



HAZARDOUS MATERIALS ABATEMENT SPECIFICATIONS

**Foothills Adult Center
Main Building
1550 Melody Lane
El Cajon, California 92019**

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Project Number: 081417-OT

Prepared For:

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Identified Asbestos-Containing Materials Foothills Adult Center - Main Building 1550 Melody Lane, El Cajon, California 92019									
Sample No.	Sample Locations	Material Description	Class	Friable/ Non Friable	Condition (G, D, SD, SMD)	Material Location(s)*	Estimated Quantity*	Analytical Results	Cat.
0102-01-01	S End E Wall Room #8	White Wallpaper / Drywall and Joint Compound	Misc.	NF	G	Throughout Main Building	40,250 SF	<1% Chrysotile (Joint Compound) None Detected (Drywall, Wallpaper)	Class I
0102-01-02	N End E Wall Room #11								
0102-01-03	Center W Wall Receptionist								
0102-01-04	S End W Wall Room #2								
0102-01-05	N End E Wall Auditorium								
0102-01-06	E End N Wall Room #14								
0102-01-07	Center S Wall Room #7								
0102-15-49	S End Room #10 Floor	12"x12" Off-White with Green Spots Floor Tile (Bottom Layer)	Misc.	NF	G	Within Room #7,8,9,10,11, Copy Room, Textbook Room, Supply Room	7,000 SF	5% Chrysotile (Mastic) 2% Chrysotile (Floor Tile)	Class I
0102-15-50	S End Supply Room Floor								
0102-15-51	S End Textbook Room Floor								
0102-16-52	S End Room #10 Floor	Black Floor Tile Mastic (Bottom Layer)	Misc.	NF	G	Within Room #7,8,9,10,11, Copy Room, Textbook Room, Supply Room	7,000 SF	8% Chrysotile	Class I
0102-16-53	S End Supply Room Floor								
0102-16-54	S End Textbook Room Floor								

Identified Asbestos-Containing Materials Foothills Adult Center - Main Building 1550 Melody Lane, El Cajon, California 92019									
Sample No.	Sample Locations	Material Description	Class	Friable/ Non Friable	Condition (G, D, SD, SMD)	Material Location(s)*	Estimated Quantity*	Analytical Results	Cat.
0102-21-67 0102-21-68 0102-21-69 0102-21-70 0102-21-71 0102-21-72 0102-21-73	SW End Main Building NW End Main Building S End Main Building - Overhang SE End Main Building NE End Main Building W End Main Building – Custodian N End Main Building	Gray Exterior Stucco (Including Over Hang)	Misc.	NF	G	Exterior of Main Building	5,800 SF	<1% Chrysotile (Base Coat) None Detected (Finish Coat)	Class I
0102-24-84 0102-24-85 0102-24-86	Center Main Building Custodian Center Main Building Custodian Center Main Building Custodian	Gray / Black Roof Penetration Mastic	Misc.	NF	G	Exterior of Main Building Custodian	1 SF	6% Chrysotile	Class I
N/A	Mastic behind corkboard Ceiling Tile in Auditorium	Mastic	Misc.	NF	G	Within Auditorium	950 SF	Assumed	PACM
Legend: N = North, E = East, W = West, S = South, SF = Square Feet, LF = Linear Feet, ND = None Detected Classification (Class.): Misc. = miscellaneous, Surf. = surfacing, TSI = thermal system insulation Condition: G = Good, D = Damaged, SD = Significantly Damaged, SMD = Smoke Damaged Categories (Cat.): ACCM = Asbestos Containing Construction Materials, Cat I = Category I Non-friable ACM, Cat II = Category II Non-friable ACM, RACM = Regulated Asbestos Containing Materials * Locations and quantities are estimates based on accessible materials located in the survey area only. Additional locations and quantities may be present at the Subject Property.									

C. Contractor is required to verify the scope of work prior to commencing work, including quantities of materials to be removed, and to determine the degree of difficulty in removing the identified materials.

C. Applicable Publications: The publications listed below form a part of these Specifications to the extent referenced. The publications are referred to in the text by the basic designation only.

1. Code of Federal Regulations (CFR) Publications:

29 CFR 1910.1001	Asbestos
29 CFR 1926.1101	Asbestos
29 CFR 1910.1200	Hazard Communication
29 CFR 1910.1020	Access to Employee Exposure and Medical Records
29 CFR 1910.132	General Requirements - Personal Protective Equipment
29 CFR 1910.133	Eye and Face Protection
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.145	Specifications for Accident Prevention, Signs and Tags
29 CFR 1910.146	Confined Space
29 CFR 1910.147	Lockout/Tagout
40 CFR 61, Subpart A	General Conditions
40 CFR 61, Subpart M	National Emission Standards for Asbestos

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|-----|--|--|
| | 40 CFR 61.152 | Standard for Waste Disposal for Manufacturing, Demolition, Renovation, Spraying and Fabrication Operations |
| 2. | American National Standard Institute/American Industrial Hygiene Association (ANSI/AIHA) Publications:
Z9.2-2006 | Fundamentals Governing the Design and Operation of Local Exhaust Systems |
| 3. | American National Standard Institute/American Society of Safety Engineers (ANSI/ASSE) Publications:

Z88.2-2015 | Practices for Respiratory Protection |
| 4. | National Fire Protection Association (NFPA):
Standard 90A | Installation of Air Conditioning and Ventilation Systems, 2015 Edition |
| 5. | U. S. Environmental Protection Agency (EPA):
Publication No.
560/5-85-024 | Guidance for Controlling Asbestos-Containing Materials in Buildings, June, 1985 |
| 6. | American Society for Testing and Materials (ASTM) Publications:
E 849-82

P 189 | Safety and Health Requirements Relating to Occupational Exposures to Asbestos
Specifications for Encapsulants for Friable Asbestos-Containing Materials |
| 7. | National Institute of Occupational Safety and Health (NIOSH) Publications:
Manual of Analytical Methods, 2 nd Edition, Volume 1
Method 7400 | Asbestos and Other Fibers by PCM |
| 8. | Underwriters Laboratories, Inc. (UL) Publications:
586-77 (R1982) | Test Performance of High Efficiency Particulate Air Filter Units |
| 9. | California Code of Regulations (CCR) Publications:
8 CCR 1529
8 CCR 5208
8 CCR 5144 | Construction Safety Orders-Asbestos
General Industry Safety Orders-Asbestos
Respiratory Protective Equipment |
| 10. | San Diego Air Pollution Control District (SDACPD):
Rule 1206-Asbestos Removal, Renovation, and Demolition | |
| 11. | Other Local or Regional Regulations that apply to Asbestos-Related Work. | |

Please note Contractor is responsible for ascertaining the extent to which these regulations will affect removal operations and to comply therewith.

1.1.1 DEFINITIONS

- A. Owner: Grossmont Unified School District
- B. Abatement: Procedures to control fiber release from Asbestos-Containing building materials. Includes removal, encapsulation, and enclosure.
- C. Aggressive Method: means removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

- D. Air Lock: A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area (See Decontamination Enclosure System Plan in the Drawing section of this Project Manual).
- E. Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time.
- F. Air Sampling Professional: The professional contracted or employed to supervise air monitoring and analysis schemes. This individual is also responsible for recognition of technical deficiencies in Worker protection equipment and procedures during both planning and on-site phases of an Abatement Project. Acceptable Air Sampling Professionals include Industrial Hygienists, Environmental Engineers and Environmental Scientists with equivalent experience in Asbestos air monitoring and Worker protection.
- G. Amended Water: Water to which a surfactant has been added.
- H. Area Monitoring: Sampling of airborne fiber concentrations within the Asbestos Work Area and outside the Asbestos Work Area which are representative of the airborne concentrations of Asbestos fibers which may reach the breathing zone.
- I. Asbestos: Means fibrous forms of various hydrated minerals including Chrysotile, (fibrous serpentine), Crocidolite (fibrous Riebeckite), Amosite (fibrous Cummingtonite-Grunerite), Fibrous Tremolite, fibrous Actinolite, and fibrous Anthophyllite.
- J. Asbestos (CCR definitions): Means fibrous forms of various hydrated minerals including Chrysotile, (fibrous serpentine), Crocidolite (fibrous Riebeckite), Amosite (fibrous Cummingtonite-Grunerite), Fibrous Tremolite, fibrous Actinolite, and fibrous Anthophyllite.
- K. Asbestos-Containing Material (ACM): Material composed of asbestos of any type in an amount greater than one percent (1%) by weight, either alone or mixed with other fibrous or non-fibrous materials.
- L. Asbestos-Containing Construction Material (ACCM): Means any manufactured construction material which contains more than one-tenth of one percent (0.1%) asbestos by weight.
- M. Asbestos-Containing Waste Material: Means friable asbestos waste and asbestos waste from control devices (Pollution Control Devices). Asbestos-Related Work: means any activity which by disturbing ACCM may release asbestos fibers into the air.
- N. Assumed ACM: means materials assumed to contain more than one percent (>1%) asbestos.
- O. Asbestos Fibers: Asbestos fibers having an aspect ratio of at least 3:1 and 5 micrometers in length when air samples analyzed using Phase Contrast Microscopy (PCM).
- P. Authorized Visitor: The Owner's Project Team members, the Owner's Representative, and any representative of a regulatory or other agency having jurisdiction over the Project.
- Q. Category I Non-Friable ACM: means packings, gaskets, resilient floor covering, mastics, and asphalt roofing products containing more than 1 percent (>1%) asbestos.
- R. Category II Non-Friable ACM: means material containing more than 1 percent (>1%) asbestos that is not Category I Non-Friable ACM, and when dry, and in its present form, cannot be crumbled, pulverized, or reduced to powder by hand pressure. For the purposes of this Specification, these products include transite board, pipe and asbestos cement products, plaster, stucco, and paint – unless removed by aggressive or mechanical methods.

- S. Clean Room: An uncontaminated area or room which is a part of the Worker Decontamination Enclosure with provisions for storage of Workers' street clothes and protective equipment.
- T. Contained Work Area: A Work Area which has been Isolated, Plasticized, and equipped with a Decontamination Enclosure System.
- U. Curtained Doorway: A device to allow ingress or egress from one area to another while permitting minimal air movement between the areas, typically constructed by placing three overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, and securing the vertical edge of the outer two sheets along the opposite vertical side of the doorway (see detail on Decontamination Enclosure System Plan in the Drawing section of this Project Manual.)
- V. Decontamination Enclosure System: A series of connected rooms, with Air Locks or Curtained Doorways between any two adjacent rooms, for the decontamination of Workers and of materials and equipment. A Decontamination Enclosure System always contains at least one Air Lock to the Work Area.
- W. Disturbance: means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.
- X. Encapsulant (sealant): A liquid material which can be applied to Asbestos-Containing material and which controls the possible release of Asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).
- Y. Encapsulation: All herein-specified procedures necessary to apply an encapsulant to Asbestos-Containing building materials to control the possible release of Asbestos fibers into the ambient air.
- Z. Enclosure: All herein-specified procedures necessary to enclose completely Asbestos-Containing Material behind airtight, impermeable, permanent barriers.
- AA. Excursion Limit: An exposure of airborne concentrations of Asbestos fibers of one fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes.
- BB. Equipment Room: A contaminated area or room which is part of the Worker Decontamination Enclosure with provisions for storage of contaminated clothing and equipment.
- CC. Equipment Decontamination Enclosure: That portion of a Decontamination Enclosure System designed for controlled transfer of materials, waste containers and equipment, typically consisting of a Washroom and a Holding Area.
- DD. Friable Asbestos Material (40 CFR 61, Subpart M Definition): Material that contains more than one percent (1%) Asbestos by weight and that can be broken, crumbled, pulverized, or reduced to powder by hand pressure when dry.
- EE. Fixed Object: A unit of equipment or furniture or other building component which cannot be detached from the building or can only be detached by destructive methods resulting in irreparable damage to the item.

- FF. Glovebag Method: A method with limited applications for removing small amounts of friable Asbestos-Containing material from heating ventilation and air-conditioning ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces in an (HVAL) Isolated (non-contained) Work Area. The glovebag (typically constructed of six [6] mil transparent Regulite plastic) has two inward-projecting long sleeve rubber gloves, one inward-projecting water wand sleeve, an internal tool pouch, and an attached, labeled receptacle for Asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all Asbestos fibers released during the removal process. All Workers who are permitted to use the Glovebag Method must be highly trained, experienced, and skilled in this method.
- GG. HEPA Filter: A high-efficiency particulate air (HEPA) filter capable of trapping and retaining 99.97 percent of all monodispersed particles (Asbestos fibers) equal to or greater than 0.3 microns in mass median aerodynamic equivalent diameter.
- HH. HEPA Vacuum Equipment: Vacuuming equipment with a HEPA filter system.
- II. Holding Area: A room in the Equipment Decontamination Enclosure located between the Washroom and an uncontaminated area. The Holding Area consists of a chamber with an Air Lock connecting it to the Washroom and an Air Lock connecting it to the uncontaminated area.
- JJ. Isolation: The sealing of all openings into a Work Area.
- KK. Isolated (non-contained) Work Area: A Work Area which is Isolated, but has not been Plasticized and may or may not be equipped with a Decontamination Enclosure System.
- LL. Movable Object: A unit of equipment, furniture or other building component which is detached or can be detached from the building without destructive methods or results.
- MM. Miscellaneous ACM: means building material containing more than one percent (>1%) asbestos that is not surfacing or TSI.
- NN. Negative Air Pressure Equipment: A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contaminated areas from adjacent uncontaminated areas.
- OO. Non-friable Asbestos-Containing Material: Material that contains more than one (1) percent Asbestos by weight in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the Asbestos is well bound and will not release fibers during any appropriate end-use, handling, demolition, storage, transportation, processing, or disposal.
- PP. Operations and Maintenance (O&M) Activities: means repair and maintenance operations which disturb an amount of ACM that does not exceed one 60" by 60" waste bag.
- QQ. Owner's Representative: The agent of the Owner or the Owner's Representative who shall observe the Work, perform tests, verify that abatement methods and procedures specified by the Contract Documents are being complied with, and reports all observations and test results to the Owner or the Owner's Representative.
- RR. Permissible Exposure Limit (PEL): An airborne concentration of asbestos, (Chrysotile, Crocidolite, Amosite, Tremolite, Anthophyllite, Actinolite, or a combination of the six (6) types of asbestos) in excess of 0.1 fibers per cubic centimeter (f/cc) of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Appendix A of Section Five, 29 CFR Part 1926 §1926.1101(c).

