and asbestos/lead-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 within contained work areas.

Asbestos-containing/contaminated waste shall be placed in leak tight disposal bags. Disposal bags shall be doubled six-mil polyethylene, pre-printed with labels as required by EPA regulation 40 CFR 61.152 (b) (I) (iv), Cal/OSHA (Title 8 CCR Sections 1529 and 5208), SDAPCD Regulation XI, Subpart M, Rule 361.140, et seq., and if applicable Title 22 CCR Section 66504. Lead-containing wastes shall be containerized in 55-gallon steel drums with labels as required by 8 CCR 1532.1 and 22 CCR 66504.

All other hazardous wastes shall be containerized as appropriate and disposed of in a manner that satisfies the requirements for waste characterization and disposal in accordance with the requirements of Title 22 of the California Code of Regulations, Sections 66243, et seq., and Sections 25157.8, et al, of the California Health and Safety Code.

- B. Whether cleaning an asbestos work area or a lead work area (or both), wet clean all surfaces in the work area utilizing rags, mops and sponges, and clean all horizontal surfaces within each work area with a HEPA-vacuum, as appropriate.
- C. Remove the cleaned layer of polyethylene sheeting from floors and walls, as applicable. Windows, doors, HVAC system vents and all other openings (critical barriers, if employed) shall remain sealed. Dispose of as asbestos-contaminated or lead-contaminated as appropriate to the work area in question.
- D. After gross cleaning of the work area, HEPA-vacuum and wet clean all objects and surfaces in the work area are completed, remove all containerized waste from the work area.
- E. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.
- F. Project Environmental Consultant will inspect the work area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and/or lead, as appropriate to the work area, and a second settling period and cleaning cycle repeated at no additional cost to Owner.
- G. Following the satisfactory completion of clearance air monitoring or clearance wipe testing, the remaining barriers may be removed and prepared for proper disposal. A final visual inspection by Project Environmental Consultant will be performed. Unsatisfactory conditions

may require additional cleaning and air monitoring/wipe sampling, at no additional cost to Owner.

3.8 WORKER DECONTAMINATION SYSTEMS

- A. Worker decontamination enclosure systems shall be provided at all locations where workers will enter or exit the work area. At a minimum, one three-stage system at a single location is required. Each work area where negative pressure enclosure is the selected method of engineering controls shall have a worker decontamination unit.
- B. Worker decontamination enclosure systems constructed at the Project site shall utilize six-mil, fire-retardant polyethylene sheeting, or other approved materials for privacy.
- C. Personnel Decontamination Units shall not be located inside the work area(s) unless specifically authorized by the Project Environmental Consultant.
- D. Alternate methods of providing Decontamination facilities may be submitted to the Project Environmental Consultant for approval. Do not proceed with any such method(s) without the written authorization.
- E. The worker decontamination enclosure system shall consist of at least a cleansing station in accordance with the requirements of 8 CCR 1527 and 8 CCR 1529, equipped with adequate water, towels and cleansing agents to accommodate the entire crew and visitors.

3.9 DISPOSAL PROCEDURES

- A. All friable asbestos waste shall be disposed of as Hazardous, Friable Asbestos Waste. All non-friable asbestos waste shall be disposed of as Non-Hazardous, Non-Friable Asbestos Waste. Contractor is responsible for characterization of lead waste prior to waste being transported off site. All waste characterization samples must be taken under the supervision of the Project Environmental Consultant. Characterization sample results must be submitted to the District for review prior to waste being transported off site.

All lead waste shall be either disposed of as construction debris (if STLC/TCLP results allow) or lead-containing waste (with attendant RCRA codes, if STLC/TCLP results so require).

All asbestos-containing waste shall be placed and stored in clear, sealed, leak-tight and appropriately labeled containers, in accordance with 8 CCR 1529 and SDAPCD Regulation XI, Subpart M, Rule 361.140, et seq., and transported to an appropriate landfill for disposal.

