SECTION 00005

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Existing Reports & Information*

Pre-Renovation Hazardous Materials Survey Report, Edna Maguire Elementary School; February 2012; Millennium Consulting Associates

* These data sources are incorporated by reference, but detached from the Project Manual.
PART 1 – GENERAL

1.1 DESCRIPTION

A. Purpose: This section is provided to communicate the following:

1. The presence of regulated environmental materials at the subject project site;
2. The intent of the District that all non-abatement trades (i.e. demolition, electrical, mechanical, plumbing contractors, etc.) may not abate, remove, disturb or otherwise accomplish various construction tasks in, on or around asbestos and/or lead containing construction materials in a manner which may cause disturbance of such materials.
3. Technical details of the type, location and estimated quantities of regulated environmental materials can be obtained by reviewing the following: Hazardous Materials Plans, Sections 02010, 02080, 02090 and 02095 of this document.

1.2 EXISTING CONDITIONS

A. Owner's Knowledge - Existing conditions are reflected correctly to the best of Owner's knowledge. Should minor conditions be encountered which are not exactly as indicated, modification to new work shall be made as required at no additional expense to Owner.

B. Summary of Regulated Materials - Results of tests of hazardous materials are available upon request. Contractor is cautioned that, should interpretations to be made, opinions be formed, and conclusions be drawn as a result of examining the test results, those interpretations, opinions, and conclusions will be those made, formed and drawn solely by Contractor.

C. Representations - Owner makes no representation, warranty, or guaranty that the conditions indicated by the test reports either are representative of those conditions existing throughout the area, or that unforeseen developments may not occur, or that materials other than, or in proportions different from those indicated may not exist.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.
PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Project Background:

The work under this specification will involve the disturbance and/or removal, handling, transportation or disposal of lead-based paint (LBP), lead-containing construction materials; it may involve the disturbance and/or removal, handling, transportation or disposal of asbestos containing materials (ACM), and PCB lighting ballasts and related regulated components (including but not limited to radioactive containing emergency exit signs, mercury-containing thermostats). This specification is meant to be performance based but provides guidelines for the Contractor.

The Contractor shall be responsible for reviewing all specifications, drawings, addenda, hazardous materials reports (included as an attachment to this document) or other information to determine the impact of construction activities on designated or suspect hazardous containing building materials. Such hazards shall include, but may not be limited to asbestos containing materials (ACM), lead-based paint (LBP), PCB lighting ballasts or other non-specified materials.

The contractor shall refer to this Section 02010, the Pre-Demolition Survey Report, Hazardous Material Plans and the Project Manual for details on materials, quantities, locations and work requirements. Should any conflicts exist, the contractor shall base its bid on the higher value scope (i.e. increased quantity/scope of work).

Should the Contractor suspect, encounter or have knowledge of any hazards not listed or described in the contract documents, the Contractor shall be responsible for informing the Owner via the Construction Manager and the Environmental Consultant for the Owner (Owner's Representative), immediately and prior to disturbing or causing any action which could result in a release of any suspected or confirmed hazardous material.

The Contractor shall be solely responsible for determining quantities that are actually impacted or may be impacted during the renovation or demolition activities described in the contract documents.

It is the responsibility of the Contractor to be knowledgeable of all federal, state or local regulations and requirements and comply with the most stringent portions of those regulations and requirements.

B. Work included - Abatement Sub-Contractor (Contractor) shall furnish all labor, materials, services, permits, insurance (specifically covering the handling and transportation of Asbestos-
Containing Material, Asbestos-Containing Construction Material, Asbestos-Containing Waste Material, Lead-Based Paint, Lead Containing Waste Materials, PCB Containing Fluorescent Light Ballasts, and Fluorescent Light Tubes), and equipment which is specified, shown, or reasonably implied for the following activities:

1. **The removal and disposal** of the following Asbestos-Containing Material(s), including any existing debris:
   a. Roof Penetration Mastic: Located at/on roofing components throughout Robin's Nest buildings, Administration, Multi-Purpose Building, Classroom Buildings 1 & 2, Marin day School and all associated Portico Roofing Systems. Estimated quantity: 500 square feet.
   b. 9" Floor tile and associated mastic: Located in the hallway closets at Classroom Buildings 1 & 2. Estimated quantity: 500 square feet.
   c. Floor tile mastic remnants: This material has been observed intermittently. The observed mastic is likely remnants from past flooring replacement/abatement projects. For planning and budgeting purposes, the estimated quantity is 4,500 square feet. The base bid shall provide for this quantity; an add/deduct unit price will be required to account for substantial (>20%) variations in material quantities.

2. **The removal and disposal** of the following floor coverings any existing debris:
   a. Floor covering, including non-asbestos resilient flooring and carpeting from Classrooms in Buildings 1 & 2. Floor coverings are non-asbestos containing; remnants of asbestos-containing mastics (beneath yellow non-asbestos-containing mastic) may be present. Dispose of as non-regulated material. Estimated quantity: 18,000 square feet total (approx 2,700 square feet of sheet flooring. 15,300 square feet of carpeting).

3. **Demolition, Component Removal, Surface Preparation** (including but not limited to removal of loose/flaking paint) and disposal of the following Lead-Based components. Disposal and waste characterization is to be performed by the contractor (in accordance with Section 02090 of these Specifications):
   a. Exterior: Ceramic tile mural – Estimated quantity: 250 square feet

4. **Removal, packaging, transportation and disposal (or recycling)** of the following Other Environmentally Regulated Materials
   a. PCB-containing fluorescent light ballasts - Contractor remove and segregate all ballasts for subsequent disposal. For bidding purposes, contractor shall assume all ballasts are PCB-containing. Estimated quantity: 285 ballasts.
   b. Heavy-metal containing fluorescent light tubes - Contractor remove, package and recycle all light tubes and illuminating instruments (inclusive of emergency exit signage) throughout. Estimated quantity: 630 light tubes + 24 emergency exit signs.
1.2 WORK NOT INCLUDED IN THE CONTRACT DOCUMENTS

A. Area air monitoring for Owner by an Observing Service.

B. Removal and disposal of electrical, plumbing and mechanical systems - except for those systems which the contractor deems it necessary to perform the scope identified above.

1.3 EXISTING CONDITIONS

A. Existing conditions are reflected correctly to the best of Owner’s knowledge. Should minor conditions be encountered which are not exactly as indicated, modification to new work shall be made as required at no additional expense to Owner.

B. Results of tests of asbestos and lead-containing materials (which are excluded from these Contract Documents) taken from building materials within the scope of this Project are available for review at the Office of the Observation Service. However, contractor is cautioned that, should interpretations be made, opinions be formed, and conclusions be drawn as a result of examining the test results, those interpretations, opinions, and conclusions will be those made, formed, and drawn solely by contractor.

C. Observation Service and General Contractor make no representation, warranty, or guaranty that the conditions indicated by the test reports either are representative of those conditions existing throughout the area, or that unforeseen developments may not occur, or that materials other than, or in proportions different from those indicated may not exist.

D. Contractor is advised that the locations of all hazardous materials may not be clearly known and that he shall proceed with caution in all phases of the Work. Additional hazardous materials may be uncovered during the course of the Work and contractor may be directed by General Contractor to include this material in the Work at an agreed upon price.

1.4 PHASING

A. Contractor may be requested to provide access to the building for other trades throughout the duration of the project. Contractor shall coordinate all scheduling and activities with the General Contractor.

B. The contractor may phase each work task (removal of discrete material as described in these Contract Documents) in any manner it deems reasonable and appropriate. However, contractor may not phase its work such that waste streams are commingled. Further, the contractor may not use processes, introduce agents, materials or otherwise cause a waste to be more toxic by its actions.

1.5 STORAGE

A. Coordinate with General Contractor.

1.6 BUILDING OCCUPANCY AND ACCESS RESTRICTIONS

A. General Contractor or other sub-contractors may enter portions of the facility during the abatement operations. Coordinate work with General Contractor and conduct activities so as to communicate access restrictions.
B. Contractor shall provide access to the building, including via the elevators, at all times. Such access shall not be limited to or restricted to trained and medically qualified individuals.

1.7 WORKING DAYS AND HOURS

A. All work shall be performed from:
   Commence activities on TBD
   Complete all activities not later TBD
   Contractor may work TBD

B. Hazardous material abatement work will be performed from: TBD
C. Hazardous material -free work will be allowed TBD
D. Obtain approval from General Contractor prior to altering work schedule.