- SS. Personal Monitoring: Sampling of Asbestos fiber concentrations within the breathing zone of an Asbestos Worker.
- TT. Plasticize: To cover floors, walls and other structural elements of a Work Area with plastic sheeting as herein specified with all seams securely taped.
- UU. Presumed Asbestos Containing Material (PACM): means thermal system insulation and surfacing material found in buildings constructed no later than 1980.
- VV. Regulated Area: means an area established by the employer 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 permissible exposure limit. Requirements for regulated areas are set out in Title 8 CCR 1529.
- WW. Regulated Asbestos Containing Material (RACM): means material containing more than one percent (>1%) asbestos that is friable or has been or will be rendered friable. This includes all materials disturbed by aggressive or mechanical methods.
- XX. Removal: All herein-specified procedures necessary to remove Asbestos-Containing materials from the designated areas and to dispose of these materials at an acceptable site.
- YY. Shower Room: A room between the Clean Room and the Equipment Room in the Worker Decontamination Enclosure with hot and cold or warm running water, and suitably arranged for complete showering during decontamination. The Shower Room comprises an Air Lock between contaminated and clean areas.
- ZZ. Surfacing ACM: means building material containing more than one percent (>1%) asbestos 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).
- AAA. Surfactant: A chemical wetting agent added to water to reduce surface tension and improve penetration.
- BBB. Thermal System Insulation (TSI) ACM: means building material containing greater than one percent (>1%) asbestos that is applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.
- CCC. Washroom: A room between the Work Area and the Holding Area in the Equipment Decontamination Enclosure System where equipment and waste containers are decontaminated. The Washroom comprises an Air Lock.
- DDD. Wet Cleaning: The process of eliminating Asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as Asbestos-contaminated waste.
- EEE. Work Area (Also known as "Regulated Area"): Designated rooms, spaces, or areas of the Project in which Asbestos Abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A Contained Work Area is a Work Area which has been Isolated, Plasticized, and equipped with a Decontamination Enclosure System. An Isolated (non-contained) Work Area is a Work Area which is Isolated, but has not been Plasticized and may or may not be equipped with a Decontamination Enclosure System.

- FFF. Worker Decontamination Enclosure System: That portion of a Decontamination Enclosure System designed for controlled passage of Workers, and other personnel and Authorized Visitors, typically consisting of a Clean Room, a Shower Room, and an Equipment Room.

1.1.2 QUALITY CONTROL

- A. Safety Compliance: In addition to detailed requirements of this Specification, comply with laws, ordinances, rules, and regulations of federal, state, regional, and local authorities and publications 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. Where the requirements of this Specification and referenced documents vary, the most stringent requirement shall apply.
- B. Contractor shall have at least one copy each of 29 CFR Part 1910 - Occupational Safety and Health Standards, 29 CFR 1926.1101, 40 CFR 61 Subparts A & M, 8 CCR Title 8 1529, SDAPCD Rule 1206 and all pertinent state and local regulations at his office and at the job site.
- C. Before the commencement of any work at the site, the Contractor shall post bilingual (as appropriate) EPA, OSHA and DOSH caution signs at entrances/exits to the Work Area to comply with EPA, OSHA and DOSH regulations.
- D. Area Monitoring shall be performed by the Owner's Representative, which will conduct air sampling of the Abatement Project (1) outside the building, (2) immediately outside the Work Area, (3) in the Work Area, and (4) for Work Area Clearance Testing after decontamination operations.
- E. Personal Monitoring and other monitoring, which are required by law, or considered necessary by the Contractor for Worker protection shall be the responsibility of the Contractor.
- F. Job Walk: The Contractor must attend the Job Walk to qualify to bid on any or all portions of this Contract.

1.1.3 SUBMITTALS AND NOTIFICATIONS

- A. Personnel Training: Prior to the start of work, Contractor shall submit (1) declaration certifying that all Contractor employees have been adequately trained, and (2) photocopy of training certificates for each employee from their respective training agency or organization. When certified or other formal worker training is required by state or local agencies, Contractor may submit a photocopy of the employee's Asbestos Worker Certification card in lieu of training certificates.
- B. Respirators: Submit prior to the start of work, manufacturer's certification that the respirators to be used in this Project comply with government agency requirements. Contractor's certifications for each employee must clearly state that each employee has been fit tested and properly trained for respirators.
- C. Medical Examinations: Submit proof that all persons providing labor and/or professional services that will be entering contaminated areas have had current (less than one year prior to the date of their participation on the Project) medical examinations. Furnish physician's interpretation of said examinations to the Owner on the Certificate of Medical

Compliance form provided in the Supplementary General Conditions section of these Construction Documents prior to the start of work, or prior to that person's commencing work on this Project, and for each person subsequently providing labor and/or professional services at the job site for whom a certificate was not initially furnished. NOTE: In lieu of the above certificate, current medicals will be acceptable providing that a statement in the medical exam declares that the worker can wear a negative pressure respirator while performing their work. Contractor shall resubmit physician's interpretation of medical examination for each worker or professional employed by him whose physician or regulatory required annual or employment termination examination becomes due while said worker or professional is participating in the Project. This requirement can be waived or modified only by the Owner in writing or verbally, followed up in writing.

- D. Product Submittals and Substitutions: Comply with pertinent provisions of Section 01340.
- E. Abatement Product Data: Within ten (10) days after Contractor has received the Owner's Notice of Award, submit manufacturer's catalogue, samples, Safety Data Sheets, (SDS) and other items needed to demonstrate fully the quality of the proposed abatement materials. Under no circumstances shall proposed materials be used before written approval from the Owner, Owner's Representative. Submittals are required if the following materials are proposed (not necessarily a complete list.) Do not submit data on products not proposed for this project:
 - 1. Encapsulant,
 - 2. Surfactant,
 - 3. Protective packaging,
 - 4. Lagging adhesive,
 - 5. Glovebags,
 - 6. Resaturant, and
 - 7. Solvents.
- F. Permits: Submit prior to the start of work proof satisfactory to the Owner, Owner's Representative that all required permits have been obtained. If no permits are required, submit notarized letter stating such.
- G. Waste Transportation: Submit prior to the start of work the method of transport of Hazardous Waste, including the name, address, EPA ID number, and telephone number of the Transporter(s).
- H. Hazardous Waste Disposal Facility: Submit for approval prior to the start of work the name, address, EPA ID number, and telephone number of the Hazardous Waste Disposal Facility(s) to be used.
- I. Contractor's Work Plan: Submit prior to the start of work for approval a detailed plan of the work procedures to be used in the removal, repair, clean-up or encapsulation of materials containing Asbestos. Such a plan shall include:
 - 1. Location of Asbestos Work Areas.
 - 2. Layout and construction details of Decontamination Enclosure Systems.
 - 3. Project schedule including important milestones, critical paths and interface of trades involved in the Work.
 - 4. Personal air monitoring procedures.
 - 5. Detailed description of the method to be employed in order to control pollution, including negative air equipment calculations.

6. Names of Superintendent, Foremen, Project Manager and other key personnel, and their day time and emergency telephone numbers.
 7. Security Plan including sketches necessary to clearly describe the plan.
 8. Emergency evacuation plan for injured workers, compressor failure, fire and other emergencies.
 9. Firewatch Plan including any sketches necessary to clearly describe the plan.
 10. A contingency plan, in the event of a major contamination incident caused by fire (on or off the floor being abated), a large breach in the Work area containment barrier, the opening of stairwell doors, breakage of the building's exterior windows or sabotage. Such a plan will focus on how to maintain safety and order when the building is fully occupied by office employees and other building users.
 11. The Asbestos Plan must be approved in writing by the Owner's Representative and Owner before the start of any work.
- J. Equipment Certification: Submit prior to the start of work, manufacturers' certification that vacuums, negative air pressure equipment filters, and other local exhaust ventilation equipment conform to ANSI Z9.2-2006.
- K. Rental Equipment: When rental equipment is to be used in removal areas or to transport waste materials, a copy of the written notification provided to the rental company informing them of the nature of use of the rented equipment shall be signed by the rental company and submitted to the Owner's Representative prior to the start of work.
- L. Notifications: Contact the following government agencies in writing by certified/registered mail or overnight mail service, postmarked or delivered at least ten (10) days prior to Project commencement:
1. California Occupational Safety and Health Administration:
7575 Metropolitan Drive, # 204
San Diego, CA 92108
 2. Air Pollution Control District or Air Quality Management District:
San Diego Air Pollution Control District
10124 Old Grove Road
San Diego, California 92131

All notifications shall contain as a minimum the following information:

1. Name, address and telephone number of the Owner including the contact person.
2. Name, address, EPA numbers, license number and telephone number of the Contractor including the contact person.
3. Name, address and description of the building, including size, age, and prior use of building.
4. The type and quantity of friable Asbestos material involved and the description of the Work.
5. Scheduled starting and completion dates for Abatement Work.
6. Procedures that shall be employed to comply with the regulations.
7. The name, address, EPA number and telephone number of the Transporter.

8. The name and address of the Hazardous Waste Disposal Facility where the Asbestos Waste shall be deposited.

Copies of all government agency correspondence and proof of delivery shall be delivered to the Owner, Owner's Representative prior to the start of work. NOTE: No work shall commence until verification of required notifications is made by the Owner, Owner's Representative.

- M. Certificate of Worker's Release: The Contractor shall have any person providing labor and professional services at the Project site sign a Certificate of Worker's Release, on the form provided in the Supplementary General Conditions section of these Construction Documents, before commencing work on this Project. Contractor shall furnish the notarized original of such Certificate of Worker's Release for each such person prior to the start of work or before that person's commencement of Work, and for each person subsequently providing labor or professional services at the job site for which a Certificate was not initially furnished. This requirement can be waived or modified only by the Owner, in writing or verbally, followed in writing.
- N. Provide proof of Contractor's License and Asbestos Certification from the Contractor Licensing Board, and proof of registration with the Division of Occupational Safety and Health in accordance with California Labor Code, Section 6501. Submit proof with Bid.
- O. Encapsulant manufacturer's certification (when required) that the Contractor is an approved applicator of the encapsulants to be used on this project
- P. Scaffolding: Submit to the Owner's Representative prior to abatement work, certification from a licensed Civil or Structural Engineer that the scaffolding design and installation is safe and adequate for the purpose for which it will be used. Submit copy of scaffolding permit when required by local regulatory agencies.
- Q. Certification naming the manufacturer of supplied-air respirator equipment. Include certification of compliance with Occupational Safety and Health Administration, United States Environmental Protection Agency, and all other pertinent regulatory agencies. Include testing reports (previous and current). Include the rated capacity of each type of equipment used.

1.1.4 ADMINISTRATION OF THE CONTRACT

- A. All Work is to be performed under the observation of the Owner's Representative, who shall be free to enter and review all Work.

1.1.5 SAFETY

- A. Submit prior to the start of work written procedures for evacuation of injured Workers. Aid for seriously injured Workers shall not be delayed in order to comply with standard decontamination procedures. It is the responsibility of the Contractor to decide if the seriousness of the injury warrants noncompliance with the standard decontamination procedures.

1.1.6 TRAINING PROGRAM

- A. Each employee shall receive AHERA MAP training including the proper handling of materials that contain Asbestos, including all aspects of work procedures and protective measures, use of protective clothing and respiratory protection, use of showers, entry and exit procedures from Work Areas and in OSHA and DOSH regulations. All workers who are scheduled to use the Glovebag Method must be highly trained, experienced and skilled in this method. Each employee shall also understand the health implications and risks involved, including the illness possible from exposure to airborne Asbestos fibers and the increased risk of lung cancer associated with smoking cigarettes and Asbestos exposure, understand the use and limits of the respiratory equipment to be used, and understand the purpose of medical surveillance and the monitoring of airborne quantities of Asbestos as related to health and respiratory equipment. The training program shall comply with federal, state or local regulatory requirements.
- B. Emergency evacuation procedures to be followed in the event of Worker injury or compressor failure shall be included in Worker Training program.

1.1.7 DRESS AND EQUIPMENT

- A. Work clothes shall consist of disposable full-body coveralls, head covers, boots, rubber gloves, sneakers or equivalent. Sleeves at wrists and cuffs at ankles shall be secured. Fire retardant full-body coveralls are required in areas of open flame, or where required by local regulations.
- B. Eye protection and hard hats shall be available as appropriate or as required by applicable safety regulations.
- C. Provide Authorized Visitors with suitable protective clothing, headgear, eye protection, and footwear whenever they are required to enter the Work Area.

1.1.8 RESPIRATORS

- A. Respiratory protective equipment shall be National Institute of Occupational Safety and Health (NIOSH) approved in accordance with the provisions of 42 CFR 84 unless superseded by local regulations with more stringent requirements. Respiratory instructions shall be posted in the Clean Room.
- B. Use Supplied-Air Respirator in the following locations or for the abatement of the following materials until the Contractor establishes the average airborne concentrations of Asbestos fibers the employees will confront. Determine in accordance with 29 CFR 1926.1101 regulations both the Excursion Limit and the 8-hours' time-weighted average (TWA) concentration of Asbestos fibers to which employees will be exposed in each Work Area. When the exposure limits are established, the respirators presented in 42 CFR 84, that afford greater protection at such upper concentrations of airborne Asbestos, may be used.
 - 1. When required by regulations or Owner.
- C. At the sole discretion of the Contractor use Powered Air Purifying Respirators in lieu of Supplied Air Respirators in the following locations or for the abatement of the following materials until the Contractor establishes the average airborne concentrations of Asbestos fibers the employees will confront. Determine, in accordance with 29 CFR 1926.1101 regulations, both the 30 minutes' Excursion Limit and the 8-hours TWA concentration of

Asbestos fibers to which employees will be exposed in each Work Area. When the exposure levels are established the respirators presented in 42 CFR 84, that afford greater protection at such upper concentrations of airborne Asbestos fibers, may be used.