- B. All lead wastes shall be either disposed of as construction debris (if STLC/TCLP results allow) or lead-containing waste (with attendant RCRA codes, if STLC/TCLP results so require).
- C. All hazardous wastes (including non-hazardous asbestos wastes) must be disposed of by a certified waste hauler approved by the Owner.
- D. Arrange for proper disposal of any generated hazardous waste stream through an Owner-approved waste disposal facility.
- E. Obtain the EPA Hazardous Waste Generator Identification Number and State of California Hazardous Waste Tax Identification Number from the Owner.
- F. All hazardous waste manifests or non-hazardous material data forms shall be delivered to the

Project Environmental Consultant. Record keeping format shall utilize a chain of custody form which includes the names and addresses of the Generator (Owner), Contractor, Waste Hauler, pickup site, disposal site, the estimated quantity of the asbestos waste and the type of containers used. The form shall be signed by the Generator, Contractor, Waste Hauler and the Disposal Site Operator, as the responsibility for the material changes hands.

3.10 REESTABLISHMENT OF THE WORK AREAS

- A. Reestablishment of the work area shall only occur following the completion of clean-up procedures and after clearance air monitoring has been performed and documented to the satisfaction of Project Environmental Consultant.
- B. Contractor and Project Environmental Consultant shall visually inspect the work area for any remaining visible residue. Evidence of contamination will necessitate additional cleaning and air monitoring requirements at no additional cost to Owner, until approved by PEC.
- C. Upon approval by Project Environmental Consultant, the Contractor shall remove remaining fire retardant polyethylene sheeting, critical barriers, and decontamination unit.
- D. Repair all areas of damage that occurred as a result of abatement activities at no additional cost to Owner, unless other arrangements and approval have been provided by the Owner.

3.11 ENVIRONMENTAL MONITORING

Stop work order due to inefficiencies:

If, at any time, SUHSD Representative or Project Environmental Consultant decides work practices are violating Specifications, or, Federal or local regulations to extent of potential endangerment of building users, workers, SUHSD Representative, employees or public, he will immediately notify Contractor (followed up in writing) that operations shall cease until corrective action is taken by Contractor. Contractor shall take such corrective action before proceeding with work. Loss or damage due to Stop Work Order(s) shall be Contractor's responsibility. A Stop Work Order, issued by SUHSD's Representative or Project Environmental Consultant shall become effective immediately.

- A. Air monitoring will be carried out by the Project Environmental Consultant on behalf of the Owner to verify that the building beyond the contamination area and the outside environment remains uncontaminated.
- B. Background Air Monitoring:
 - 1. The Project Environmental Consultant will conduct pre-abatement air monitoring to determine ambient fiber levels prior to abatement. The analytical method shall utilize Phase Contrast Microscopy (PCM) using the NIOSH 7400 Method.
- C. Area Air Monitoring: The Project Environmental Consultant will conduct in-progress air monitoring daily to determine area airborne contaminant concentrations within the confines of the work area.
 - 1. Environmental Air Sampling: Ambient air samples are taken and analyzed to indicate fiber migration from containment to the environment. Should any environmental sample outside work areas exceed the base line of 0.01 f/cc of air, or established

background concentrations as determined by PCM analysis, all work will immediately halt except for corrective work. The PEC shall determine the source of the high fiber count and notify the contractor with directions for the corrective action.

D. Clearance Air/Wipe Monitoring:

1. Following the completion of final clean-up operations, notify the Project Environmental Consultant that work areas are ready for final inspection and clearance air monitoring.
2. Project Environmental Consultant will then sample the air in the work area for airborne fiber concentrations.
3. Phase Contrast Microscopy (PCM): In each homogeneous work area after completion of all cleaning work, a minimum number of samples will be collected and analyzed in accordance with the NIOSH 7400 Methodology as follows:

For work areas less than 160 square feet or 260 linear feet:

- a. 5 interior aggressive air samples, 1 field blank sample and 1 lab blank sample for areas that had asbestos-containing materials removed.
 - b. Release Criteria: Decontamination of the work site is complete when each sample analyzed reveals airborne asbestos fiber concentrations are below 0.01 f/cc.
 - c. If these conditions are not met then the decontamination is incomplete and the cleaning procedures noted in Article 3.7 above shall be repeated. The area shall be re-tested at no additional cost to Owner until satisfactory levels are obtained.
4. Transmission Electron Microscopy (TEM): In each homogeneous work area after completion of all cleaning work, a minimum number of samples MAY be collected and analyzed by TEM in accordance with the requirements of 40 CFR Part 763, Subpart E (AHERA) as follows:

For work areas equal to or greater than 160 square feet or 260 linear feet:

- a. 5 interior aggressive air samples, 1 field blank sample and 1 lab blank sample for areas that had asbestos-containing materials removed.
- b. Release Criteria: Decontamination of the work site is complete when the average of the interior samples reveals that airborne asbestos fiber concentrations are below 70 structures/mm².
- c. If these conditions are not met, decontamination shall be deemed incomplete, and the cleaning procedures noted in Article 3.7 above shall be repeated. The area shall be re-cleaned and re-tested at no additional cost to Owner until satisfactory levels are obtained.