1.8 TELEPHONES

A. None required

1.9 PARKING

A. Contractor shall comply with university parking regulations.

1.10 BUILDING SECURITY

A. Maintain personnel on the site at all times when any portion of the work area(s), is open or not properly secured including at hazardous waste transport vehicle. Secure work areas completely at the end of each working day.

1.11 SEGREGATION OF WORK AREAS

A. Coordinate with General Contractor

1.12 PRE-JOB DAMAGE SURVEY OF FACILITY

A. Not applicable.

1.13 CORRECTION OF DAMAGE TO PROPERTY

A. Consider any damage to property not considered in the pre-job damage survey as having resulted from execution of this contract and correct at no additional expense to owner.

1.14 OBSERVATIONS

A. Observation Service will observe the status and progress of the Work for completeness and general compliance with the requirements of the Contract Documents.

B. Observation Service shall verify quantities of materials removed that are conducted on a Unit Price basis. Items removed that have not been accounted for or otherwise verified by the Observation Service will be done so at the expense of the Contractor.
C. The Observation Service will be the sole party responsible for addressing issues associated with Scope (items included) and Technical Work Practices. However, the Observation Service will not issue Change Orders or otherwise provide authorization to proceed on Work outside of these Contract Documents.

1.15 SIGN-IN/OUT LOG

A. All Contractor personnel and Project Site visitors shall Sign-In/Out with the Observation Service on a daily basis for the duration of the project.

1.16 UTILITIES

A. Contractor may temporarily connect to existing permanent utilities during execution of the Work. The cost of water and power consumed will be paid by General Contractor. Contractor shall provide, at its own cost, supplementary power and emergency power as specified in Section 02080 Asbestos Abatement and Section 02090 Lead Abatement.

B. Contractor shall provide all lighting necessary to execute the work.

1.17 SALVAGEABLE MATERIALS

A. Consider all hazardous material free materials and contaminated items demolished or removed in the execution of the Work unsalvageable unless specifically noted otherwise in the Specifications or Drawings. Contractor to have salvage rights to all materials and equipment removed as part of these Contract Documents.

1.18 FUTURE WORK

A. Coordinate and schedule the Work of these Contract Documents in a manner that will expedite the transition to future work by others under separate Contracts.

B. Future work includes, but is not necessarily limited to the following:

1. Dismantling and removal of facility energy systems
2. Demolition of remaining systems
3. Demolition of structure

1.19 HVAC AND ELECTRICAL SYSTEM

A. Coordinate with Owner for the shut down and lock out HVAC and electrical systems for each Work Area. Shut down execution or improper execution by the General Contractor/Owner does not relieve the Contractor of his responsibility to protect his employees, the public and others performing services on the Project from injury or electrical hazards. The Contractor shall be responsible for performing testing, inspecting and the taking of other precautions to insure the safety of the Project.

1.20 GENERAL CONTRACTOR RULES

A. The Contractor shall abide by all facility security rules and regulations.
Not Used.

PART 3 - EXECUTION

Not Used

END OF SECTION
SECTION 02080
ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 SUMMARY
A. This section specifies the methods, procedures, and requirements related to the removal and disposal of Asbestos-Containing Material, Asbestos-Containing Construction Material and Asbestos-Containing Waste Material including, but not limited to:

1. Regulatory requirements
2. Submittals
3. Personal protective measures
4. Execution
5. Inspections
6. Waste handling

B. Related Section:
1. Section 01050 – General Contractor Health & Safety: Contract Requirements and Disclosure
2. Section 02010 – Hazardous Material Summary of Work
3. Section 02090 – Lead-Related Construction
4. Section 02095 – Other Regulated Materials
5. Hazardous Material Plan

1.2 SCOPE OF WORK
A. The Work of this section includes the provision for all labor, materials, equipment and services necessary to effect the preparation, removal, cleaning, and disposal of asbestos, Asbestos-Containing Materials (ACM), and asbestos-containing Construction Materials (ACCM) as indicated by the contract drawings and within Section 02010 of this specification.

B. The Work of the Contract can be summarized as follows:

1. Section 02010, Section 1.1 Paragraph B, subsection 1:
2. Administrative Requirements necessary to execute the Work, including but not limited to: Preparation and delivery of all required submittals;
3. Packaging, transportation and disposal (including all prescribed, implied or otherwise required waste characterization and analysis) of all hazardous and non-hazardous materials and components shown, specified or otherwise implied.

1.3 SUBMITTALS
A. Personnel Training: At the Pre-Construction Meeting, Contractor shall submit (1) declaration certifying that all the Contractor's employees have been adequately trained, and (2) a photocopy of training certificates, for each employee from their respective training agency or organization. Contractor may submit a photocopy of the employee's Asbestos Worker
Certification card in lieu of training certificates. On school (K-12) contracts submit photocopies of AHERA training and refresher course certificates for each employee.

B. Respirators: Submit at Pre-construction Meeting 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 who 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 Written Opinion to the Owner's representative at the Pre-construction Meeting, or prior to each 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.

D. Product Submittals and Substitutions: Comply with pertinent provisions of applicable Sections.

E. Abatement Product Data: Within ten (10) days after Contractor has received the Owner's Notice of Award, submit manufacturer's catalogue, samples, Material Data Safety Sheets, (MSDS) 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 or Observation Service. 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
   7. Solvents

F. Permits: Submit at Pre-construction Meeting proof satisfactory to the Owner, Owner's Representative or Observation Service that all required permits have been obtained. If no permits are required, submit notarized letter stating such.

G. Waste Transportation: Submit at Pre-construction Meeting 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 at the Pre-construction Meeting the name, address, EPA ID number, and telephone number of the Hazardous Waste Disposal Facility(s) to be used. Submit a letter from each hazardous waste landfill attesting the landfills willingness to accept the waste. No waste shall be transported off any site until the letter(s) is (are) reviewed and accepted by the Observation Service.

I. Asbestos Plan: The Contractor shall submit at the Pre-construction Meeting 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.
   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 prevent the spread of contamination, 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. Include a list of emergency phone numbers and a route map to the nearest medical facility for emergency treatment.
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 breech in the Work area containment barrier, the opening of stairwell doors, breakage of the buildings 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. Negative Exposure Assessment(s) (NEA). The Contractor shall provide any NEA to be used along with all air sampling data including the actual lab results from the Laboratory and the Chain of Custody or air sampling form the Contractor used to record the air sampling information.
12. The Observation Service and Owner must approve the Asbestos Plan in writing at least 5 work days before the start of any work.

J. Equipment Certification: Submit at Pre-construction Meeting manufacturers' certification that vacuums, negative air pressure equipment filters, and other local exhaust ventilation equipment conform to ANSI Z9.2-1979.

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 Observation Service at the Pre-construction Meeting.

L. Notifications: Contact the following government agencies in writing by certified/registered mail or overnight mail service, postmarked or delivered at least ten (10) workdays prior to commencing any disturbance of asbestos:
1. Bay Area Air Quality Management District
2. Occupational Safety and Health Administration

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.

M. 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.

N. Encapsulant manufacturer's certification (when required) that the Contractor is an approved applicator of the encapsulants to be used on this project.

O. Scaffolding: Submit to the Owner's Representative or Observation Service 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.

1.4 Applicable Regulations and 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.

29 CFR 1910.1001 Occupational Exposure to Asbestos, Tremolite, Anthophyllite and Actinolite
29 CFR 1910.1101 Asbestos
29 CFR 1910.1200 Hazard Communication
29 CFR 1910.20 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 1926.1101 Asbestos, Tremolite, Anthophyllite and Actinolite
40 CFR 61, Subpart A General Conditions
40 CFR 61, Subpart M National Emission Standards for Asbestos

2. American National Standard Institute (ANSI) Publications:
   Z9.2-1979 Fundamentals Governing The Design and Operation of Local Exhaust Systems
   Z88.2-1980 Practices for Respiratory Protection

   Standard 90A Installation of Air Conditioning and Ventilation Systems.

4. U. S. Environmental Protection Agency (EPA):

5. American Society for Testing Materials (ASTM) Publications:
   E 849-82 Safety and Health Requirements Relating to Occupational Exposures to Asbestos
   P-189 Specifications for Encapsulants for Friable Asbestos-Containing Materials

6. National Institute of Occupational Safety and Health (NIOSH) Publications:
   Physical and Chemical Analysis Method (P&CAM):
   Method 239 Asbestos Fibers in Air
   Method 7400 Fibers (N1, 3rd Ed., Vol. 1.)