1. When required by regulations or Owner.

- D. Half-mask or full-face air-purifying respirators with HEPA filters may be worn during the preparation of the Work Area, performance of repair work, use of glovebag techniques and decontamination work, provided Work Area fiber concentrations are less than 0.1 f/cc.
- E. Compressed air systems shall be designed to provide air volumes and pressures to accommodate respirator manufacturer's specifications. The compressed air systems shall have a receiver of adequate capacity to allow escape of all respirator wearers from contaminated areas in the event of compressor failure. Compressors must meet the requirements of 29 CFR 1910.134(d) or local regulations. Compressors must have an in-line carbon monoxide monitor, and periodic inspection of the carbon monoxide monitor must be evidenced. Documentation of adequacy of compressed air system/respiratory protection system must be retained on site. This documentation will include a list of compatible components, with the maximum number and type of respirators that may be used with the system. Periodic testing of compressed air shall insure that systems provide air of sufficient quality.
- F. When supplied air respirators are not required, the Contractor shall provide Workers with approved, permanently personally-issued and marked respirators with changeable filters. The Contractor shall provide a sufficient quantity of filters approved for Asbestos so that Workers can change filters during the workday. Filters shall not be used any longer than one (1) workday or whenever an increase in breathing resistance is detected. The respirator filters shall be stored at the job site in the Clean Room and shall be totally protected from exposure to Asbestos before their use.
- G. Workers shall always wear a respirator, properly fitted on the face, in the Work Area, from the initiation of preparation work until all areas have been given written clearance by the Owner's Representative.
- H. Provide at least two (2) extra air hoses and respirators when supplied air respirators are required. Provide at least two (2) extra Powered Air Purifying Respirator (PAPR) respirators when this type of respirator is required. Provide instruction on the use of the above respirators to Authorized Visitors.

PART 2 - PRODUCTS

1.2.0 GENERAL

- A. Contractor shall furnish, provide and utilize the following products in the Work Area as specified.

1.2.1 PROTECTIVE COVERING (PLASTIC)

- A. Ten (10) mil, six (6) mil, and four (4) mil fire-retardant polyethylene plastic sheets in sizes to minimize the frequency of joints.

1.2.2 TAPE

- A. Duct Tape 2" or wider, or equal, and capable of sealing joints of adjacent sheets of plastic, and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials, and capable of adhering under both dry and wet conditions, including use of amended water.

1.2.3 PROTECTIVE PACKAGING

- A. Appropriately labeled clear, double six (6) mil sealable polyethylene bags as a minimum.
- B. Appropriately labeled, sealable, impermeable drum containers.
- C. Bilingual labels (English and other appropriate language[s]) on containment glovebags, waste packages, contaminated material packages and other containers shall be in accordance with EPA, OSHA and DOSH standards.

1.2.4 WARNING LABELS AND SIGNS

- A. As required by 29 CFR 1910.1001, 29 CFR 1910.1200, 29 CFR 1926.1101 and other pertinent state and local regulations including 8 CCR 1529, whichever is the most stringent.

1.2.5 SURFACTANT

- A. Surfactant, or wetting agent, for amending water will be 50 percent polyoxyethylene glycol ester and 50 percent polyoxyethylene ether, or equivalent, at a concentration of one (1) ounce per five (5) gallons of water.

1.2.6 LAGGING ADHESIVE

- A. Shall meet NFPA 90A Code, such as Arabol, Childers CP52, Insul-Coustic 102, or approved equal.

1.2.7 GLOVEBAGS

- A. The glovebag (typically constructed of six [6] mil transparent regulated plastic) has two (2) inward-projecting long sleeve rubber gloves, one (1) inward-projecting water wand sleeve, an internal tool pouch, and an attached labeled receptacle for Asbestos Waste.

1.2.8 TOOLS AND EQUIPMENT

- A. Provide suitable tools for Asbestos removal and encapsulation.
- B. Negative air pressure equipment: HEPA filtration systems shall have filtration equipment in compliance with ANSI Z9.2-2006, local exhaust ventilation. No air movement system or air filtering equipment shall discharge unfiltered air outside the Work Area.
- C. Manometer:

1. Shall have a built-in alarm. Continuous hard copy readout optional.
- D. HEPA Vacuums:
 1. Shall comply with ANSI Z9.2-2006.
- E. Vacuum Loaders:
 1. Shall have HEPA filtration system in compliance with ANSI Z9.2-2006.
 2. Meets or exceeds OSHA, DOSH and EPA safety regulations.
 3. Fully-enclosed negative pressure system.

1.2.9 LUMBER

- A. Shall be flame retardant and carrying markings certifying such properties.

1.2.10 SOLVENTS

- A. Shall be non-toxic, non-carcinogenic, nonflammable (flash-point in excess of 200° F.), nonreactive with or damaging to materials it will come in contact with and approved for indoor use by regulatory agencies. Provide ventilation of Work Area as required by manufacturer. Vent exhaust to the exterior of the building and in a manner that will not result in adverse effects to other areas of the facility, adjacent facilities or public areas. Solvents shall not be used in areas which food stuffs are stored.

PART 3 – EXECUTION

1.3.0 WORKER PROTECTION

- A. Worker protection procedures – to be posted in clean room:
 1. Bilingual (English and other appropriate language[s]) Worker Protection Procedures must be posted in the Clean Room. If the first language of all Workers is English, the bilingual procedures are accepted.
 2. Each Worker and Authorized Visitor shall, upon entering the job site: remove street clothes in the Clean Room and put on a respirator and clean protective clothing before entering the Equipment Room or the Work Area.
 3. All Workers shall, each time they leave the Work Area: remove gross contamination from clothing before leaving the Work Area; proceed to the Equipment Room and remove all clothing except respirators; still wearing the respirator, proceed naked to the showers; clean the outside of the respirator with soap and water while showering; remove the respirator; thoroughly shampoo and wash themselves.
 4. Following showering and drying off, each Worker shall proceed directly to the Clean Room and dress in their personal clothing. Before reentering the Work Area, each Worker and Authorized Visitor shall put on a clean respirator and shall dress in clean protective clothing.
 5. Contaminated protective clothing and work footwear shall be stored in the Equipment Room when not in use in the Work Area. At appropriate times or upon

completion of Asbestos Abatement, dispose of protective clothing and footwear as contaminated waste, or launder in accordance with government regulations.

6. Workers removing waste containers from the Equipment Decontamination Enclosure shall enter the Holding Area from outside wearing a respirator and dressed in clean disposable coveralls. No Worker shall use this system as a means to leave or enter the Washroom or the Work Area.
7. The disposable clothing worn outside the Work Area shall be of different color or markings from the disposable clothing worn inside the Work Area.
8. Workers shall not eat, drink, smoke, or chew gum or tobacco while in the Work Area.
9. Workers and Authorized Visitors with beards or who are unshaven shall not enter the Work Area.

B. Medical Examinations and Histories

1. Before exposure to airborne Asbestos, the Contractor will provide each employee providing labor or professional services at the Project site with a current comprehensive medical exam, including a history of respiratory and gastrointestinal diseases, meeting the general definition outlined in 29 CFR 1910.1001, 29 CFR 1910.134, 29 CFR 1926.1101 and California Administrative Code (CAC) Title 8, Section 5208 and Section 1529. Contractor shall submit a current Medical Examination report. The medical report shall contain a statement from the examining physician that the employee can (or cannot) function normally wearing a respirator or that the safety or health of the employee or other employees will or will not be impaired by his use of a respirator. No employee will be allowed to enter the Work Area without having first provided a copy of their Medical Examination, to the Owner's Representative and until the submitted form or medical has been approved by the Owner's Representative. Local medical requirements shall apply if they are more stringent.

C. Employee Identification

1. The Contractor shall furnish an employee roster to the Owner's Representative for each work shift. Each employee entering the Work Area shall have in his possession a plastic-coated identification tag with the employee's photograph, name, age, height, weight, and eye color. Each employee shall bring to the job at least two forms of identification, one of which has his/her photograph.

1.3.1 WORK AREA PREPARATION

A. Preparation procedures for removal of RACM or friable materials:

1. Removal of friable ACM, unless specified otherwise, shall be executed in a "Contained" Work Area.
2. Contractor shall isolate the Work Area for the duration of the Project, completely sealing all openings including, but not limited to, HVAC system ducts, diffusers and grilles, skylights, doorways, and windows, with two layers of six (6) mil polyethylene taped securely to a clean surface. Spray adhesive, used on finished surfaces,

should be avoided where possible. Particular attention shall be paid to the sealing of cracks in the field area of the floor deck, openings along the perimeter of the floor, openings at floor/wall intersection adjacent to stairwell, elevator and utility shafts and any other openings in the floor in general that would provide an avenue for water migration to occupied areas below. Barriers shall form a seal at vertical walls and at the floor deck above and below. Particular attention shall be paid to providing the appropriate seal at the floor deck above without causing unnecessary disturbance to any ACM.

3. HVAC systems shall be shut down. Contractor shall design his Work Area preparation and engineering controls as specified and/or as required to prevent damage to and contamination of the affected HVAC system.
4. Contractor shall remove all movable Objects from the Work Area that are vulnerable to damage or contamination, or that will impede or prevent the completion of the Work. All movable Objects removed from the Work Area shall be clean before being moved to the designated storage area.
5. Clean and cover Fixed and Movable Objects that can remain in the Work Area with six (6) mil polyethylene sheeting taped securely in place. Special precautions shall be taken to protect Fixed Objects vulnerable to damage or contamination.
6. All Fixed and Movable Objects requiring cleaning shall be washed with amended water or cleaned with a HEPA filtered vacuum.
7. All objects removed shall be adequately marked and charted on a plan to ensure proper reinstallation upon completion of the decontamination of the Work Area. The objects shall be stored in a location designated by the Owner, and in a manner that will prevent contamination or damage to the objects. Damaged and missing objects will be replaced by the Contractor at his own expense and to the satisfaction of the Owner.
8. Seal and protect all light fixtures, computer systems, communication systems, lighted exit signs and other electrical items, etc., that will remain within the Work Area, with six (6) mil polyethylene, taped securely. The polyethylene cover shall be kept away from heat-generating electrical devices where fire or damage to the device is possible. Light fixtures and all other electrical items shall be thoroughly cleaned before covering. Make waterproof all electrical conduit connections and other electrical devices that will be exposed to moisture.
9. After Work Area abatement but prior to clearance testing, if Owner directs, the Contractor shall remove heating, ventilation and air conditioning (HVAC) system filters, and pack them in protective six (6) mil polyethylene sheeting for burial in the approved Waste Disposal Facility. Installation of new HVAC system filters must be done upon completion of all Work by Contractor.
10. After Work Area abatement but prior to clearance testing the air handling and duct system shall be cleaned, if required by Owner. The Contractor shall possess the necessary skills or shall retain the services of a professional company that is experienced in the decontamination of air handling and duct systems.
11. Clean the proposed Work Areas before plasticizing floors and walls, using HEPA vacuum equipment or wet-cleaning methods, as appropriate. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

12. Work Area (Containment): Contractor shall cover entire floor with a minimum of two (2) six (6) mil protective coverings. Cover wall and column surfaces with a minimum of two (2) four (4) mil protective coverings. Floor coverings shall extend a minimum of 12" up vertical surfaces and behind wall covers. All seams shall be staggered and securely taped.
 - a. If required by Owner, Contractor shall cover entire floor with a heavy duty tarpaulin (reinforced polyethylene) followed by three (3) layers of six (6) mil protective coverings and a single ten mil protective floater sheet. Cover walls and columns with three (3) four (4) mil protective covering. Floor coverings shall extend a minimum of 12" up vertical surfaces and behind wall coverings. All seams shall be staggered, adhesive sprayed and securely taped.
13. Install 2' x 2' Plexiglas observation window(s) at strategic location(s) in the "Containment" barrier to allow observation of work from outside the Work Area. Do not install observation windows at locations accessible to building occupants or the public.
14. Seal all walls, plumbing, duct and other cavities to prevent ACM from falling into such cavities during the Work.
15. The Contractor shall check regularly (at beginning, middle and end of each shift as a minimum) all polyethylene isolation and containment (protective) barriers for punctures, loose seals, and contact with heat-generating devices, etc. Problem areas shall be repaired or mended immediately.
16. Maintain existing emergency exits from the building. Maintain a minimum of two (2) exits from Work Areas where possible. The first exit shall be the Worker the Decontamination Enclosure System. The second exit may be the Equipment Decontamination Enclosure System or a ripcord type, emergency only exit in the plastic containment at a door, window or other appropriate location. Exits, where possible, shall be on opposite ends of the Work Area. All exits shall be labeled in bright letters or signage. The second exit shall be labeled "Emergency Exit Only." Establish alternative exits satisfactory to fire officials where existing building or Work Area emergency exits are unavoidably blocked by activities of this project.
17. Provide and maintain appropriate fire extinguisher inside and outside the Work Area. One 30-pound type "ABC" fire extinguisher is required for each 2,000 sq. ft. of floor area.
18. Install and maintain temporary emergency exit lighting with battery backup power in all Work Areas. Work Areas with natural lighting, and no night work to be performed, are exempt from this requirement.
19. Shutdown of electric power during the wet removal or encapsulation phase of the Project is mandatory unless directed otherwise. Provide temporary power and lighting when necessary, and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements including appropriate Ground Fault protection. Temporary light fixtures will be explosion proof. Provide and maintain auxiliary diesel generator equipment where existing facility power is insufficient. Locate generator or vent generator exhaust in a manner that will prevent carbon monoxide hazards to workers and the public. When power shutdown is required, the Contractor shall check for conditions where shutdown will pose a danger to the building or to the building's components. Contractor shall take

all precautions necessary, including inspections and testing, to insure the safety of his employees and other building occupants from electrical hazards during the course of the Project. Existing fire, smoke detection and other life safety systems shall be kept in operation at all times, or, the Contractor shall install and maintain a temporary system or alternate acceptable to the Owner and fire officials.