5. For work associated with Lead-Based Paints/Lead-Bearing Substances, dust-wipe sampling and release criteria shall be performed within the controlled work areas following completion of all lead-related impact and decontamination efforts as set forth by CDPH in 17 CCR 35001, et. Seq., and U.S. HUD's "Revised Dust-Lead Action Levels for Risk Assessment and Clearance; Clearance of Porch Floors," dated February 16, 2017.
 - a. Release Criteria: Decontamination of the work site is complete when each of at least two samples per work area are analyzed and reveal lead dust concentrations below 10 micrograms of lead per square foot of area on interior floors; below 40 micrograms of lead per square foot of area on exterior floors at entry points; and below 400 micrograms of lead per square foot of area on other exterior floors.
 - b. If these conditions are not met then the decontamination is incomplete and the cleaning procedures noted in Article 3.7 above shall be repeated. The area shall be re-tested at no additional cost to Owner until satisfactory levels are obtained.

3.12 OSHA PERSONAL AIR MONITORING:

- A. **Worker exposure personal air monitoring and laboratory analysis required by OSHA is the responsibility of the contractor. The contractor is responsible for providing daily OSHA compliance monitoring as per 29 CFR 1926.1101, 8 CCR 1529 for asbestos and 29 CFR 1926.62 and 8 CCR 1532.1 for lead.**

A "negative exposure assessment (NEA)" will NOT be accepted to remove respiratory protection since respiratory protection is required at ALL times during asbestos and lead-based paint abatement and removal activities, per the direction of the Project Environmental Consultant.

1. At minimum, Contractor shall conduct representative (25% of crew) breathing zone personal air monitoring of its employees twice each shift and repeated daily, as derived in accordance with 29 CFR 1926.1101 (f)(2)(iii) and 8 CCR 1529 for asbestos, and 8 CCR 1532.1 for lead.
2. Monitoring shall be conducted by a qualified air professional experienced and knowledgeable about the methods of air monitoring and in accordance with 29 CFR 1926.1101, 8 CCR 1529 and 8 CCR 1532.1.
3. Monitoring results and appropriate laboratory analysis work shall be submitted to Project Environmental Consultant **within 72 hours of the monitoring work.**

3.13 ALTERNATIVE PROCEDURES

- A. If specified procedures cannot be utilized, a request shall be made in writing to Project Environmental Consultant providing details of the problem encountered and recommended alternatives.

- B. The removal of all “other” hazardous materials shall be handled as an alternative procedure. Contractor shall submit a work plan for the removal, handling, and disposal of all “other” hazardous materials, including but not limited to fluorescent light ballasts and tubes, mercury switches, refrigerants, batteries, and radioactive smoke detector sources. Work described in said work plan(s) shall not commence until the work plan has been accepted and approved, in writing, by Project Environmental Consultant.
- C. Alternative procedures shall provide equivalent or greater protection than procedures that are replaced.
- D. Any alternative procedure must be approved in writing by the Project Environmental Consultant prior to the implementation of the procedure.

NOTES:

- ***VISTA’s ESTIMATED quantities ARE NOT to be solely used for the purpose of bidding on this project. It is the responsibility of the Contractor to verify quantities and locations through site visit(s) and drawing take-off’s. Any discrepancies between the documentation and the site visit must be submitted to the Owner or Owner’s representative in writing PRIOR to bidding.***

Respectfully Submitted,

Vista Environmental Consulting, Inc.



Stephen S. Reese

Senior Project Manager

Certified Asbestos Consultant #05-3853 (expires 9/22/2019)

CDPH Lead Inspector-Assessor/Project Monitor #13938 (expires 11/25/2020)

End of Section 13280