7. Underwriters Laboratories, Inc. (UL) Publications:
   586-77 Test Performance of High Efficiency, Particulate, Air Filter Units
   (R1982)

8. Title 8 California Code of Regulations (CCR):
   Section 1529 Asbestos Construction Industry
   Section 1531 Respiratory Protective Equipment
   Section 5208 General Industry Safety Orders
   Section 5194 Hazardous Communication
9. Title 22 California Code of Regulations (CCR):
   Section 66621 Hazardous Waste
   Section 66268 Landfill Notification/Treatment

1.5 DEFINITIONS

A. Owner: Mill Valley School District
B. Abatement: Procedures to control fiber release from Asbestos-Containing building materials. Includes removal, encapsulation, and enclosure.
C. Adequately Wet: A term as defined in -CFR 40 Part 61, Subpart M-, and EPA 340/1-90-019- that means to sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.
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: (29 CFR 1926.1101 Definitions) Includes Chrysotile, Amosite, Crocidolite, Tremolite asbestos, and any of these minerals that has been chemically treated and/or altered.
J. Asbestos (California Code of Regulations 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) EPA definition: Material composed of asbestos of any type in an amount greater than 1 percent and by weight, either alone or mixed with other fibrous or nonfibrous materials.
L. Asbestos-Containing Construction Material (California definition): Means any manufactured construction material, which contains more than 1/10th of 1% asbestos by weight.
M. Asbestos-Containing Waste Material: Means friable asbestos waste and asbestos waste from control devices (Pollution Control Devices).
N. Asbestos Fibers: Asbestos fibers having an aspect ratio of at least 3:1 and 5 micrometers in length.
O. Authorized Visitor: The Owner's Project Team members, the Owner's Representative, Observation Service and any representative of a regulatory or other agency having jurisdiction over the Project.
P. 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.
Q. **Contained Work Area**: A Work Area which has been Isolated, Plasticized, and equipped with a Decontamination Enclosure System.

R. **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.)

S. **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 (see standard Decontamination Enclosure System Plan in the Drawing section of this Project Manual.)

T. **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).

U. **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.

V. **Enclosure**: All herein-specified procedures necessary to enclose completely Asbestos-Containing Material behind airtight, impermeable, permanent barriers.

W. **Excursion Limit**: An exposure of airborne concentrations of Asbestos fibers of one fiber per cubic centimeter of air (1f/cc) as averaged over a sampling period of thirty (30) minutes.

X. **Equipment Room**: A contaminated area or room that is part of the Worker Decontamination Enclosure with provisions for storage of contaminated clothing and equipment.

Y. **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 Waste Loadout.

Z. **Friable Asbestos Material** (40 CFR, 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.

AA. **Fixed Object**: A unit of equipment or furniture or other building component that cannot be detached from the building or can only be detached by destructive methods resulting in irreparable damage to the item.

AB. **Glovebag Method**: A method with limited applications for removing small amounts of friable Asbestos-Containing material from HVAC ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces in an 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 waterwand 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.

AC. **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.

AD. **HEPA Vacuum Equipment**: Vacuuming equipment with a HEPA filter system.

AE. **Waste Loadout**: A room in the Equipment Decontamination Enclosure located between the Washroom and an uncontaminated area. The Waste Loadout comprises an Air Lock.

AF. **Isolation**: The sealing of all openings into a Work Area.
AG. **Isolated (noncontained) 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.

AH. **Maximum Acceptable Level**: An exposure of airborne concentrations of fibers of 0.05 fibers per cubic centimeter of air at any time. This level is a contractual standard for this Project.

AI. **Moveable Object**: A unit of equipment, furniture or other building component that is detached or can be detached from the building without destructive methods or results.

AJ. **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.

AK. **Nonfriable 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.

AL. **Observation Service**: The agent of the Owner or the Owner’s Representative (MECA Consulting, Inc.) 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.

AM. **Permissible Exposure Limit (PEL)**: An airborne concentration of asbestos, Tremolite, Anthophyllite, Actinolite, or a combination of these minerals in excess of 0.1 fibers per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Title 8, CCR 1529.

AN. **Personal Monitoring**: Sampling of Asbestos fiber concentrations within the breathing zone of an Asbestos Worker.

AO. **Plasticize**: To cover floors, walls and other structural elements of a Work Area with plastic sheeting as herein specified with all seams securely taped.

AP. **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.

AQ. **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.

AR. **Surfactant**: A chemical wetting agent added to water to reduce surface tension and improve penetration.

AS. **Washroom**: A room between the Work Area and the Waste Loadout in the Equipment Decontamination Enclosure System where equipment and waste containers are decontaminated. The Washroom comprises an Air Lock.

AT. **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.

AU. **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 (noncontained) 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.

AV. **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.
1.5 ADMINISTRATION OF THE CONTRACT
A. All Work is to be performed under the scrutiny of the Observation Service and the Owner's Representative, who shall be free to review all Work

1.6 SAFETY
A. Submit at the Pre-construction Meeting 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.
B. The Contractor shall have a comprehensive job safety meeting at the beginning of the project with the Observation service in attendance. The Contractor shall give 72 hours notice of this job safety meeting. The Contractor shall thereafter hold tail-gate safety meetings once per week. The Contractor shall keep a record of the topics and persons in attendance. Workers shall each sign an attendance sheet for each safety meeting.

1.7 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. When requirements of reference 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, 8 CCR 1529, 40 CFR Part 61, Subparts A & M, 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 and OSHA caution signs in and around the Work Area to comply with EPA and OSHA regulations.
D. Area Monitoring shall be performed by the Observation Service, 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. The Contractor shall submit on a daily basis, all personal air monitoring data received. In no event shall results be submitted more than 5 working days from the day of collection.

PART 2 - WORKER PROTECTION

2.1 TRAINING PROGRAM
A. Each employee shall receive training in the proper handling of materials that contain Asbestos, including all aspects of work procedures and protective measures, use of protective clothing and respiratory protection, on use of showers, on entry and exit procedures from Work Areas and in OSHA 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.

2.2 MEDICAL SURVEILLANCE REQUIREMENTS

A. Before exposure to airborne Asbestos, the Contractor will provide each employee performing 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 1910.1101, and California Code of Regulations Title 8, Section 1529. 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 medical has been approved by the Observation Service.

B. The requirement for medical certification must have been satisfied within the last 12 months. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation.

C. Information Provided to the Physician

The Contractor shall provide the following information in writing to the examining physician:

1. A copy of 8 CCR 1529
2. A description of the affected employee's duties as they relate to the employee's exposure;
3. The employee's representative exposure level or anticipated exposure level;
4. A description of any personal protective and respiratory equipment used or to be used; and
5. Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

2.3 PERSONAL PROTECTIVE EQUIPMENT

A. Work clothes shall consist of disposable full-body coveralls, head covers, boots, rubber gloves, safety shoes 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.

2.4 RESPIRATORS

A. Respiratory protective equipment shall be NIOSH approved in accordance with the provisions of 40 CFR 84 (July 10, 1995) unless superseded by local regulations with more stringent requirements. Respiratory instructions shall be posted in the Clean Room.

B. Contractor shall maintain a Respiratory Protection Plan in accordance with 29 CFR 1910.134 and Title 8, CCR section 1529.

C. At the sole discretion of the Contractor, use Powered Air Purifying Respirator (PAPR) in lieu of Type C Supplied Air Respirators for the abatement of Asbestos Containing Materials (ACM) until the Contractor statistically establishes the Time Weighted Average airborne concentrations of Asbestos fibers the employees will encounter during each unique work activity. Determine in accordance with 29 CFR 1926.1101, 8 CCR 1529 regulations both the 30-minute Excursion Limit and the 8-hour, time-weighted average
(TWA) concentration of Asbestos fibers to which employees will be exposed in each Work Area. When the exposure levels are established, the respirators that afford greater protection at the upper confidence level of airborne Asbestos fibers shall be used.

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 1.0 f/cc.

C. 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.

F. 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 Observation Service.

G. Provide at least two (2) extra PAPR respirators when this type of respirator is required. Provide instruction on the use of the above respirators to Authorized Visitors.

2.5 WORKER PROTECTION PROCEDURES - TO BE POSTED IN CLEAN ROOM

Bilingual (English and other appropriate language[s]) Worker Protection Procedures must be posted in the Clean Room. If the primary spoken language of all Workers is English, the bilingual procedures are excepted.