20. The Contractor shall install and maintain Negative Air Pressure Equipment during the abatement and decontamination phases of the Project until the Clearance Test has passed. In unoccupied facilities a sufficient amount of air shall be exhausted by the unit(s) to create a pressure of -0.02 inches of water within the Work Area with respect to the area outside the Work Area. The negative pressure for occupied facilities shall be -0.02 inches of water. If only one unit is necessary to provide the specified negative air pressure in a Work Area, the Contractor shall have a backup unit in place should the first unit fail, and for filter changes. [Install and maintain emergency self-starting diesel generator back-up power for negative pressure equipment in the event of power loss in the facility. Locate generator or vent generator exhaust in a manner that will prevent carbon monoxide hazards to workers and the public. When more than one negative air pressure unit is required, emergency power back-up is required for only 50% of the units.]
21. Install and maintain a manometer from the time abatement begins until the Clearance Test has passed in Work Areas where adjacent areas are occupied by unprotected workers, other building users or the public and when dry removal methods are required to be employed due to restrictive project conditions. Contractor must report readings to the Owner's Representative at the start and end of each work shift.
22. Notify the Owner's Representative twenty-four (24) hours in advance of when preparatory steps will be completed. Asbestos Abatement Work shall not commence until: all preparation requirements have been completed; all tools, equipment, and materials are on hand; all required submittals, notices and permits have been approved, and until the Owner's Representative authorizes that Work may commence.

B. Preparation Procedures for: The removal of Cat I, Cat II, other non-friable ACMs and friable ACCM:

1. Above removal, repair and debris cleanup activities unless specified otherwise, shall be executed in an "Isolated" Work Area.
2. Contractor shall isolate the Work Area for the duration of the Project, completely sealing all openings, including but not limited to, HVAC system ducts, diffusers and grilles, skylights, doorways and windows, with two layers of six (6) mil polyethylene sheet plastic securely taped to a clean surface. Spray adhesive applied on finished surfaces should be avoided where possible. As an option to isolating an entire room or area, the Contractor may construct a single-layer six (6) mil polyethylene plastic sheet isolation barrier (Mini Containment) around pipe, equipment or debris being worked on or removed. Work Areas with permeable finishes and/or components, permanent fixtures, equipment, and school supplies will require the covering of such items with one layer of six (6) mil polyethylene plastic. In addition, when removing floor tile and/or floor tile mastic, a 4-foot high wainscot (splash-guard) shall be constructed around the Work Area and other items within the Work Area.

3. Curtained Doorway: Contractor shall construct a Curtained Doorway of clear plastic sheeting, using six (6) mil polyethylene plastic, at entrances and exits to the Work Area. If the Mini Containment option is used, move the construction of the Curtained Doorway from the room entrance to the Mini Containment itself.
4. HVAC systems shall be shut down. If the air handling system cannot be shut down and there is an avenue for asbestos fibers generated during abatement work to enter into the air stream of the HVAC system, construct a single-layer six (6) mil polyethylene plastic barrier (Mini Containment) around the item(s) being abated. In addition, contain/secure HVAC System when possible without interfering with service to areas outside the Work Area.
5. Shutdown of electric power during work unless directed otherwise is mandatory where electrical hazards are possible. Provide temporary power and lighting when necessary, and ensure safe installation of temporary sources and equipment per applicable electrical code requirements, including appropriate ground-fault protection. [Temporary light fixtures must be explosion proof.] Provide and maintain auxiliary diesel generator equipment where existing facility power is insufficient. Locate generator or vent generator exhaust in a manner that will prevent carbon monoxide hazards to workers and the public. When power shutdown is required, the Contractor shall check for conditions where shutdown will pose a danger to the building or to the building's contents. Contractor shall take all precautions necessary, including inspections and testing, to insure the safety of his employees and other building occupants from electrical hazards during the course of the Project. Existing fire, smoke detection and other life safety systems shall be kept in operation at all times or, the Contractor shall install and maintain a temporary system or alternative acceptable to the Owner and fire officials.
6. The Contractor shall check regularly (at the beginning, middle and end of each shift as a minimum) all polyethylene isolation barriers for punctures, loose seals, contact with heat-generating devices, etc. Problem areas shall be repaired or mended immediately.
7. The Contractor shall install and maintain Negative Air Pressure Equipment during the abatement and decontamination phases of the Project until the Clearance Test has passed. In unoccupied facilities a sufficient amount of air shall be exhausted by the unit(s) to create a pressure of -0.02 inches of a column of water within the Work Area in respect to the area outside the Work Area. If only one unit is necessary to provide the specified negative air pressure in a Work Area, the Contractor shall have a backup unit in place should the first unit fail and for filter changes. When the "Mini Containment" option is utilized the Contractor may substitute a HEPA vacuum to create the specified negative air pressure within the Work Area when standard Negative Air Pressure Equipment volumes are too great. [Install and maintain emergency self-starting diesel generator backup power for negative pressure equipment in the event of power loss in the facility. Locate generator or vent generator exhaust in a manner that will prevent carbon monoxide hazards to workers and the public. When more than one negative air pressure unit is required emergency power back -up is required only for 50% of the units.]
8. Maintain existing emergency exits from the building. Maintain a minimum of two (2) exits from the Work Area where possible. The first exit shall be the Worker Decontamination Enclosure system. The second exit, when possible, shall be a second door, window, or other appropriate opening with a rip cord emergency only

exit seal. Exits, where possible, shall be on opposite ends of the Work Area. All exits shall be labeled in bright letters or signage. The second exit shall be labeled "Emergency Exit Only." Establish alternative exits satisfactory to fire officials when existing building Work Area emergency exits are unavoidably blocked by activities of this project.

9. Provide and maintain appropriate "ABC" type fire extinguishers in the Work Area. The size and number of extinguishers shall be as required by local fire officials, but shall not be less than one (1) fire extinguisher inside and outside the Work Area.
10. Provide temporary emergency lighting with battery backup power in all Work Areas where none exists. Work Areas with natural lighting, and no night work to be performed, are exempt from this requirement.
11. Notify the Owner's Representative twenty-four (24) hours in advance of when preparatory steps will be completed. Asbestos Abatement Work shall not commence until: all preparation requirements have been completed; all tools, equipment, and materials are on hand; all required submittals, notices and permits have been approved, and until the Owner's Representative authorizes in writing that Work is to commence.

C. Preparation procedures for removal of non-friable roofing materials, non-friable exterior materials and non-friable ACCM:

1. Above removal and debris cleanup activities unless specified otherwise, shall be executed in a "Regulated" Work Area.
2. Contractor shall prepare the Work Area for the duration of the Project, completely sealing all openings, including but not limited to, HVAC system intake and exhausts, skylights, doorways and windows, vents, and pipe vents with two layers of six (6) mil polyethylene sheet plastic securely taped to a clean surface. The preparation of the Work Area for the roof shall also prevent roofing debris from falling into the site building. Roofing debris falling into ceiling cavities shall be removed and ceiling cavities cleaned, immediately. Spray adhesive applied on finished surfaces should be avoided where possible.
3. HVAC systems shall be shut down. If the air handling system cannot be shut down and there is an avenue for asbestos fibers generated during abatement work to enter into the air stream of the HVAC system, construct a single-layer six (6) mil polyethylene plastic barrier (Mini Containment) around the item(s) being abated. In addition, contain/secure HVAC System when possible without interfering with service to areas outside the Work Area.
4. The Contractor shall check regularly (at the beginning, middle and end of each shift as a minimum) all polyethylene isolation barriers for punctures, loose seals, contact with heat-generating devices, etc. Problem areas shall be repaired or mended immediately.
5. Provide temporary lighting in Work Areas when required to perform work with limited lighting, such as night work.

1.3.2 DECONTAMINATION ENCLOSURE SYSTEMS

A. Decontamination Enclosure Systems (Worker and Equipment) general requirements:

1. Build suitable wood, metal or Polyvinyl Chloride (PVC) framing as described herein and as approved by the Owner's Representative at the shop drawing submittal stage. [Framed walls susceptible to damage or which also form a security barrier between Work Areas and public areas shall be sheathed with 3/8" min. plywood. Paint public facing side of plywood (color to be selected by Owner).] Portable prefab units, if utilized, must be submitted for review and approval by the Owner's Representative before start of construction. Submittal shall include, but not be limited to, a floor plan layout complying with the schematic layouts bound herein, showing dimensions, materials, sizes, thickness, plumbing, and electrical outlets, etc.
- B. Decontamination Enclosure System for asbestos abatement work in "Contained" Work Areas:
1. Construct a Workers' Decontamination Enclosure System contiguous to the Work Area consisting of three totally enclosed chambers to conform with standard drawings bound herein as follows:
 - a. An Equipment Room with an Air Lock to the Work Area and a Curtained Doorway to the Shower Room.
 - b. A Shower Room with two Curtained Doorways, one to the Equipment Room and one to the Clean Room. Plastic on Shower Room and adjoining Equipment and Clean Rooms shall be opaque. The Shower Room shall contain at least one shower with hot and cold or warm water. Careful attention shall be paid to the shower enclosure to ensure against leaking of any kind. Trap shower waste using filters having maximum pore size of 1.0 micron, and drain into a sanitary sewer. Replace filters when they become clogged. Ensure a supply of soap and disposable towels at all times in the Shower Room.
 - c. A Clean Room with one Curtained Doorway into the shower and one entrance or exit to non-contaminated areas of the building. The Clean Room shall have sufficient space for storage of the Workers' street clothes, towels, and other non-contaminated items. Joint use of this space for other functions, such as offices, storage of equipment, materials, or tools, shall be prohibited.
 2. Construct an Equipment Decontamination Enclosure System consisting of two totally enclosed chambers as follows:
 - a. A Washroom with an Air Lock to a designated staging area of the Work Area and a Curtained Doorway to the Holding Room.
 - b. A Holding Room with a Curtained Doorway to the Washroom and a doorway to an uncontaminated area.
- C. Decontamination Enclosure System for asbestos-abatement work in "Isolated" Work Areas:
1. Construct a Decontamination Enclosure System consisting of two totally enclosed chambers, as follows:

- a. An Equipment Room, consisting of a Curtained Doorway to the Isolated Work Area and a Curtained Doorway to the Shower Room.
 - b. A Shower Room, consisting of a Curtained Doorway to the Equipment Room and a Curtained Doorway to an uncontaminated area. Plastic on Shower Room and adjoining Equipment and Clean Rooms shall be opaque. The Shower Room shall contain at least one shower with hot and cold or warm water. Careful attention shall be paid to the shower enclosure to ensure against leaking of any kind. Trap shower waste using filters having maximum pore size of 1.0 micron, and drain into a sanitary sewer. Replace filters when they become clogged. Ensure a supply of soap and disposable towels at all times in the Shower Room.
2. Construction of an Equipment Decontamination Enclosure System is optional.
- a. A Washroom with an Air Lock to a designated staging area of the Work Area and a Curtained Doorway to the Holding Room.
 - b. A Holding Room with a Curtained Doorway to the Washroom and a doorway to an uncontaminated area.

1.3.3 ASBESTOS REMOVAL

- A. Before removal, Asbestos materials shall be sprayed with Amended Water. The Asbestos materials shall be sufficiently saturated without causing excessive dripping and to prevent emission of airborne fibers, at any time, in excess of Maximum Acceptable Level. Spray materials repeatedly during the work process to maintain a wet condition. If the materials are not easily saturated, then the Work Area shall be constantly misted to keep fiber emission minimal.
- B. Asbestos material shall be removed in manageable sections by a multi-person team, some of whom are wetting and the remainder removing and cleaning. Any material which falls to the floor shall be wetted and picked up immediately. Material shall not be allowed to dry out. Material drop shall not exceed 15 feet. For heights up to 50 feet, provide inclined chutes or scaffolding to intercept drop. For heights exceeding 50 feet, provide enclosed dust-proof chutes. Before a second area can be started, removed material shall be packed into approved and labeled packaging while it is still wet. The outside of all containers shall be clean before leaving the Work Area. Move containers to the Washroom (Shower Room when Equipment Decontamination System is not required), wet-clean each container thoroughly, and move to Holding Area pending removal to uncontaminated areas.
- C. Asbestos material applied to concrete, steel decks, beams, columns, pipes, tanks, and other nonporous surfaces shall be wet-cleaned to a degree that no traces of debris or residue are visible.
- D. Asbestos material debris, drippings, splatters, and overspray on surfaces within accessible ceiling cavities and other accessible areas shall be removed in the same manner and cleaned to the degree as specified above.
- E. The Work Area shall be kept orderly, clean and clear of work materials, polyethylene sheeting, tape, cleaning material, and clothing, and all other disposable material or items

used in the Work Area. These materials shall be packed into properly labeled protective packaging and removed from the Work Area.

- F. Protective packages and drums containing Asbestos materials shall be cleaned and stored in the isolated Holding Area until that time when the materials are to be loaded and hauled to the Hazardous Waste Disposal Facility for burial. The packages and drums shall be stored in piles no higher than four (4) feet, and in a manner that will not result in damage to the packages or drums. Transport bags in covered drums or carts from the Holding Area to the transport.
- G. Equipment removal procedures: Clean surfaces of contaminated equipment thoroughly by wet-sponging or wiping before moving such items into the Washroom (Shower Room when Equipment Decontamination System is not required) for final cleaning and removal to uncontaminated areas. Ensure that personnel do not leave Work Area through the Equipment Decontamination Enclosure.
- H. Do not bag water used during abatement activities. Properly filter and drain water into building sanitary drain unless prohibited by local regulations. Filter shall have a maximum pore size of 1.0 micron.
- I. Friable surfacing and TSI materials:
 - 1. Remove materials with wet methods and in a manner that will not create visual emissions or exposures above the PEL. Adequately wet the materials before, during and after removal.
 - 2. Do not use saws, grinders, chippers, bead blasters, buffers or other such mechanical equipment without HEPA filtered local exhaust ventilation.
 - 3. The Work Area shall be kept orderly, clean and clear of work materials, debris, etc.
 - 4. Package friable materials in two layers of leak-tight containers consisting of 6-mil poly bags or lined containers labeled as Hazardous Waste – Friable Asbestos, or in accordance with the disposal facility's requirements.
- J. Friable miscellaneous materials:
 - 1. Remove materials with wet methods and in a manner that will not create visual emissions or exposures above the PEL. Adequately wet the materials before, during and after removal.
 - 2. Do not use saws, grinders, chippers, bead blasters, buffers or other such mechanical equipment without HEPA filtered local exhaust ventilation.
 - 3. The Work Area shall be kept orderly, clean and clear of work materials, debris, etc.
 - 4. Package friable materials in two layers of leak-tight containers consisting of 6-mil poly bags or lined containers labeled as Hazardous Waste – Friable Asbestos, or in accordance with the disposal facility's requirements.
- K. Non-friable materials:

1. Remove materials with wet methods and in a manner that will not create visual emissions or exposures above the PEL. Adequately wet the materials before, during and after removal.
2. Do not use saws, grinders, chippers, bead blasters, buffers or other such mechanical equipment without HEPA filtered local exhaust ventilation.
3. The Work Area shall be kept orderly, clean and clear of work materials, debris, etc.
4. Package non-friable materials in two layers of leak-tight containers consisting of 6-mil poly bags or lined containers labeled as Non-Hazardous Waste – Non-Friable Asbestos, or in accordance with the disposal facility's requirements.

L. Roofing Materials:

1. Use removal methods that will keep the tearing and fraying of the roof membrane to a minimum. If sawing tools are used, they must be factory equipped with HEPA filtering devices, or perform in a manner that will not release visible dust emissions. Roofing debris made friable shall be misted with an asphalt resaturant before transportation to dumpsters. Do not use water. Do not use excessive amounts of resaturant that may result in leakage into the building. Apply additional resaturant, if necessary when the roofing debris is in the dumpster. Install, when possible, a protective tarp under the Work Area or dumpster where resaturant leakage may result in property damage.
 - b. Off-load roofing debris into dumpster by means of chutes. Use dust control methods as required to hold dust generation to a minimum.
 - c. Roofing shall be removed so that no felts are visible. Asphalt bitumen residue need not be removed from the substrate unless directed otherwise in the Contract Documents.
 - d. Have adequate material on hand and available labor to protect exposed roof areas from water intrusion during inclement weather.
 - e. Do not commence with removal work if inclement weather is probable. NOTE: Contractor shall be responsible for water damage as the result of the Contractor's work or failure to perform work. [Contractor shall be responsible for maintaining the abated portions of the roof free from moisture intrusion for seven (7) calendar days following the written notice of completion, or until the roofing contractor have been given Notice to Proceed by the Owner, whichever comes first].
 - f. The Work Area shall be kept orderly, clean and clear of work materials.
 - g. Package roofing materials in labeled double six (6) mil lined containers or bags, or in with the disposal facilities requirements.

1.3.4 DECONTAMINATION OF WORK AREA

- A. Decontaminated procedures for "Contained" Work Areas, excluding Asbestos-Containing Material encapsulation/enclosure work:

1. Remove all visible accumulations of Asbestos material and debris. Wet-clean all surfaces within the Work Area to remove Asbestos residue.
2. After cleaning, the Contractor shall perform a complete visual inspection of the Work Area to ensure that the Work Area is free of any visible debris or residue.
3. Upon completion of his visual inspection, the Contractor shall notify the Owner's Representative in advance that the Work Area is ready for Initial Review.
4. Upon proper notification, the Owner's Representative will review the Work Area for general conformance with the Specifications. Any nonconformance of the Work shall be remedied by the Contractor until the Work Area is in compliance, and at the Contractor's expense.
5. Upon successful compliance with the Initial Review by the Owners' Representative and after written notification, the Contractor shall encapsulate surfaces where Asbestos materials have been removed. Unless specified otherwise encapsulate those portions of the items where the Asbestos-Containing material was missing prior to the start of this Contract. All surfaces within ceiling and other accessible cavities where spray-applied or trowel-applied materials have been removed shall also be encapsulated. Apply encapsulant in sufficient amounts to render the affected surface tacky to the touch. The encapsulant shall be compatible with the existing substrate and replacement materials and shall be rated to safely withstand the temperature of the items to which it will be applied. Encapsulants to be applied to structural members prior to reapplication of spray-applied or trowel-applied fireproofing must be a component of the fireproofing system when it was tested and rated by the UL, ASTM, FM or other building code approved testing agencies.
6. Upon completion of the Encapsulation Work, the Contractor shall notify the Owner's Representative in advance that the encapsulated surfaces are ready for Encapsulation Review.
7. Upon proper notification, the Owner's Representative will review the encapsulated surfaces for general conformance with the Specifications. Any nonconformance of the Work shall be remedied by the Contractor until the Work is in compliance and at the Contractor's expense.
8. Upon successful compliance with the Encapsulation Review by the Owner's Representative and after written notification, the Contractor shall remove the outer layer of plastic on the walls, floors, and ceilings (where applicable). The inner plastic layer and isolation barriers on vents, grilles, diffusers, etc., shall remain in place.
9. Wet-clean the Work Area, wait twenty-four (24) hours to allow for the settlement of dust, and again wet-clean, or clean with HEPA vacuum equipment, all surfaces within the Work Area. After completing of the second cleaning operation the Contractor shall perform a complete visual inspection of the Work Area to ensure that the Work Area is free of contamination.
10. Sealed drums and bags, and all equipment used in the Work Area, shall be included in the cleanup and shall be removed from the Work Area via the Equipment Decontamination Enclosure System, at the appropriate time in the cleaning sequence.
11. Upon completion of the second cleaning operation, the Contractor shall notify the Owner's Representative twenty-four (24) hours in advance that the Work Area is

ready for Pretesting Review and Clearance Testing. Refer to appropriate Article on Air Monitoring in this Section for Clearance Testing standards. Contamination found during the Pre-Testing Review shall be remedied by the Contractor, at his expense, prior to clearance testing.

12. Upon written notification from the Owner's Representative that the Work Area has passed the standard for Clearance Testing, the Contractor shall apply, when included in the Contract, the Asbestos-free replacement materials and re-establish objects and systems as specified in these specifications. The inner plastic layer and isolation barriers may be removed by the Contractor at any time after written notification.
13. Upon completion of the application of replacement materials, or if no replacement materials are required, after the removal of the inner plastic layer, isolation barriers and the re-establishment of objects and systems the Contractor shall notify the Owner's Representative twenty-four (24) hours in advance that the Work Area is ready for Pre-final Review.
14. Upon notification, the Owner's Representative will review the Work Area. Improper application of replacement materials, unapproved damage to the facility or its contents, or improper re-establishment of objects and systems discovered during the Pre-Final Review shall be itemized on a Punch List for correction by the Contractor at his expense. If no deficiencies are discovered the Contract or this portion of the Contract shall be approved in writing by the Owner's Representative as complete. If deficiencies are noted, continue with the subsequent procedures. NOTE: If deficiencies noted do not prevent the Owner from occupancy or proceeding with reconstruction work, the Contract, or this portion of the Contract, shall be specified in writing by the Owner's Representative Substantially Complete.
15. Upon correction of Punch List deficiencies the Contractor shall notify the Owner's Representative in advance that the Work Area is ready for Final Review.
16. Upon notification the Owner's Representative will review the corrected Punch List deficiencies. If all deficiencies have been corrected, the Contract, or this portion of the Contract, shall be approved in writing by the Owner's Representative as complete. If deficiencies have not been properly corrected the Contractor shall repeat, at his expense, procedures 15 and 16 until all deficiencies have been corrected and approved. NOTE: If deficiencies noted do not prevent the Owner from occupancy or proceeding with reconstruction work, the Contract or this portion of the Contract shall be specified in writing by the Owner's Representative Substantially Complete.

B. Decontamination procedures for "Isolated" Work Areas:

1. Contractor shall perform a complete visual inspection of the Work Area to ensure that the Work Area is free of any contamination.
2. If any evidence of Asbestos material or debris is encountered, the Contractor shall remove the contaminants and shall wet-clean all surfaces within the Work Area to remove ACM dust.
3. Sealed drums and bags, and all equipment used in the Work Area, shall be included in the cleanup and shall be removed from the Work Area at the appropriate time in the cleaning sequence.

4. Upon completion of his visual inspection and any necessary cleaning, the Contractor shall notify the Owner's Representative in advance that the Work Area is ready for Initial Review.
5. Upon proper notification, the Owner's Representative will review the Work Area for general conformance with the Specifications. Any nonconformance of the Work shall be remedied by the Contractor until the Work Area is in compliance, and at the Contractor's expense.
6. Upon successful compliance with the Initial Review of the Owner's Representative and after written notification, the Contractor shall encapsulate surfaces where Asbestos-Containing Materials were removed. Unless specified otherwise, encapsulate those portions of the items where the Asbestos-Containing Material was missing prior to the start of this Contract. Apply encapsulant in sufficient amounts to render the affected surface tacky to the touch. The encapsulant shall be compatible with the existing substrate and replacement materials and shall be rated to safely withstand the temperatures of the surface to which it will be applied. Do not encapsulate substrates from which resilient flooring (tile or sheets), flooring mastic, or roofing materials have been removed. Encapsulants to be applied to structural members, prior to reapplication of spray-applied or trowel-applied fireproofing, must be a component of the fireproofing system when it was tested and rated by the UL, ASTM, FM or other building code approved testing agencies.
7. Upon completion of the Encapsulation Work, the Contractor shall notify the Owner's Representative twenty-four (24) hours in advance that the encapsulated surfaces are ready for Encapsulation Review and Clearance Testing.
8. Upon proper notification, the Owner's Representative will review the encapsulated surfaces for general conformance with the Specifications. Any nonconformance of the Work shall be remedied by the Contractor until the Work is in compliance, and at the Contractor's expense.
9. Upon successful compliance with the Encapsulation Review of the Owner's Representative, the Work Area is ready for Clearance Testing. Refer to the appropriate Article on Air Monitoring in this Section for Clearance Testing standards.
10. Upon written notification from the Owner's Representative that the Work Area has passed the standard for Clearance Testing, the Contractor shall, when included in the Contract, apply Asbestos-free replacement materials and re-establish objects and systems as specified in these Specifications. The isolation barriers may be removed by the Contractor at any time after the written notification.
11. Upon completion of the application of replacement material, or if no replacement materials are required, after the removal of the isolation barriers and the re-establishment of objects and systems, the Contractor shall notify the Owner's Representative twenty-four (24) hours in advance that the Work Area is ready for Pre-final Review.
12. Upon notification, the Owner's Representative will review the Work Area. Improper application of replacement materials, unapproved damage to the facility or its contents or improper re-establishment of objects and systems discovered during the Pre-Final Review shall be itemized on a Punch List for correction by the Contractor at his expense. If no deficiencies are discovered, the Contract, or this portion of the Contract, shall be approved in writing by the Owner's Representative as complete.

If deficiencies are noted continue with the subsequent procedures. NOTE: If deficiencies noted do not prevent the Owner from occupancy or proceeding with reconstruction work, the Contract, or this portion of the Contract, shall be specified in writing by the Owner's Representative Substantially Complete.

13. Upon correction of the Punch Lists deficiencies, the Contractor shall notify the Owner's Representative in advance that Work Area is ready for Final Review.
14. Upon notification, the Owner's Representative will review the corrected Punch List deficiencies. If all deficiencies have been corrected to the satisfaction of the Owner's Representative, the Contract or this portion of the Contract shall be approved in writing by the Owner's Representative as completed. If deficiencies have not been properly corrected the Contractor shall repeat, at his expense, procedures 13 and 14 until all deficiencies have been corrected and approved. NOTE: If deficiencies noted do not prevent the Owner from occupancy or proceeding with reconstruction work, the Contract, or this portion of the Contract, shall be specified in writing by the Owner's Representative Substantially Complete.

C. Decontamination procedure for "Regulated" Work Areas:

1. The Contractor shall perform a complete visual inspection of the Work Area.
2. Asbestos debris encountered shall be removed.
3. Sealed drums and bags, and all equipment used in the Work Area shall be included in the cleanup, and shall be removed from the Work Area at the appropriate time in the cleaning sequence.
4. Upon completion of his visual inspection and any necessary cleaning, the Contractor shall notify the Owner's Representative that the Work Area is ready for Initial Review.
5. Upon proper notification, the Owner's Representative will review the Work Area for general conformance with the Specifications. Any nonconformance of the Work shall be remedied by the Contractor until the Work Area is in compliance, and at the Contractor's expense.
6. Upon successful compliance with the Initial Review, the Owner's Representative shall conduct Clearance Testing. Refer to appropriate Article in this Section on Air Monitoring for Clearance Testing standards.
7. Upon written notification from the Owner's Representative that the Work Area has passed the standard for Clearance Testing, the Contractor shall apply the asbestos-free replacement materials, when included in the contract, and re-establish objects and systems as specified in these Specifications.
8. Upon completion of the application of replacement materials, or if no replacement materials are required, after the re-establishment of objects and systems, the Contractor shall notify the Owner's Representative within twenty-four (24) hours, in advance, that the Work Area is ready for Pre-Final Review.
9. Upon notification, the Owner's Representative will review the Work Area. Improper application of the replacement materials, unapproved damage to the facility or its contents or improper re-establishment of objects and systems shall be itemized on a Punch List for correction by the Contractor at his expense. If no deficiencies are discovered, the Contract, or this portion of the Contract, shall be approved in writing

by the Owner's Representative as complete. If deficiencies are noted continue with the subsequent procedures. NOTE: If deficiencies noted do not prevent the Owner from occupancy or proceeding with reconstruction work, the Contract, or this portion of the Contract, shall be specified in writing by the Owner's Representative and the Owner's Representative Substantially Complete.

10. Upon correction of Punch List deficiencies the Contractor shall notify the Owner's Representative in advance that the Work Area is ready for Final Review.
11. Upon notification the Owner's Representative will review the corrected Punch List deficiencies. If all deficiencies have been corrected, the Contract or this portion of the Contract shall be approved in writing by the Owner's Representative as complete. If deficiencies have not been properly corrected, the Contractor shall repeat, at his expense, procedures 10 and 11 until all deficiencies have been corrected and approved. NOTE: If deficiencies noted do not prevent the Owner from occupancy or proceeding with reconstruction work, the Contract or this portion of the Contract shall be specified in writing by the Owner's Representative Substantially Complete.