A. Each Worker and Authorized Visitor shall, upon entering the job site: remove street clothes in the Clean Room or Area and put on a respirator and clean protective clothing before entering the Equipment Room or the Work Area.

B. All Workers shall, each time they leave the Work Area: remove gross contamination using a HEPA vacuum 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.

C. 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.

D. 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.

E. Workers removing waste containers from the Equipment Decontamination Enclosure shall enter the Waste Loadout 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 Decon Area or the Work Area.

F. The disposable clothing worn outside the Work Area shall be of different color or markings from the disposable clothing worn inside the Work Area.

G. Workers shall not eat, drink, smoke, or chew gum or tobacco while in the Work Area.

H. Workers and Authorized Visitors with beards or who are unshaven shall not enter the Work Area.

2.6 EMPLOYEE IDENTIFICATION

A. The Contractor shall furnish an employee roster to the Owner's Representative for each work shift. Each employee shall bring to the job at least two forms of identification, one of which has his/her photograph.

PART 3 - PRODUCTS
3.1 GENERAL
A. Contractor shall furnish, provide and utilize the following products in the Work as specified.

3.2 PROTECTIVE COVERING (PLASTIC)
A. Ten (10) mil, six (6) mil, four (4) mil and three (3) mil polyethylene sheets in sizes to minimize the frequency of joints. **Protective covering shall be flame retardant.**

3.3 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.

3.4 DISPOSAL CONTAINERS AND BAGS
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, DOT and DTSC standards.

3.5 WARNING LABELS AND SIGNS
A. As required by 29 CFR 1910.1101 and CCR Title 8 1529 and other pertinent state and local regulations, whichever is the most stringent.

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

3.7 ENCAPSULATING SEALER
A. Shall be a penetrating or bridging type, pollution-free, nontoxic, with a Class A fire classification as specified herein. Encapsulants with the ingredient Methylene Chloride are not acceptable unless the contractor can prove to the Owner's satisfaction that equal substitute materials are not available. If substitutes are not used, the Contractor shall submit with the Asbestos Plan for Owner approval respiratory protection and negative air discharge procedures to protect workers, authorized personnel and the public from Methylene Chloride exposure. Material shall be flexible when cured, resistant to weathering, oxidation, aging and abuse.
B. Shall be a water-dispersed coating, insoluble in water when cured.
C. Shall be used undiluted.
D. Shall have a written certification from the manufacturer that the encapsulant is compatible with the replacement material and will safely withstand temperatures of all surfaces on which the encapsulation will be applied.
E. The Owner's Representative may at any time take random samples of encapsulant from open containers or spray equipment for testing to insure product quality and compliance with the Specifications.
F. Encapsulant found not to be in conformance with requirements of these Specifications shall be removed from the site immediately. All areas where the defective encapsulant has been applied shall be resprayed with approved encapsulant or remedied in a manner, including the possibility of removal and replacement of the subject Asbestos-Containing Material, acceptable to the Owner. Re-encapsulation expense shall be borne by the Contractor.

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

B. Glovebag operations shall conform to the procedures in Title 8 CCR 1529.

C. Two workers shall be assigned per glovebag removal.

3.9 TOOLS AND EQUIPMENT

A. Provide suitable tools for Asbestos removal and encapsulation.

B. Negative air pressure equipment: High-efficiency particulate air (HEPA) filtration systems shall have filtration equipment in compliance with ANSI Z9.2-1979, 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 REQUIRED.

D. HEPA Vacuums:

3.10 LUMBER

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

3.11 SOLVENTS

A. Shall be non-toxic, non-carcinogenic, nonflammable (flash-point in excess of 200° F.), non-reactive 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 affects to other areas of the facility, adjacent facilities or public areas. Solvents shall not be used in areas which food stuffs are stored.

B. The Contractor shall submit Material Safety Data Sheets (MSDS) for each and every product used on site. Product MSDS shall be submitted along with other pre-job submittals prior to commencement of work. No product shall be used or substituted without submitting a current MSDS for review and approval by the Observation Service.

C. Mastic solvents shall be low odor and not leave any objectionable, noxious or toxic odors after use. The Contractor shall be responsible for ensuring that solvents do not leave odors.

PART 4 - EXECUTION

All Class I, II, and III asbestos work shall be conducted within regulated areas. The regulated area shall be demarcated in a manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Access to regulated areas shall be limited to authorized persons. The Contractor shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area. The Contractor may permit smoking in designated areas.

4.1 WORK AREA PREPARATION

A. Preparation procedures for removal of: ALL FRIABLE (CLASS I TSI AND SURFACING and PACM), CLASS II MATERIALS (wallboard/joint compound, floor tile/mastic, acoustical ceiling tile mastic) AND CATEGORY I NON-FRIABLE):
   1. Removal of the above or other friable Asbestos-Containing Materials (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 ducts, diffusers and grilles, skylights, doorways, and windows, with 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 openings along the perimeter of the floor, openings at floor/wall intersection adjacent to utility shafts and any other openings in the floor in general that would provide an avenue for water migration. Barriers shall form a seal at vertical walls and at the floor deck above and below.

a. The contractor shall be responsible for any and all wall and surface damage. Surfaces shall be left after all abatement in their original condition or better and suitable for paint preparation.

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. Work Area (Containment): Contractor shall cover entire floor, as appropriate, 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 covering. Floor coverings shall extend a minimum of 12" up vertical surfaces and behind wall covers. All seams shall be staggered and securely taped.

10. Install 2' x 2' plexiglass 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 unless there is no other suitable location.

11. Seal all wall, plumbing, duct and other cavities to prevent Asbestos materials from falling into such cavities during the Work.

12. 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, contact with heat-generating devices, etc. Problem areas shall be repaired or mended immediately.

13. 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.

14. 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.]

15. 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.

16. 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.

17. 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 -0.05 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.

18. Install and maintain a manometer from the time abatement begins until the Clearance Test has passed in all Work Areas. Provide photocopies (dated & signed) to the Observation Service at the start and end of each work shift.

19. Notify the Observation Service 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 Observation Service authorizes in writing that Work may commence.

B. Preparation procedures for removal of select CLASS II, Category 2 ACM and/or ACCM (floor tile/mastic, wallboard/joint compound components in quantities <10 square feet/ discrete work area.)

1. Seal all wall, plumbing, duct and other penetrations with 6-mil plastic and duct tape to prevent Asbestos materials from falling into such cavities during the Work.

2. Isolate the immediate work area utilizing appropriate caution tape to prevent untrained and unprotected personnel from entering the work area.

3. Caution tape shall extend a minimum of 20 feet from the building for exterior work so as to protect the public from contamination.

4. Install 6-mil plastic walls and floors (isolated barrier) as needed to prevent contamination and/or damage to building surfaces.
5. HEPA vacuum or other appropriate HEPA-filtered negative pressure apparatus shall be employed prior to and throughout the duration of all WORK.
6. 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 area.]

C. Preparation procedures for removal of Roofing Components: Penetration Mastics

1. Seal all wall, plumbing, duct and other penetrations with 6-mil plastic and duct tape to prevent Asbestos materials from falling into such cavities during the Work.
2. Isolate the immediate work area utilizing appropriate caution tape to prevent untrained and unprotected personnel from entering the work area.
3. Caution tape shall extend a minimum of 20 feet from the building for exterior work so as to protect the public from contamination.
4. Visible Emissions:
   a. No Visible Emissions permitted - Any emissions, whether containing particulate asbestos material or not, that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.
   b. The Observation Service will be on hand to determine if wind or weather condition adversely affect the process, or may otherwise result in airborne material.
   c. If emissions are visible outside of the Regulated Area, the Contractor shall stop work as they immediately act to stop the source of the emissions.
   d. Allowable sustained wind monitoring – The Contractor and/or Observation Service may utilize field portable weather station to monitor wind speed and directional changes. This tool will assist in determining proper sampling locations and compliance with the 20 MPH allowable sustained wind limit.

5. 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 area.]

D. Preparation procedures for removal of non-hazardous flooring components (sheet goods, carpeting) for purposes of evaluating asbestos-containing floor tile mastic remnants:

1. Isolate the immediate work area utilizing appropriate caution tape to prevent untrained and unprotected personnel from entering the work area.
2. Caution tape shall extend a minimum of 20 feet from the building for exterior work so as to protect the public from contamination.
3. Install 6-mil plastic walls and floors (isolated barrier) as needed to prevent contamination and/or damage to building surfaces.