1.3.5 ASBESTOS DISPOSAL

- A. Asbestos-Containing Waste Materials shall be packed into approved sealed and labeled protective packaging.
- B. Containers removed from the Holding Area must be removed by Workers who have entered from uncontaminated areas dressed in clean coveralls. Workers must not enter from uncontaminated areas into the Washroom or the Work Area; contaminated Workers must not exit the Work Area through the Equipment Decontamination Enclosure System.
- C. Contractor shall deliver Asbestos-Containing Waste Materials to the CWRCB permitted and designated Hazardous Waste Disposal Facility in accordance with the guidelines of the EPA.
- D. The Contractor shall notify the Owner's Representative twenty-four (24) hours, in advance, when Asbestos-Containing Waste Materials are to be removed from the site. The Owner's Representative must be present during the removal of Asbestos-Containing Waste Materials from the Work Area. A copy of the Uniform Hazardous Waste Manifest, or other document required by State or Local agencies, shall be submitted to the Owner's Representative for review and signature prior to transporting Asbestos-Containing Waste Materials to the disposal facility.
- E. At the conclusion of Work, the Contractor shall provide evidence (such as a "Bill of Lading" or "Hazardous Waste Manifest") that the Asbestos-Containing Waste Material was disposed of at the CWRCB permitted and approved Hazardous Waste Disposal Facility. The evidence shall be submitted with the final request for payment. The Contractor shall indicate on the "Bill of Lading" or "Hazardous Waste Manifest" the weight, in tons, of the Asbestos-Containing Waste Material generated from the Project. This weight amount must be confirmed by a party independent from the Contractor.
- F. The Contractor shall be responsible for the safe handling and transportation of all Non-Hazardous and/or Hazardous Waste, generated by the Project of this Contract, to the

designated Non- Hazardous and/or Hazardous Waste Disposal Facility. The Contractor shall bear all costs for all claims, damages, losses, and clean up expenses against the Owner or the Owner's Representative, including but not limited to attorney's fees rising out of, or resulting from, Asbestos spills on the site or spills in route to the Hazardous Waste Disposal Facility.

- G. Non-friable Debris Disposal: Roofing, Transite, resilient floor tiles, mastic and other Non-friable Asbestos-Containing Materials shall be disposed of as non-friable asbestos waste.

1.3.6 AIR MONITORING AND TESTING

A. Area Air Monitoring:

- Throughout removal, encapsulation, and cleaning operations, Area Air Monitoring shall be conducted by the Owner's Representative to ensure that the Contractor's engineering controls and work practices are minimizing worker and public exposures to airborne asbestos fibers, in accordance with applicable codes, regulations, and ordinances. Fiber counting shall be done by PCM in accordance with NIOSH Method 7400, with the following as the appropriate sampling areas, volume and number of samples as recommended by the EPA:

<u>Areas To Be Sampled</u>	<u>Minimum Number of Samples</u>	<u>Minimum Volume</u>
Work Area	1/work shift	1200L
Adjacent to Work Area	1/work shift	1200L
At Negative Air Equipment Exhausts	1/work shift	1200L

- The Owner's Representative shall report the Area Air Monitoring results to the Contractor on the following day. If Area Air Monitoring results are unsatisfactory, the Contractor shall make changes in his engineering controls and work practices to assure compliance with the following standards. Unsatisfactory results are fiber counts within the Work Area in excess of the Maximum Acceptable Level or fiber counts outside the Work Area in excess of the Benchmark.

B. Personal Air Monitoring:

- Contractor shall conduct initial and periodic eight (8) hours TWA and thirty (30) minute excursion limit air monitoring of Worker exposures to airborne concentrations of Asbestos fibers in accordance with OSHA (CFR 1926.1101) and DOSH (CCR Title 8 Section 1529) requirements.
- Once OSHA and DOSH sampling requirements are satisfied the Contractor shall conduct, as a requirement of this Contract, not less than one (1) personal air sample, twice per calendar week, to determine 8-hours TWA exposures and thirty (30) minute Excursion Limit exposures of workers operating in each Work Area. Samples shall be collected within the Workers' breathing zones. Samples shall be taken for each ten (10) workers from the time preparation work is started until the Work Area has passed Clearance Testing. NOTE: Contract required personal sampling is not necessary while the Contractor is conducting OSHA and/or DOSH required sampling or when Type C Respirators are in use.

3. The Contractor shall report Personal Monitoring results to the Owner's Representative within 48 hours from the end of the work shift. Worker exposures to airborne Asbestos concentrations shall not exceed the Permissible Exposure Limit (PEL) of 8-hours TWA of 0.1 fibers per cubic centimeter of air, or the 1 f/cc 30 minutes' period Excursion Limit.

C. Clearance Testing:

1. The Contractor should not be released until final inspection and air testing are performed using NIOSH Method 7400 PCM analysis in accordance with the guidelines set forth in EPA Document 560/5-85-024 Guidance for Controlling Asbestos-Containing Materials in Buildings and with the exception that only one (1) air sample be taken for each Work Area and that 1,200 liters of air is required.

1.3.7 REIMBURSEMENT OF COSTS

- A. In the event that reviews and/or Clearance Testing by the Owner's Representative or regulatory agencies shows that the Work Area or any portion of the Work Area is not decontaminated or if the Work is not in conformance with the Contract Documents, the Owner and Owner's Representative will record all time, tests and project related expenses expended to monitor the Work until the work is in compliance. All time, and expenses recorded by the Owner and Owner's Representative to monitor the above work, and all time, tests and project related expenses incurred by the Owner and Owner's Representative outside the Project Work Days, Work Hours or Contract Time shall, at the discretion of the Owner, be paid for by the Contractor. The Contractor, promptly upon receipt of the billing from the Owner, or the Owner's Representative, shall reimburse the Owner at the normal billing rate of the Owner or the Owner's Representative, or the Owner is authorized to withhold funds from the Contract Sum, for all time spent by the Owner and Owner's Representative for reviews, testing, and other project related expenses when any of the above conditions occur.

1.3.8 STOPPING THE WORK

- A. If, at any time, the Owner's Representative decides that Work Practices are violating pertinent regulations, these Specifications or, in his opinion, endangering Workers or the public, he will immediately notify the Contractor (followed up in writing) that operations shall cease until corrective action is taken, and the Contractor shall take such corrective action before proceeding with the Work. Loss or Damages due to a Stop Work Order shall be borne by the Contractor.

1.3.9 CLEANUP

- A. Contractor shall maintain a clean Project site during and upon completion of the Project. Cleaning shall be in accordance with the General Conditions.

END OF SECTION I

SECTION II- LEAD LEAD ABATEMENT AND LEAD-RELATED CONSTRUCTION WORK SPECIFICATIONS

PART 1 - GENERAL

2.1.0 DESCRIPTION

- A. Work included: Contractor shall furnish all labor, materials, services, permits, insurance (specifically covering the handling and transportation of Lead Based Material & Lead-Containing Material and Lead-Containing Waste Material), and equipment which is specified, shown, or reasonably implied for lead-related construction work associated with the Lead-Based and/or Lead-Containing Paints listed in the following table:

Identified Lead-Based Paints – XRF Foothills Adult Education Main Building 1550 Melody Lane, El Cajon, CA 92019								
Reading	Room	Side ¹	Structure	Condition ²	Substrate	Color	Reading (mg/cm ²)	Classification ³
19	Women's Restroom	N	Wall	I	Ceramic	Off-White	9.9	LBP
28	Janitor	W	Sink	I	Porcelain	White	9.9	LBP
34	Men's Restroom	N	Wall	I	Ceramic	White	9.9	LBP
42	Men's Restroom	W	Baseboard	I	Ceramic	Off-White	9.9	LBP
43	Women's Restroom	W	Baseboard	I	Ceramic	Off-White	9.9	LBP
57	S Men's Restroom	E	Wall	I	Ceramic	White	9.9	LBP
58	S Men's Restroom	E	Baseboard	I	Ceramic	White	9.9	LBP
68	S Women's Restroom	E	Baseboard	I	Ceramic	Off-White	9.9	LBP
69	S Women's Restroom	W	Wall	I	Ceramic	Off-White	9.9	LBP
125	E Women's Restroom	N	Baseboard	I	Ceramic	White	9.9	LBP
166	Supply Room	N	Sink	I	Porcelain	White	9.9	LBP
Legend: mg/cm ² = milligrams per centimeter squared 1 Side: N = North, E = East, W = West, S = South, C = Center 2 Paint Condition: I = Intact, D = Deteriorated 3 Classification: BDL = Below the XRF's detection level; less than 0.1 mg/cm ² . LCP = Lead Containing Paints; equal to or exceeding 0.1 mg/cm ² . LBP = Lead-Based Paints; equal to or exceeding 1.0 mg/cm ² or 0.7 mg/cm ² for Los Angeles County. * Paint conditions are based on visual observations in survey area. Different conditions may be present in other areas of the Subject Property.								

- B. Contractor is required to verify the scope of work prior to commencing work, including quantities of materials to be removed, and to determine the degree of difficulty in removing the identified materials.
- C. Applicable Publications: The work conducted shall comply with all applicable federal, state and local regulations. Applicable guidelines and standards listed in this Scope of Work include, but are not necessarily limited to:
- Department of Housing & Urban Development (HUD) "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" dated June, 1995.
 - Code of Federal Regulations (CFR) Publications:
 - 29 CFR 1910.134 Respiratory Protection
 - 29 CFR 1910.145 Specifications for Accident Prevention Signs & Tags

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| 29 CFR 1910.147 | Lockout/Tagout |
| 29 CFR 1910.1020 | Access to Employee Exposure & Medical Records |
| 29 CFR 1910.1025 | Lead General Industry Standard |
| 29 CFR 1910.1200 | Hazard Communications |
| 29 CFR 1926.55 | Gases, Vapors, Fumes, Dusts & Mists |
| 29 CFR 1926.62 | Lead Construction Standard |
| 29 CFR 1926.200 | Signs, Signals & Barricades |
| 40 CFR 61 | National Emission Standards for Hazardous Air Pollutants |
| 40 CFR 257 | Criteria for Classification of Solid Waste |
| 40 CFR 261 | Identification and Listing of Hazardous Waste Disposal Facilities and Practices |
| 40 CFR 262 | Standards Applicable to Generators of Solid Waste |
| 40 CFR 745 | Lead-Based Paint Poisoning Prevention in Certain Residential Structures |
3. California Code of Regulations (CCR) Publications:
- | | |
|------------------------|---------------------------------------|
| 8 CCR 1532.1 | Construction Safety Orders - Lead |
| 8 CCR 5198 | General Industry Safety Orders - Lead |
| 8 CCR 5144 | Respiratory Protective Equipment |
| 17 CCR Div. 1, Chap. 8 | Lead Based Paint and Lead Hazards |
4. American National Standards Institute (ANSI) Publications:
- | | |
|------------|--------------------------------------|
| Z88.2-2015 | Practices for Respiratory Protection |
| Z87.1-2010 | Eye Protection |
5. National Institute of Occupational Safety & Health (NIOSH) Publications:
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| Manual of Analytical Methods, 2nd Edition, Volume 1, Physical & Chemical Analysis Method (P&CAM) |
| Method 7082 |
| Method 7300 |
6. Other Local or Regional Regulations that apply to Lead-Related Work.

Please note Contractor is responsible for ascertaining the extent to which these regulations will affect removal operations and to comply therewith.

2.1.1 DEFINITIONS

General Explanation: A substantial amount of specification language constitutes definitions for terms found in other contract documents. Certain terms used in Contract Documents are defined in this article.

- A. Owner: Grossmont Unified School District
- B. Abate or Abatement: Means any set of measures designed to reduce or eliminate lead hazards or lead-based paint.
- C. Accredited or Accreditation: A person or laboratory accredited in accordance with Section 206 of Title II of the Toxic Substances Control Act (TSCA) and/or accredited by the American Industrial Hygiene Association (AIHA).
- D. Aerosol: A system consisting of particles, solid or liquid, suspended in air.

- E. Air Monitoring: The process of measuring the lead content of a specific volume of air.
- F. Authorized Visitor: The Owner, the Owner's Representative, testing lab 2F, the Consultant/Engineer, emergency personnel or a representative of any federal, state and local regulatory or other agency having authority over the project.
- G. Barrier: Any surface that seals off the work area to inhibit the movement of particles.
- H. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.
- I. Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded.
- J. Certified Industrial Hygienist (C.I.H.): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.
- K. California Certified Lead Professional: means an individual who has a current Lead-Related Construction Certificate with the California Department of Public Health (CDPH). This includes Certified Inspector/Assessors, Project Monitors, Contactor Supervisors and Sampling Technicians.
- L. Contractor: Means any business entity, public unit, or person performing the actual abatement for a lead abatement project.
- M. Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.
- N. Disposal Bag: A properly labeled 6 mil thick leak-tight plastic bags used for transporting lead waste from work and to disposal site.
- O. Encapsulation: Means to resurface or cover surfaces and to seal or caulk seams with a durable material, so as to prevent or control chalking, flaking lead-containing substances from becoming part of construction dust.
- P. Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.
- Q. HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of particles greater than 0.3 microns in diameter.
- R. 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 lead particles. Filters should be of 99.97% efficiency for retaining particles of 0.3 microns or larger.
- S. High-efficiency particulate air filter: HEPA refers to a filtering system capable of trapping and retaining 99.97 percent of all monodispersed particles 0.3 um in diameter or larger.
- T. Interior Work Area: A hallway, room or group of rooms in which abatement takes place on the inside of a property.

- U. Lead-Based Paint (LBP): Paint or other surface coatings that contain lead equal to or greater than one milligram per square centimeter (1.0 mg/cm^2) or more than half of one percent (0.5%) by weight or more than five-thousand parts per million (5,000 ppm) by weight.
- V. Lead-Containing Paint (LCP): Paint or other surface coatings that contain lead equal to or greater than 0.1 mg/cm^2 as measured by XRF RMD or any detectable concentration by AAS or ICP analyses.
- W. Lead-Related Construction Work: means any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance activity, including preparation and cleanup, that, by using or disturbing lead-containing material or soil, may result in significant exposure of adults or children to lead.
- X. 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.
- Y. Negative Pressure Ventilation System: A pressure differential and ventilation system in containments.
- Z. Personal Monitoring: Sampling of the lead concentrations within the breathing zone of an employee.
- AA. Pressure Differential and Ventilation System: A local exhaust system, utilizing 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.
- AB. 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.
- AC. Repair: Returning damaged lead-based paint to an undamaged condition or to an intact state so as to prevent particle release.
- AD. Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period usually 8-hours.
- AE. Visible Emissions: Any emissions containing particulate material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.
- AF. Wet Cleaning: The process of eliminating lead contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with

water containing 5% trisodium phosphate (TSP) or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as lead-contaminated waste.