4.2 DECONTAMINATION ENCLOSURE SYSTEMS

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

1. Build suitable wood, metal or PVC framing as described herein and as approved by the Observation Service 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 Observation Service 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 for Class I work, Class II work delineated in 4.1A, above, or where the exposure levels may exceed the PEL for Asbestos:

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 a maximum pore size of 1.0 micron, and drain into a sanitary sewer. Replace filter 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.

C. Decontamination Area for asbestos work in "Regulated" Work Areas for Class II work (as delineated in 4.1B, above) or where the exposure levels will not likely exceed the PEL for Asbestos:

1. Construct a Decontamination System consisting of two enclosed chambers as follows for Class II work:
   a. A Clean Room with an Air Lock of sufficient size to allow workers to change from street clothes to protective clothing. The clean room shall also contain a HEPA vacuum and means to decontaminate respirators and personnel.
   b. A Dirty Room connected to Clean Room via an Air Lock. The Dirty room shall be of sufficient size to allow removal of protective clothing and dirty equipment prior to entering the Clean Room.

4.3 ASBESTOS REMOVAL -GENERAL

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 ambient emission of airborne fibers, at any time, in excess of 0.05 fibers/cc. 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 5 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 under negative pressure using HEPA air-filtration devices. 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 Waste Loadout pending removal to uncontaminated areas.
C. The Contractor shall not remove any asbestos material in one shift than can be cleaned up and properly bagged in labeled 6-mil asbestos bags by the end of the shift. No loose asbestos material may be left in a work area after the end of any shift.

D. 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.

E. Asbestos material debris, drippings, splatters, and overspray on surfaces within ceiling cavities and other accessible areas shall be removed in the same manner and cleaned to the degree as specified above.

F. 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 shall be packed into properly labeled protective packaging and removed from the Work Area.

G. Protective packages and drums containing Asbestos materials shall be cleaned and stored in the isolated Waste Loadout 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 Waste Loadout to the transport. The waste storage area shall be locked at all times when waste is not actively being transported to the storage area.

H. 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.

I. 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.

4.4 SPECIFIC ASBESTOS REMOVAL METHODS

FRIABLE (CLASS I TSI AND SURFACING and PACM), CLASS II MATERIALS (wallboard/joint compound, floor tile/mastic, acoustical ceiling tile mastic) AND CATEGORY I NON-FRIABLE MATERIALS

1. Specific Control Methods for Class I Work: Class I asbestos work shall be performed using the following control methods:
   a. Negative Pressure Enclosure (NPE) systems The negative pressure enclosure shall be kept under negative pressure with at least 4 air changes per hours. A minimum of -0.02 column inches of water pressure differential, relative to the outside pressure, shall be maintained and evidenced by manometric measurements. Air movement shall be directed away from the employees and toward a HEPA filtration device. The NPE shall be smoke tested for leaks at the beginning of each shift.
   b. Glove Bag Systems to remove ACM from straight runs of piping and elbows and other connections.

   Area monitoring of airborne asbestos fibers shall be conducted by the Observation Service during the work shift at the Designated boundary limits and personal air monitoring shall be performed for each worker engaged in asbestos handling (removal, disposal, transport and other associated work) at such frequency as specified in the Contractor's air monitoring plan.

   If the concentration of asbestos fibers monitored at any times exceeds 0.05 f/cc or the preabatement level, whichever is greater, work shall be stopped and the District shall be notified.
Glove bags shall be made of 6 mil thick plastic, seamless at the bottom and used without modification. Glove bags shall be smoke-tested for leaks and any leaks sealed prior to use. Glove bags shall be used only once and shall not be moved. They shall not be used on surfaces whose temperature exceeds 150 degrees Fahrenheit. Prior to disposal, glove bags shall be collapsed by removing air within them using a HEPA vacuum.

Before beginning the operation, loose and friable material adjacent to the glove bag operation shall be wrapped and sealed in two layers of six-mil plastic or otherwise rendered intact. At least two persons shall perform Class I glove bag removal.

2. Class II work: In addition to the requirements for regulated areas and friable ACM removal indicated above, the following engineering controls and work practices shall be used:

   a. A Competent Person shall supervise the work.
   b. For indoor work, critical barriers shall be placed over all openings to the regulated area.
   c. Impermeable dropcloths shall be placed on surfaces beneath all removal activity.
   d. Sheetrock Joint Compound: Remove using wet methods under containment to avoid contamination of adjacent areas. Maintain negative air until after clearance is obtained in each work area.

4.5 DECONTAMINATION OF WORK AREA

A. Decontamination procedures for "Contained or Regulated" Work Areas (Friable Class I and II and Category I non-friable), excluding Asbestos-Containing Material encapsulation 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 Observation Service in advance that the Work Area is ready for Initial Review.
4. Upon proper notification, the Observation Service will review the Work Area for general conformance with the Specifications. Any non-conformance 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 Observation Service 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 Underwriters Laboratory (UL), American Society for Testing Materials (ASTM), Factory Mutual (FM) or other building code approved testing agencies.

6. Upon completion of the Encapsulation Work, the Contractor shall notify the Observation Service in advance that the encapsulated surfaces are ready for Encapsulation Review.

7. Upon proper notification, the Observation Service 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 Observation Service 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 Observation Service twenty-four (24) hours in advance that the Work Area is ready for Pre-testing Visual Inspection and Clearance Testing. Refer to appropriate Article on Air Monitoring in this Section for Clearance Testing standards. Contamination found during the Pre-testing Visual Inspection shall be remedied by the Contractor, at his expense, prior to clearance testing.

12. Upon written notification from the Observation Service 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 reestablish 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 Observation Service and/or Owner's Representative twenty-four (24) hours in advance that the Work Area is ready for Pre-final Review.

14. Upon notification, the Observation Service and 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 Observation Service and 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 Observation Service and the Owner's Representative Substantially Complete.

15. Upon correction of Punch List deficiencies the Contractor shall notify the Observation Service and Owner's Representative in advance that the Work Area is ready for Final Review.
16. Upon notification the Observation Service and 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 Observation Service and 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 Observation Service and the Owner's Representative Substantially Complete.

4.6 ASBESTOS DISPOSAL REQUIREMENTS

A. Asbestos-Containing Waste Materials shall be packed into approved sealed and labeled protective packaging.

B. Containers removed from the Waste Load-out 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 pre-designated Waste Disposal Facility in accordance with the guidelines of the EPA or the State of California.

D. The Contractor shall notify the Observation Service twenty-four (24) hours, in advance, when Asbestos-Containing Waste Materials are to be removed from the site. The Observation Service 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 Observation Service 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 approved EPA 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 Hazardous Waste generated by the Project of this Contract to the designated Hazardous Waste Disposal Facility. The Contractor shall bear all costs for all claims, damages, losses, and clean up expenses against the Owner or the Observation Service, including but not limited to attorney's fees arising out of or resulting from Asbestos spills on the site or spills en route to the Hazardous Waste Disposal Facility.

G. Floor Tile Debris Disposal: Resilient floor tiles, and associated mastics shall be disposed of as -hazardous waste. Such materials generally become friable during removal methods.

4.7 AIR MONITORING AND TESTING

A. Area Air Monitoring:
   1. Throughout removal, encapsulation, and cleaning operations, Area Air Monitoring shall be conducted by the Observation Service 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 using NIOSH Method No. 7400, with the following as minimum daily samplings:
      a. Inside the work area
b. Outside the work area at the DECON entrance

c. At the waste loadout (if present)

d. At each negative air exhaust

e. Downwind for exterior work at the Regulated Area Boundary.

2. The Observation Service 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 (0.05 fibers/cc) or fiber counts outside the Work Area in excess of the Benchmark.

B. Personal Air Monitoring:

1. Initial and periodic eight (8) hour TWA and thirty (30) minute excursion limit air monitoring of Worker exposures to airborne concentrations of Asbestos fibers shall be in accordance with OSHA (CFR 1926.1101) requirements.

2. Once OSHA 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-hour time-weighted average (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 required sampling or when Type C Respirators are in use.

3. The Contractor shall report Personal Monitoring results to the Observation Service 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-hour time-weighted average (TWA) of 0.1 fibers (longer than 5 micrometers) per cubic centimeter of air.

C. Clearance Testing:

1. Contained Work Areas for (TSI/Surfacing materials only): The Contractor will not be released until final inspection and air testing are performed. Clearance criteria for TEM samples will be the average of 5 TEM samples less than 70 structures/mm².

2. Clearance criteria for PCM samples will be up to 5 PCM’s, each of which must be less than 0.01 fibers/cc.

4. If the tests show that the Work Area has not been decontaminated, the Contractor shall repeat the cleaning and encapsulation application until the Work Area is in compliance.

4.8 REIMBURSEMENT OF COSTS OF THE OWNER OR THE OBSERVATION SERVICE

A. In the event that reviews and/or Clearance Testing by the Observation Service 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, Observation Service and his Consultants 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, Observation Service and his Consultants to monitor the above work, and all time, tests and project related expenses incurred by the Owner and Observation Service and his Consultants 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, shall reimburse the Owner at the normal billing rate of the Owner or the Observation Service and his Consultants, or the Owner is authorized to withhold funds from the Contract Sum, for all time spent by the Owner, Observation Service and his Consultants for reviews, testing, and other project related expenses when any of the above conditions occur.
4.9 STOPPING THE WORK
A. If, at any time, the Observation Service 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.

END OF SECTION
SECTION 02090
LEAD-RELATED CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY
A. This section specifies the methods, procedures, and requirements related to the removal and disposal of lead-based paint including, but not limited to:
   1. Regulatory requirements
   2. Submittals
   3. Personal protective measures
   4. Execution
   5. Inspections
   6. Waste handling

B. Related Section:
   1. Section 01050 – General Contractor Health & Safety Requirements
   2. Section 02010 – Hazardous Material Summary of Work
   3. Section 02080 – Asbestos Abatement
   4. Section 02095 – Other Regulated Materials
   5. Hazardous Material Survey Report

1.2 SCOPE OF WORK
A. The work of this section includes the provision for all labor, materials, equipment and services necessary to effect the preparation, removal, cleaning, and disposal of lead-containing paint and components coated with lead paint as indicated by the contract drawings and within Section 02010 of this specification.

B. The work of the Contract can be summarized as follows:
   1. Section 02010, Section 1.1 Paragraph B, subsection 2;
   2. Administrative Requirements necessary to execute the Work, including but not limited to: Preparation and delivery of all required submittals;
   3. Packaging, transportation and disposal (including all prescribed, implied or otherwise required waste characterization and analysis) of all hazardous and non-hazardous materials and components shown, specified or otherwise implied.

1.3 SUBMITTALS:
A. Schedule: Submit three (3) days before starting work and include specific dates and tasks, including man-loading for the beginning and ending of each phase of the work and dates for testing.

B. Respiratory Protection Program: Submit three (3) days before starting work copy of Respiratory Protection Program which is in compliance with ANSI 288.2-1980, OSHA 29 CFR 1910 and 1926, Cal-OSHA Title 8 Section 5216.

C. Hazard Communication Program: Submit three (3) days before starting work copy of Hazard Communication Program which is in compliance with 29 CFR 1910.1200.

D. OSHA Lead Compliance Plan: Submit a detailed plan of the procedures proposed in order to comply with the requirements of 29 CFR 1926.62 and Cal-OSHA Title 8 Section 1532.1. Include in the plan all components required under the standard.
E. Hazardous Waste Management Plan: Submit three (3) days before starting work copy of Hazardous Waste Management plan which is in compliance with federal, state, and local hazardous waste regulations and addresses:

1. Identification of hazardous wastes associated with the work.
2. Sampling and Analysis Plan: The contractor shall conduct additional waste characterization for disposal purposes, a Plan detailing the following elements is required to be submitted and approved:
   - Identification of material(s): location, component, color, substrate;
   - Proposed sample collection methods to be employed;
   - Proposed analytical methods to be used;
   - Proposed analytical laboratory and associated qualifications;
   - Proposed methods of data interpretation.

Note: Sampling or data interpretation methods which commingle or otherwise combine multiple waste streams for the purpose of dilution shall not be permitted.

3. Estimated quantities of wastes to be generated and disposed of.
4. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24 hour point of contact. Furnish two (2) copies of EPA, state, and local permit applications, permits, and EPA Identification numbers.
5. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.
6. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
7. Spill prevention, containment, and cleanup contingency measures to be implemented.
8. Names of EPA approved hazardous waste treatment or disposal facility for lead disposal.

F. Emergency Procedures Plan: Submit three (3) days before starting work three (3) copies of the Emergency Procedures Plan. This Plan shall be prominently posted in the clean change area. All persons entering the work area shall read and sign the procedures to acknowledge receipt and understanding of the work site layout, location of emergency exits, and emergency procedures.

G. Contractor Qualifications: Submit certificate of completion of approved lead abatement training course. Submit copies of valid DHS certification card.

H. Worker Protection Records:
1. Training: Submit a list of all workers and a copy of DHS training certificates for each worker to the Observation Service prior to start of work.
2. Blood tests: Submit test results within five (5) days of test to OBSERVATION SERVICE.
3. Daily log: Keep a daily log listing workers names and hours worked and detailing each entry and exit. Submit a copy to OBSERVATION SERVICE at interim clearance and final clearance.

1.4 CLOSEOUT SUBMITTALS:
A. Waste Disposal Records:

1. A written record of receipts with certified weight for disposal of materials containing lead and lead based paint contaminated items shall be furnished to the Owner within forty eight (48) hours after disposal has taken place.
2. Provide a schedule showing date, amount, type of material and location disposed of within five (5) working days of disposal.

1.5 POTENTIAL LEAD HAZARD
A. The disturbance of lead containing painted building materials may cause lead contaminated dust to be released into the environment, thereby creating a potential health hazard to workers and occupants. Ingestion or inhalation of lead contaminated dust can cause various health concerns, including but not limited to nausea, anemia, vomiting, kidney disease, nervous system disorders, and reproductive problems. All contractors, sub-contractors, consultants, and other occupants in the vicinity of a potential lead hazard should be apprised, by the responsible parties and applicable warning signs per OSHA requirements cited herein.

B. Significant lead exposure may result from activities such as demolition of components, scraping, sanding, or grinding lead-based paint, abrasive blasting of surface coatings, welding, torch cutting, or related procedures. Where in performance of the work specified herein, a lead exposure is potential, strict adherence to the measures and procedures of these specifications shall be mandatory.

1.6 REGULATIONS
A. The Contractor shall comply with the requirements of the following regulations and guidelines governing lead abatement and disposal, as well as other applicable federal, state, and local government regulations. The regulations and/or guidelines listed herein are incorporated by reference.

Code of Federal Regulations (CFR)
29 CFR 1926, Construction Standards
29 CFR 1926.62, Lead in Construction Standard
40 CFR Part 50.12, Ambient Air Quality Standard for Lead
40 CFR Parts 261, 265, and 268, Hazardous Waste Management
49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation

California Code of Regulations (CCR)
8 CCR Division 1, Chapter 4, Subchapter 4, Construction Safety Orders
8 CCR 1532.1, Lead in Construction Standard
8 CCR 5144, Respiratory Protection
17 CCR Division 1, Chapter 8, Work Practices for Lead-Based Paint & Lead Hazards
22 CCR Division 4 and 4.5, Hazardous Waste

Lead-Based Paint; Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (6/1995 and Chpt. 7 Revision 10/1997)

1.7 DEFINITIONS
A. General: Definitions contained in this Section are not necessarily complete, but are general to the extent that they are not defined more explicitly elsewhere in the Contract Documents.

1. Action Level: An airborne concentration of 30 micrograms per cubic meter (30 ug/m3) of air as an eight (8) hour time weighted average (TWA) as covered by OSHA regulations 29 CFR 1926.62 and Cal-OSHA Title 8, Section 5216.
2. Air Monitoring: The process of measuring the lead levels of a specific volume of air.
3. Authorized Visitor: The Owner, testing lab personnel, or a representative of any federal, state and local regulatory or other agency having authority over the project.
4. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 inches to 9 inches.
5. Certified Industrial Hygienist (C.I.H.): A person certified in comprehensive practice by the American Board of Industrial Hygiene and qualified by training.
and/or experience to specify measures for the recognition, evaluation, and control of occupational health hazards.

6. **Construction Barrier:** Demarcation of the work area limiting access by unauthorized personnel.

7. **Disposal Bag:** A 6 mil. thick leak-tight plastic bag used for transporting lead waste from work area to disposal site.

8. **Elevated Blood Lead Level:** Means a blood lead concentration equal to or greater than twenty-five (25) micrograms per deciliter (ug/dl).

9. **Encapsulation:** Involves resurfacing or covering surfaces, and sealing or caulking with durable materials, so as to prevent or control chalking, flaking lead-containing substances from becoming part of house dust or accessible to children.