- AG. Work Area: The area where lead-related work or removal operations are performed which is defined and/or isolated to prevent the spread of lead dust or debris, and entry by unauthorized personnel. Work area is a Regulated Area as defined by 29 CFR 1926.62.

2.1.2 SUBMITTALS

- A. Copies of medical records and blood testing results of workers to be utilized on the project, as performed by an occupational physician or medical doctor and appropriate blood laboratory, as applicable.
- B. Record of successful fit testing performed by a qualified individual within the previous six months, for each employee to be used on this project with the employee's name and social security number with each record.
- C. Proposed respiratory protection program for employees throughout all phases of the job, including make, model and NIOSH approval number of the respirators to be used.
- D. Safety Data Sheets (SDS) on potentially hazardous materials to be used on the project.
- E. The name and address of the Contractor's blood lead testing lab, OSHA, CDC listing and Certification in the State where the work is located.
- F. For lead abatement and disturbance of LBP, Contractor shall submit certification that the job supervisor/foreperson and each lead abatement worker has successfully completed CDPH training courses and that each has had instruction on the dangers of lead exposure, respirator use, decontamination and applicable regulations.
- G. For lead-related construction work and disturbance of LCP, Contractor shall submit documentation that the job supervisor/foreperson and each lead-related construction worker has successfully completed lead hazard communication training and that each has had instruction on the dangers of lead exposure, respirator use, decontamination and applicable regulations.

2.1.3 PERSONAL PROTECTION & HYGIENE

- A. All persons working on a lead abatement or lead-related construction site shall, when present in the work area, wear disposable clothing with attached foot and head covers and at minimum a half face air purifying respirator equipped with high efficiency particulate air filters.
- B. The Contractor shall ensure that all persons entering the work area without exception:
 - 1. Change from street clothes to protective clothing at designated areas prior to starting the day's work.
 - 2. No smoking, eating or drinking is to take place beyond the established critical barrier. Prior to smoking, eating or drinking, the workers will be fully

decontaminated. Each worker will then dress in clean overalls to eat, drink or smoke. These new coveralls can then be worn back into the work area.

- C. The Contractor shall require that each person entering the Work Area shall wear an approved respirator and protective clothing. There shall be no exceptions to this rule.
- D. Protective clothing shall consist of disposable full-body clothing of non-woven material comprised of heat and pressure-bonded polyethylene fibers. Material shall be chemically and biologically inert, low-linting and static free (unless laundered); durable enough to resist abrasion, puncturing and tearing; highly resistant to penetration of air-borne particulate when wet or dry. Suits may be fabricated with integral head and foot covering. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.
- E. The Contractor shall require a minimum of a half-face negative pressure respirator with high efficiency filters during the removal and clean-up operations. Supply a sufficient quantity of respirator filters so that workers can change filters as needed. Require that respirators be wet-rinsed and filters discarded each time a worker exits the work area. Require that new filters be installed each time a worker re-enters the work area. Store respirators and filters at the job site and protect them totally from exposure to lead dust prior to their use.
- F. Wearing of contact lenses in the contaminated atmosphere shall not be permitted.

2.1.4 RESPIRATORS

- A. The Contractor shall provide approved respirators to all workers at no charge.
- B. The Contractor shall require that each person entering the work area shall wear an approved respirator. There shall be no exceptions to this rule.
- C. The Contractor shall instruct and train each worker involved in lead abatement or lead-related construction in proper respiratory use and require that each worker always wear a respirator, properly fitted on the face in the work area from the start of any operation which may cause airborne lead particles until the work area is completely decontaminated.
- D. The Contractor shall ensure that the employees will use respiratory protection that is appropriate for the lead level encountered in the work place or as required for other toxic or oxygen-deficient situations encountered.
- E. Except to the extent that more stringent requirements are written directly into the Contract Documents, the following regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet the more stringent requirement.

OSHA - U.S. Department of Labor Occupational Safety and Health Administration,
Safety and Health Standards 29 CFR 1910, Section 5208 and Section 1910.134, 29
CFR 1926.62.

ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2-2015.

NIOSH - National Institute for Occupational Safety and Health Approved Respiratory Protection Devices and Lead Air Samples Analytical Methods

CDPH – California Department of Public Health Title 17 Lead Regulations

F. Air Purifying Respirators

1. Respirator Face-Piece: Provide half face or full face type respirators. Equip full face respirators with a nose cup or other anti-fogging device.
2. Filter Cartridges: Provide, at a minimum, HEPA type filters labeled with NIOSH Certification for "P-100" and color coded magenta. In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate magenta and black color code and NIOSH Certification.
3. Non-permitted respirators: Do not use single use, disposable or quarter face respirators.

G. Fit Testing:

1. Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection training course. Fit types of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which training and fit testing have been provided.
2. On an Annual Basis: check the fit of worker's respirator by having irritant smoke blown onto the respirator from a smoke tube.
3. Upon Each Wearing: Require that each time an air-purifying respirator is put on it be checked for fit with a positive and negative pressure fit test in accordance with the manufacturer's instructions or ANSI Z88.2 (2015).

H. Permissible Exposure Limit (PEL):

1. 8-Hours' Time Weighted Average: TWA concentration of lead to which any worker may be exposed to shall not exceed 50 µg/m³.

I. Respiratory Protection Factor:

From 8 CCR 5144 Table 1 – Assigned Protection Factors

<u>Respirator Type</u>	<u>Protection Factor</u>
Air purifying respirator: Negative pressure respirator P-100 filter Half facepiece	10
Air purifying respirator: Negative pressure respirator P-100 filter Full facepiece	50

Powered Air Purifying Respirator (PAPR): Positive pressure respirator P-100 filter Full facepiece	1,000
Supplied Air Respirator: Positive pressure respirator Continuous flow or Pressure demand or other positive pressure mode Full facepiece	1,000
Self-contained breathing apparatus (SCBA): Pressure Demand mode	10,000

2.1.5 DRESS AND EQUIPMENT

- A. The Contractor shall provide approved protective clothing to all workers, and to all official representatives of the Owner, State or other governmental entity, and the Consultant who may inspect the job site.
- B. Protective clothing shall consist of disposable full-body clothing of non- woven material comprised of heat and pressure-bonded polyethylene fibers. Material shall be chemically and biologically inert, low-linting and static free (unless laundered); durable enough to resist abrasion, puncturing and tearing; highly resistant to penetration of air-borne particulate when wet or dry. Suits may be fabricated with integral head and foot covering. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.
- C. Disposable protective clothing shall be disposed of as lead waste every time the wearer exists from the work space/equipment room to the shower room while proceeding to the clean area. Workers shall thoroughly wash with soap and water before exiting the shower room.
- D. If launderable clothing is to be worn underneath disposable protective clothing, it shall be provided by the Contractors to all abatement and lead-related construction workers. (It is recommended that launderable clothing be a unique, specific color to enable it to be distinguished from general purpose blue, gray or black coveralls which are commonly worn). It is preferable that the following procedures be utilized:
 - 1. Launderers must be trained in proper techniques for handling lead contaminated clothing and provided with personal protective equipment consisting of appropriate respirators and disposable clothing for use when needed.
 - 2. Machines used for laundering contaminated clothing shall be isolated and restricted for such use.
 - 3. Discharged water shall not exceed 0.02 mg/l of lead.
 - 4. Dryers shall be isolated and restricted for use with contaminated fabrics and have HEPA filtered exhaust.
 - 5. Such maintenance shall be performed by protected individuals (as per paragraph a above).

- E. Additional safety equipment: Hard hats shall meet the requirements of ANSI Standard Z89.1-2014; eye protection shall meet the requirements of ANSI Standard Z87.1-2010 and foot protection shall meet the requirements of ANSI Standard Z41.1-1991; disposable PVC gloves as necessary shall be provided to all workers and authorized visitors. Non-skid footwear shall be provided to all abatement and lead-related construction workers.

PART 2 - PRODUCTS

2.2.0 WASHING AGENT

- A. 5% Tri-Sodium phosphate (TSP) at one ounce per gallon of water.

2.2.1 PROTECTIVE COVERING

- A. Protective sheeting for floors and walls shall be a minimum of 6-mil in thickness and conform to ASTM E154, D124B, D2103 and D4379.
- B. Polyethylene sheeting shall be fire resistive.
- C. Polyethylene sheeting shall be opaque in color.

2.2.2 PROTECTIVE PACKAGING

- A. Bags utilized for waste shall be a minimum of 6-mil thickness and labeled for hazardous waste. Drums utilized for waste shall be 55-gallon drums with a sealable lid and properly labeled.

2.2.3 CAUTION SIGNS

- A. At each separate work area, the contractor performing abatement or lead-related construction shall display a caution sign in the following manner wherever the treatment process is expected to break or disturb any lead-containing substances.
- B. Before removing or disturbing lead, the Contractor shall post signs immediately outside all entrances and exits to the work area.
- C. The Contractor shall ensure that caution signs meet the following description:
 - 1. The sign is at least 20" by 14", and states the date and place of the lead abatement project.
 - 2. The sign shall state in bold lettering at least 2" high:

**DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA**

2.2.4 CHEMICAL STRIPPING AGENT

- A. Contractor shall receive Environmental Consultant's approval of chemical stripping agents prior to implementation. Stripping agents shall not contain methylene chloride.

PART 3 - EXECUTION

2.3.0 WORK AREA PREPARATION

- A. Contractor shall ensure that the lead contamination is confined within the work area and that all surfaces located in the work area are free from any lead accumulation when the work is completed. This shall be accomplished by creation of an impermeable containment.
- B. Procedures for the removal/disturbance of lead-based paint (LBP) from interior components and removal of lead-containing ceramic tile shall be executed in a Contained Work Area:
 - 1. Establish critical barriers to contain and prevent the movement of lead out of the work area. Critical barriers will be established over all penetrations leading to areas adjacent to work areas, utilizing two layers of 6-mil polyethylene sheeting.
 - 2. Cover floor in the work area with a minimum of two layers of polyethylene sheeting at least 6-mil thickness and duct tape. All seams and joints shall be at least six (6) feet apart, where applicable, and sealed with duct tape.
 - 3. Erect containment walls utilizing a minimum of two of fire resistive and opaque 4-mil polyethylene sheeting.
 - 4. Connect a two-stage de-contamination unit to the contained work area. Decontamination unit shall consist of a clean room and an equipment room. Z locks shall be established to contain and prevent the movement of lead out of the work area.
 - 5. Containment shall not impede ingress or egress from residences.
- C. Procedures for the removal/disturbance of lead-based paint (LBP) from exterior components shall be executed in an Isolated Work Area:
 - 1. Establish barriers to contain and prevent the movement of lead out of the work area. Barriers will be established to isolate the Work Area utilizing barricade tape.
 - 2. Cover ground in the Work Area with a minimum of one layer of polyethylene sheeting at least 6-mil thickness. All seams and joints shall be at least six (6) feet apart, where applicable, and sealed with duct tape. Sheeting is to extend a minimum of 15 feet out from the component in all directions.
 - 3. Decontamination equipment shall consist of a wash station and HEPA equipment. Steps shall be taken to contain and prevent the movement of lead out of the Work Area.
 - 4. Containment shall not impede ingress or egress from non-Work Area.
- D. Procedures for the removal/disturbance of lead-containing paint (LCP) from components shall be executed in a Regulated Work Area:

1. Establish barriers to contain and prevent the movement of lead out of the work area. Barriers will be established to isolate the Work Area utilizing barricade tape.
2. Cover ground in the Work Area with a minimum of one layer of polyethylene sheeting at least 6-mil thickness. All seams and joints shall be at least six (6) feet apart, where applicable, and sealed with duct tape. Sheeting is to extend a minimum of 6 feet from the component in all directions.
3. Decontamination equipment shall consist of a wash station. Steps shall be taken to contain and prevent the movement of lead out of the Work Area.
5. Containment shall not impede ingress or egress from non-Work Area.

2.3.1 DECONTAMINATION PROCEDURES

- A. The employer shall assure that all employees, who work in areas where airborne exposure to lead is expected, decontaminate whenever exiting the work area and at the end of the work shift.
- B. Decontaminating will consist of rinsing the whole body and protective clothing with water from a water sprayer or portable shower located in the two stage decontamination unit and then disposing of the protective clothing.
- C. All shower waste water will be filtered through a final stage 5 micron filter prior to disposal.
- D. Disposable protective clothing shall be disposed of as lead waste every time the wearer exits from the work area.

2.3.2 REMOVAL PROCEDURES

- A. Begin work by applying a light mist of TSP-treated water to painted surfaces to be abated. Scrape off flaking paint using soft nylon bristled brushes.
- B. If chemical stripping agents are to be utilized, use of said products shall be used in strict accordance with the manufacturer's instructions. Products containing Methylene Chloride are prohibited, unless approved in writing.
- C. In the case of lead-containing ceramic tiles, the tile must be removed in manageable sections by a multi-person team, some of whom are wetting to prevent emission of lead-based paint dust and the remainder removing and cleaning.
- D. Prevent build-up of excess water and debris by regularly using a HEPA vacuumed system to containerize debris and water.
- E. Once all flaking paint has been removed, prepare surface for re-painting by lightly feathering painted surface with sand paper and primer.
- F. Wash all work area surfaces with TSP solution and HEPA vacuum area.