10. **Enclosure:** The construction of an air-tight, impermeable, permanent barrier around lead-containing material to control the release of lead dust into the air.

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

12. **Final Inspection:** Inspection by a qualified inspector, industrial hygienist, or local public health official to determine whether abatement and cleanup are complete.

13. **Hazardous Waste:** As defined in 40 Code of Federal Regulation Part 261 - Resource Conservation Recovery Act (RCRA) and Title 22 California Code of Regulations Division 4, the term "hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Federal levels of hazardous waste levels for lead are as follows:

   - **Total Threshold Limit Concentration (TTLC):** \( > 1,000 \text{ milligrams per kilogram (mg/kg)} \)
   - **Soluble Threshold Limit Concentration (STLC):** \( > 5.0 \text{ milligrams per liter (mg/l)} \)
   - **Toxic Characteristic Leachate Procedure (TCLP):** \( > 5.0 \text{ milligrams per liter (mg/l)} \)

14. **HEPA Filter:** A High Efficiency Particulate Air filter capable of trapping and retaining 99.97% of particles greater than 0.3 microns in diameter.

15. **HEPA Filter Vacuum Collection Equipment (or vacuum cleaner):** High Efficiency Particulate Air (absolute) filtered vacuum collection equipment with a filter system capable of collecting and retaining 99.97% of particles of 0.3 microns in diameter or larger.

16. **Detergent:** Any good detergent is acceptable.

17. **Lead-Based Paint:** Any surface coating with detectable concentration of lead exceeding 5,000 parts per million or 1.0 ug/cm² by XRF.

18. **Lead Containing Paint:** Any surface coatings containing detectable concentrations of Lead.

19. **Lead-Containing Construction Materials:** Any building system or component containing detectable concentrations of Lead.

20. **Lead Permissible Exposure Limit (PEL):** The employer shall ensure that no employee is exposed to an airborne concentration of lead in excess of 50 micrograms per cubic meter (50 ug/m³) of air as an eight (8) hour time weighted average (TWA) as covered by OSHA regulations 29 CFR 1926.62 and Cal-OSHA Title 8, Section 1532.1.
21. **Negative Pressure**: Air pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).

22. **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. Negative pressure respirators include all powered-air purifying respirators (PAPRs).

23. **Negative Pressure Ventilation System**: A local exhaust system utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.

24. **Observation Service**: The Owner’s contracted environmental consultant.

25. **Personal Monitoring**: Sampling of lead concentrations within the breathing zone of an employee.

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


28. **Testing Laboratories**: A “testing laboratory” is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

29. **Time Weighted Average (TWA)**: The average concentration of a contaminant in air during a specific time period.

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

31. **Wet Cleaning**: The process of eliminating lead contamination from building surfaces and objects by using cloth, mops, or other cleaning utensils which have been dampened with detergent and afterwards thoroughly decontaminated or disposed of as lead contaminated waste.

32. **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.

33. **Lead-Related Construction Work**: Any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, 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.

34. (Initial) **Exposure Assessment**: Must be performed in all workplaces where employees may be exposed to lead. An assessment of potential exposure to lead as delineated in OSHA’s “trigger task” definitions. Until such time that an appropriate, trigger task and job-specific exposure assessment has been conducted, all employers are mandated to provide appropriate respiratory protection, personal protective clothing, change areas, hand washing facilities, biological monitoring and training.

35. **Presumed Lead-Containing Paint**: Paint or surface coating affixed to a component in or on a structure, excluding paint of surface coating affixed to a component in or on a residential dwelling constructed on or after January 1, 1979, or a school constructed on or after January 1, 1993.

1.8 **OBSERVATION SERVICE**

A. The Owner may authorize an Observation Service and a Certified Industrial Hygienist to provide the following inspection, testing, and monitoring services including, but not limited to:
1. Wipe lead testing to establish pre-abatement and post abatement lead concentrations.
2. Visual inspections to verify Contractor's compliance with the specifications, as well as applicable regulations, regarding hazard control measures, and related decontamination procedures.
3. Wipe Sampling for lead contamination to determine whether Contractor has successfully completed clean-up and met the project decontamination criteria.
4. Interpretation of technical sections of the contract documents, and coordination with Owner and Contractor for enforcement of regulatory and contractual conformance, including stop work issues.

B. The cost of the Owner's Representative will generally be the responsibility of the Owner except under special circumstances. The Contractor shall be responsible for the cost of the Owner's Representative for additional services performed when: a) The Contractor's Work Area fails final clearance inspection and/or testing; or b) additional workdays or workday hours (overtime) are required by the Contractor; or c) The Contractor exceeds the allowable time frame for completion; or d) additional services associated with response to an uncontrolled, unauthorized release to the environment as a result of the Contractor's performance of the work.

1.9 CONTRACTOR QUALIFICATIONS
A. General Superintendent: Provide a General Superintendent whenever Contractor's personnel are on site who is experienced in administration and supervision of lead-related construction projects including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Contractor's Representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to lead-containing materials.

Experience and Training: The General Superintendent/Supervisor and workers must be DHS Certified and have had on-the-job training in lead abatement procedures. Submit documentation for each worker per section 1.06 of these Specifications.

B. Contractor shall use only workers medically qualified and trained for lead work and respirator usage.

1. The General Superintendent/Supervisor and workers must be DHS Certified in their respective disciplines, and have had on-the-job training in lead abatement procedures. Submit documentation for each worker per section 1.6 of these Specifications.
2. Contractor shall submit documentation that all employees engaged in surface preparation/lead paint disturbance activities have had the appropriate medical examinations within the prescribed time periods immediately preceding project start-up. Documentation shall include, but is not limited to, baseline blood lead levels performed in accordance with 8 CCR 1532.1 (CAL/OSHA Lead in Construction Standard).
3. Contractor shall submit statement from examining physician that each employee is fit to wear a respirator in accordance with 8 CCR 5144 within the last twelve months.
4. Documentation that all employees have passed respiratory fit tests within the past six months.
5. The Contractor will provide a copy of their lead compliance program specific for this project, as specified in 8 CCR 1532.1. and indicated in Section 1.05 -- Submittals, above.
PART 2 - PRODUCTS

2.1 PROTECTIVE COVERING
   A. Polyethylene sheets, of 6 mil thickness, in dimensions of adequate width to minimize frequency of joints.

2.2 TAPE
   A. Duct tape, two inches or wider, capable of sealing joints of adjacent sheets of plastic sheeting or for attachment of plastic sheeting to finished or unfinished surfaces.

2.3 CLEANERS
   A. Wet wiping for decontamination shall be accomplished with a detergent wash solution. Alternate cleaning and decontamination agents shall be subject to approval by the Owner' Representative.

2.4 SPRAY ADHESIVE
   A. Spray adhesive shall not contain methylene chloride, as listed on the MSDS. Provide spray adhesive that is specially formulated to adhere to polyethylene sheeting.

2.5 DISPOSAL CONTAINERS
   A. Provide 6-mil thick polyethylene sheeting, 6 mil leak-tight polyethylene bags and other impervious containers as required by applicable regulations. All waste shall be labeled as potentially hazardous waste unless proven otherwise by appropriate sampling and laboratory analysis.
   B. All hazardous waste shipping containers shall meet federal and California DOT requirements.

2.6 WARNING SIGNS AND LABELS
   A. Caution signs are to be a minimum of 14 x 20 inches and include phrase "CAUTION - LEAD HAZARD - KEEP OUT UNLESS AUTHORIZED" in lettering at least 2" in height. These signs shall be posted at each approach to the work area.
   B. Cal-OSHA Lead Warning Posters: "WARNING -- LEAD WORK AREA—NO SMOKING OR EATING" shall be posted at the entrance to each work area.
   C. Hazardous waste labels in accordance with federal, state and local regulations, including, but not limited to the California Code of Regulations, Title 22 Chapter 30 and the U.S. Department of Transportation 49 CFR Parts 172, 173, 178 and 179.