2.3.3 CLEANUP OF THE WORK AREA

- A. After completion of the removal, separate and deposit all lead waste, including sealing tape, plastic sheeting, mop heads, sponges, filters, and disposable clothing in double polyethylene bags of at least 6 mils thick and seal each bag separately;
- B. Again wash with TSP, vacuum-clean all surfaces in the work area woodwork, walls, floors, etc. with a HEPA vacuum.
- C. No equipment, supplies or materials (except properly containerized waste materials) shall be removed from the project work area unless such equipment, supplies and/or materials have been cleaned free of lead debris. Where the configuration of the equipment, supplies and/or materials in such that decontamination and cleaning free of lead debris is neither possible or feasible, then the object shall be thoroughly wrapped in a minimum of two (2) layers of six (6) mil fire-resistant polyethylene sheeting with all joints, seams and overlaps sealed with duct tape; or containerized in a metal drum with a locking lid. Examples include, but are not limited to Air Filtration or HEPA vacuuming equipment which may be wrapped in plastic rather than dismantling beyond the filters for cleaning purposes; sections of woodwork or other objects to be disposed of intact may be wrapped in plastic without prior removal of lead; wood or other materials used to construct on-site decontamination setup or shower units may be wrapped in plastic for transport to another contaminated work site for reuse.
- D. HEPA vacuums shall be emptied of collected lead waste contents prior to removal of the equipment from the work area.
- E. Plastic shall be bagged as contaminated waste, until testing can prove otherwise.
- F. Following the verification, by an independent third party, that "no visible debris remains", the critical barriers and floor covering may be removed and disposed.

2.3.4 AIR MONITORING AND CLEARANCE TESTING

- A. Throughout removal operations, Area Air Monitoring shall be conducted by the Owner's Representative to ensure that the Contractor's engineering controls and work practices are effective. Air sample analysis shall be performed by ICP in accordance with NIOSH Methods No. 7300, 7302 or 7304 for lead. The following sampling protocol may be employed:

Areas To Be Sampled	Minimum No. of Samples	Minimum Volume
Benchmark at Work Area	1/work area	960L
Common Area Adjacent to Work Area	1/work area	960L
Work Area	1/work shift	960L
Common Area Adjacent to Work Area	1/work shift	960L
At Negative Air Equipment (if exhausts inside building)	1/work shift	960L

- B. If Area Monitoring results are unsatisfactory Contractor shall make changes in his engineering controls and work practices to ensure compliance with the following standards. Unsatisfactory results are dust levels within the Work Area in excess of the PEL (50

micrograms per cubic meter) or dust levels outside the Work Area in excess of the benchmark.

C. Clearance Testing

1. After the final clean-up, a preliminary visual inspection will be conducted by the Owner's Representative to ensure that all visible dust and debris has been removed. The Contractor shall provide the Owner's Representative at least 24 hours' notice prior to scheduling inspections. If the results of the initial visual inspection are satisfactory, the Owner's Representative will proceed to collect clearance dust wipe samples within 24 hours of the inspection.
2. If the Work Area is not visibly clean, as determined by the preliminary visual inspection by the Owner's Representative, the Contractor shall re-clean and decontaminate, until the work area passes inspection.
3. All clearance wipe samples shall be collected in accordance with Regulatory Guidelines at the discretion of the Owner's Representative, a minimum of three samples per 1,000 SF, one each from the floor, window sill and exterior horizontal surface.
 - a. Clearance Guidelines:
40 $\mu\text{g}/\text{ft}^2$ (Interior floors)
250 $\mu\text{g}/\text{ft}^2$ (window sills)
400 $\mu\text{g}/\text{ft}^2$ (exterior horizontal surfaces)

2.3.5 REIMBURSEMENT OF COSTS

- A. In the event that reviews and/or Clearance Testing by the Owner's Representative or regulatory agencies shows that the Work Area or any portion of the Work Area is not decontaminated or if the Work is not in conformance with the Contract Documents, the Owner and Owner's Representative will record all time, tests and project related expenses expended to monitor the Work until the work is in compliance. All time, and expenses recorded by the Owner and Owner's Representative to monitor the above work, and all time, tests and project related expenses incurred by the Owner and Owner's Representative outside the Project Work Days, Work Hours or Contract Time shall, at the discretion of the Owner, be paid for by the Contractor. The Contractor, promptly upon receipt of the billing from the Owner, or the Owner's Representative, shall reimburse the Owner at the normal billing rate of the Owner or the Owner's Representative, or the Owner is authorized to withhold funds from the Contract Sum, for all time spent by the Owner and Owner's Representative for reviews, testing, and other project related expenses when any of the above conditions occur.

2.3.6 BUILDING CONTAMINATION

- A. If it is determined by visual identification or air samples that building contamination has occurred as a result of the negligence and/or poor work practices of the Contractor, the Contractor agrees to clean the affected premises at no charge to the Owner. The

Contractor also agrees to accept all liability for damages claimed or lawsuits brought by person(s) exposed to such contamination.

- B. The Contractor shall be responsible for all costs incurred by the Consultant should other portions of the building become contaminated with lead dust as a result of the Contractors poor work practices or other activities.

2.3.7 REPAIR AND PAINTING

- A. Contractor shall leave all finished surfaces and other items in Work Areas in the condition in which they were prior to the commencement of the Project. Damage to finishes and other items as the result of Work under this Contract shall be repaired or replaced, painted or cleaned to the satisfaction of the Owner's Representative. Delays due to repair Work are not cause for extension of the deadline for the completion of the Project. Repairs shall be in accordance with standard construction methods for the item(s) in need of repair. Submit for approval all repair materials and methods. All costs for cleaning, painting, and repair as the result of the Contractor's or his Subcontractors' activities shall be borne by the Contractor.

2.3.8 DISPOSAL OF LEAD-BASED PAINT WASTE

- A. The Contractor shall contact the regional EPA, state, and local authorities to determine lead-based paint debris disposal requirements. The requirements of RCRA shall be complied with as well as applicable state solid waste plan requirements. During abatement, the Contractor shall not leave debris on the property, incinerate debris, dump waste by the road or in an unauthorized dumpster, or introduce lead-contaminated water into storm (will not be flushed down yard inlet or street drain) or sanitary sewers (will not be flushed down toilet or other household drain).
- B. The Contractor shall have representative samples collected and analyzed of waste streams containing any confirmed, suspect or presumed/assumed lead containing materials/wastes to include, but not necessarily limited to the following:
 - 1. Painted components;
 - 2. Paint chips;
 - 3. Debris;
 - 4. Dust from HEPA filters and from damp sweeping;
 - 5. Plastic sheeting, duct tape, or tape used to cover floors and other services during the lead abatement or lead-related construction;
 - 6. Liquid waste, such as wash water used to decontaminate wood after removal has been performed;
 - 7. Waste water;
 - 8. Rags, sponges, mops, scrapers, and other materials used for testing, abatement, lead-related construction, and clean up;
 - 9. Disposable work clothes and respirator filters used during lead abatement or lead-related construction activities; and
 - 10. Any other items intended for non-hazardous disposal that are painted or coated.

- C. In order to determine whether the wastes are classified as nonhazardous solid or hazardous waste as defined under the Resource Conservation and Recovery Act, the Toxicity Characteristic Leaching Procedure (TCLP) must be performed utilizing the appropriate SW-846 analytical methods by the Contractor or the Contractor's Representative using accredited laboratories. Representative samples shall be required of all material to be disposed. Representative sampling shall be at a minimum, one sample of each component with lead-based paint to be disposed of.

Contractor or the Contractor's Representative must comply with California regulations on projects in California and conduct hazardous waste sampling and analysis in accordance with the appropriate EPA SW-846 methods for Total Threshold Limit Concentration (TTLC) and the Waste Extraction Test (WET) for Soluble Threshold Limit Concentration (STLC) using accredited laboratories. If any of these samples are above the TTLC, STLC, or TCLP regulatory limits, the Contractor shall dispose of all of that type of material in accordance with regulations for hazardous waste.

- D. The Contractor shall submit written manifest to Owner or Owner's Representative prior to removing any waste from site and shall submit complete manifest to Owner or Owner's Representative after waste is disposed at the approved landfill.
- E. For waste disposal and classification, the following documents are made applicable and part of this Section: 40 CFR 241, 257, 261, 262, and 49 CFR 172, 173, 178, and 179.

2.3.9 DISPOSAL OF NON-HAZARDOUS CONTAMINATED SOLID WASTE

- A. The Contractor shall place lead-based paint chips, debris, and lead dust in double six-mil polyethylene bags that are air-tight and puncture resistant. Pieces of wood or other types of substrates that do not fit into plastic bags shall be wrapped and labeled "DANGER, LEAD DUST".
- B. The Contractor shall place all disposable cleaning materials, such as sponges, mop heads, filters, disposable clothing in double 6-mil plastic bags and seal.
- C. The Contractor shall clean surfaces and equipment and bag large debris. Lead Abatement Sub-Contractor shall then remove plastic sheeting and tape from covered surfaces. Prior to removing the plastic sheeting, Lead Abatement Sub-Contractor shall lightly mist the sheeting in order to keep dust down and fold inward to form tight bundles to bag for disposal. Lead Abatement Sub-Contractor shall place all plastic sheeting in double 6-mil thick plastic bags and seal. Any bags shall be labeled "Danger, Lead Dust".
- D. The Contractor shall bag and seal vacuum bags and filters in double 6-mil thick plastic bags.
- E. The Contractor shall place all contaminated clothing or work area clothing used during abatement, in plastic bags for disposal prior to leaving the work area.
- F. The Contractor shall place caustic paste residues in drums made out of materials that cannot be dissolved or corroded by chemicals. Caustic and acid waste must be segregated and not stored in the same containers.

- G. The Contractor shall contain and properly dispose of all liquid waste, including lead-dust contaminated waste water.
- H. The Contractor shall HEPA vacuum the exterior of all liquid waste containers. Prior to removing the waste containers from the work area, and wet wipe the containers to ensure that there is no residual contamination. Containers shall then be moved out of the work area into the designated storage area.
- I. The Contractor shall carefully place the containers into the truck or dumpster used for disposal.
- J. The Contractor shall ensure that all waste is transported in covered vehicles to a landfill, or lined landfill, if available, in accordance with applicable California Environmental Protection Agency's (Cal/EPA) Department of Toxic Substance Control (DTSC), United States Department of Transportation (DOT) and EPA Regulations.
- K. The Contractor shall submit to Owner, the waste transfer procedure and route, and shall comply with all DTSC and DOT regulations concerning hazardous and non-hazardous waste removal and transportation. If a Lead Abatement Sub-Contractor is utilized for the disposal procedure, the Contractor shall submit for Owner's or Owner's Representative approval, the Contractor qualifications to perform the work as specified in this Specification. The Contractor shall be responsible for all actions of the waste hauler as pertaining to waste removal and disposal under this Section.

2.3.10 DISPOSAL OF HAZARDOUS WASTE

- A. The Contractor and transporting Sub-Contractor will be required to comply with the RCRA and with all applicable state and local regulations.
- B. The Contractor shall comply with all EPA regulations.
- C. The Contractor shall place caustic paste residues in drums made out of materials that cannot be dissolved or corroded by chemicals. Caustic and acid waste must be segregated from each other and cannot be stored in the same containers. Other materials testing as hazardous shall be prepared for disposal as follows:
 - 1. Packaged and sealed in containers approved under Title 49 CFR 173, 178, and 199.
 - 2. Containers shall be numbered to correspond to the seal number, labeled with the type of materials, date it was filled and sealed, seal number, weight of sealed container in addition to the information required under Title 49 CFR 172.
 - 3. A log shall be prepared at time of filling, identifying each numbered container and the information from "b" above. A copy of this log shall be turned over to the Owner's Representative/Industrial Hygienist within 3 working days after the containers are filled.
 - 4. Name, location and telephone number of the disposal site used. A copy of the sites state and locally issued license, and a signed agreement that they will accept the

- hazardous lead waste, shall be provided to the Owner's Representative/Industrial Hygienist.
5. Name, address and telephone number of any waste Sub-Contractors used. Provide copies of licenses and signed agreements to the Owner's Representative/Industrial Hygienist.
 6. Submit copies of the Hazardous Waste manifest as required by these specifications.
- D. Waste Containers: The Contractor will comply with DTSC, EPA and DOT regulations for containers. The Contractor shall contact state and local authorities to determine their criteria for containers, with such information presented to the Owner and Owner's Representative/Industrial Hygienist. The more stringent regulation shall apply.
- E. Waste Transportation: If the Contractor is not a certified hazardous waste transporter, a contract shall be entered into with a certified transporter to move the waste that shall be at the approval of Owner. The Contractor shall require the certified hazardous waste transport to follow RCRA and DOT regulations.
- F. Prior to the removal of any hazardous waste the below listed information must be received in writing to the Owner's Representative/Industrial Hygienist and Owner for their review and approval. Once approval is received by the Contractor from the Owner's Representative/Industrial Hygienist, the waste may be transported as required.
1. Quantity of Hazardous Waste.
 2. Type of Waste Materials.
 3. Method of Containerizing Waste or Waste Treatment and appropriate licensing, certification and regulatory approvals.
 4. Proposed Waste Hauler and Disposal Route.
 5. Proposed Waste Disposal Site or Landfill.
- G. Receipts from the Waste Hauler and waste disposal site or landfill must be received and approved by Owner and Owner's Representative/Industrial Hygienist prior to approval of completion of the applicable phase of work.

2.3.11 COST FOR DISPOSAL OF HAZARDOUS WASTE

- A. The cost for the correct disposal of all waste of this project shall be included in the Total Base Bid, including the lead abatement waste to be disposed of as hazardous waste based upon TTLC, STLC, and TCLP testing as outlined in this section, and according to 40 CFR 241, 261, and 262. The cost for the disposal as hazardous waste shall include all fees, permits, labor, materials, profit, overhead, waste transfer costs, and all other costs incidental of hazardous disposal.
- B. The Contractor shall submit to its approved laboratory for testing, samples of each type of component removed as part of the work of this project. The Contractor's total base bid shall include minimum requirements of the testing of materials referred to in this Section. In addition to these materials, the Contractor's base bid shall include the cost of two samples of each type component that was not removed in the sample dwelling units but will be removed during the project.

- C. Any additional TTLC, STLC, and TCLP testing requested by the Owner shall be at cost agreed to between Owner and Contractor. This cost shall be based upon required turnaround time for sample analysis results, and upon type of analysis requested. The Contractor shall provide a minimum of three (3) competitive prices for review by Owner. The Contractor shall apply for payment for additional testing costs under proper change order procedures as defined in the Contract Documents. The acceptance of the application for change order is subject to the review and approval of the Owner.

END OF SECTION II