2.7 PERSONAL PROTECTIVE EQUIPMENT
   A. Workers shall wear full body disposable TYVEK type suits with hoods and separate booties, tape around ankles, wrists, under arms and neck. Suits will be worn inside the work area after the area passes pre-abatement inspection and shall remain in use until the area passes final clearance inspection.
   B. Goggles with side shields will be worn when working with a material that may splash or fragment, or if protective eye wear is specified on the Material Safety Data Sheets (MSDS) for that product.
   C. Additional respiratory protection by supplemental filters, such as organic vapor cartridges, may be needed when handling some coating products. Consult the MSDS and obtain the proper filters as necessary. The following guideline indicates types of respirators appropriate for adequate protection against varying lead exposures:
### RESPIRATORY PROTECTION FACTORS ASSOCIATED WITH LEAD EXPOSURE OPERATIONS

<table>
<thead>
<tr>
<th>Respirator Type</th>
<th>Protection Factor</th>
<th>Airborne Concentration of Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air purifying, negative pressure respirator, half-face, HEPA filter</td>
<td>10</td>
<td>Not in excess of 500 ug/m³</td>
</tr>
<tr>
<td>Air purifying, negative full-face, HEPA filter</td>
<td>50</td>
<td>Not in excess of 2,500 ug/m³</td>
</tr>
<tr>
<td>Powered-air purifying positive pressure respirator full or half-face, HEPA</td>
<td>50</td>
<td>Not in excess of 2,500 ug/m³</td>
</tr>
<tr>
<td>Type C supplied air positive pressure respirator continuous flow mode half-face</td>
<td>1000</td>
<td>Not in excess of 50,000 ug/m³</td>
</tr>
<tr>
<td>Type C supplied air positive pressure respirator pressure demand mode full facepiece</td>
<td>2000</td>
<td>Not in excess of 100,000 ug/m³</td>
</tr>
<tr>
<td>Type C supplied air positive pressure respirator pressure demand mode full facepiece, equipped with auxiliary positive pressure self contained breathing apparatus (SCBA)</td>
<td>over 2000</td>
<td>Greater than 100,000 ug/m³</td>
</tr>
<tr>
<td>Self contained breathing apparatus (SCBA) positive pressure demand mode full facepiece</td>
<td>over 2000</td>
<td>Greater than 100,000 ug/m³</td>
</tr>
</tbody>
</table>

D. In addition, all Cal-OSHA requirements, such as hard hats, hearing protection, etc. are required.

#### 2.8 TOOLS AND EQUIPMENT

A. Provide suitable tools for the decontamination and removal of lead-based-paint including required HEPA vacuums and exhaust units, airless sprayers, ground fault interrupters, hand tools, wipes, ladders, and scaffolds. Mechanical abrasion tools shall be equipped with local HEPA exhaust and subject to approval by the Owner's representative. All tools and equipment brought on site shall be clean and free of contamination from lead and other hazardous materials. HEPA filtered equipment shall be labeled with a warning label and dedicated to lead based paint work to prevent combining hazardous wastes of differing characteristics.

B. Provide adequate support equipment, including, but not limited to lumber, hardware, decontamination showers, sprayers, hoses, drain pans, miscellaneous collection devices, and secure holding facilities.

#### PART 3 - EXECUTION

##### 3.1 GENERAL

A. Several levels of preparation and lead abatement alternatives are outlined in this section to address various conditions and methods of lead paint removal.
3.2 SITE PREPARATION
A. The level of preparation described in this section is appropriate for removal of lead-containing painted architectural components, and for the demolition of wall and ceiling systems containing in-tact lead based paint as specified in these contract documents.
   1. Post Caution signs (described in Section 2.8) at all exterior approaches to the work area, and in addition, post Cal-OSHA warning signs at all immediate entrances to work area
   2. Cover all floors and non-moveable objects (within 10 feet of the affected area, or otherwise in accordance with applicable Lead Hazard Guidelines) with 6 mil polyethylene sheeting and seal with duct tape.

3.3 WORKER SAFETY/DECONTAMINATION PROCEDURES
A. The contractor shall employ only workers medically qualified and trained for lead work and respirator usage.
   1. Medically qualified shall mean that the worker has had an occupational medical exam for lead exposure and respirator use within the last 12 months, in accordance with 29 CFR 1926.62, and shall have had a blood lead test within the last 6 months.
   2. Each worker shall have completed formal documented training in lead hazards and lead abatement.
   3. The Contractor's superintendent (Competent Person) shall have received at least 32 hours of formal training in lead hazards and abatement methods.
   4. The Contractor shall assure that no worker is permitted to perform lead abatement work until the Owner representative has received and approved all of that worker's medical, training, and respirator fit test certifications.

B. The Contractor shall perform an initial exposure assessment in accordance with 8 CCR 1532.1. This includes, but is not limited to, collecting personal air samples to determine the employees actual exposure to lead dust during construction activities. Personal samples will be collected by the contractor pursuant to OSHA regulations. Each task performed will be monitored at a flow rate of 1-4 liters per minute on MCE 37mm 0.8 um pore size cassettes. One lab blank will be submitted with each set of samples.

C. Each worker, upon entering the job location, shall proceed to the designated clean room/area and don on a half-mask, negative pressure respirator equipped with HEPA filters, and disposable, full-body, tyvek suit, gloves, and other safety apparel as required (i.e. hard-hats, steel toed shoes, etc.) before entering the Work Area. The above PPE must be worn during all phases of the paint and/or component removal process. This personal protective equipment (PPE) must be worn for the duration of this project, or until the initial exposure assessment indicates that exposure to lead dust during these activities will not exceed the action level (30 ug/lm³).

D. All disposable clothing worn in each work shift shall be HEPA vacuumed and removed prior to exiting the Work Area and shall be properly segregated and placed in containers for non-hazardous disposal. Workers shall then proceed to the designated wash station before removing respirator to adequately wash face, hands, arms, etc.

E. All tools and equipment shall be decontaminated by HEPA vacuuming and/or wet wiping prior to being taken out of the Work Area.

F. Workers shall not eat, drink, smoke, or chew gum or tobacco at the work site.

G. Each worker shall have a final medical blood lead laboratory test within one week of job completion and before engaging in other lead related work.
   1. Blood Level Monitoring: All workers must have blood lead levels tested as Baseline (prior to beginning of work) and at the completion of Job.

H. The Contractor shall provide all workers, foremen, and superintendents with properly fitted respirators approved by NIOSH and OSHA at no cost to worker. Authorized visitors (i.e.
Federal, State and Local inspectors) must provide a current medical report certifying they are approved to wear respirators. When respirators and disposable filters are employed, sufficient replacement filters will be provided by the Contractor for the workers and any visitors. All workers must be properly trained in the care, use and maintenance of respirators. The Contractor is responsible for requiring worker fit tests within the last six (6) months.

The minimum respiratory protection required for this project will be a half mask, air purifying respirators, equipped with HEPA filters for airborne lead dust, in accordance with Section 2.09.

I. Contractor will perform air monitoring as required by Title 8, Section 5216 in order to determine 8-Hour Time Weighted Average: (TWA) of lead dust to which any worker may be exposed shall not exceed the following:
Permissible Exposure Limit Lead- 50 micrograms per cubic meter of air (50ug/ml) for the 8-hour Time Weighted Average (TWA).

3.4 GENERAL REMOVAL PROCEDURES (THE PROCEDURES INCLUDED HEREIN ARE NOT PRESENTED IN A REQUIRED PHASED APPROACH) - *TO BE USED WHEN A NEGATIVE EXPOSURE ASSESSMENT HAS NOT BEEN PROVIDED*

B. DISMANTLING/REPLACEMENT

1. Prepare work site and provide protective measures in accordance with Section 3.2, above.
2. Building components to be dismantled shall be carefully removed in manageable sections and all work shall be performed over protective polyethylene sheeting. Workers shall exercise caution to avoid release of lead contaminated dust into the air. Do not saw or cut the materials unnecessarily. Dismantling operations shall be conducted in a careful, safe manner, insuring that intact lead-based paint remains so.
3. Separate building components with intact, well grounded lead-based paint from other accumulated debris. Collect small debris off dropcloth and place in 6 mil bags for appropriate storage in the designated waste storage area.
4. Properly decontaminate the work area in accordance with procedures outlined in Section 3.03, Part A, above.

3.5 INSPECTION PROCEDURE WORK AREA CLEARANCE

A. 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 inspection.

B. 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 as described in Section 3.3, A., at its own costs, until the work area passes inspection.
C. Clearance criteria to release contractor from each work area is as follows:

1. No visible debris
2. Native Soil: <400 parts per million (TTLC)

D. A work area shall be considered cleared only after all areas within the work area have met the above criteria.

E. If any of the native soil samples exceed the clearance criteria, the entire work area must be re-cleaned and retested until the clearance criteria is met.

F. If a work area fails the clearance criteria specified above, the Contractor shall be responsible to re-clean the area at no additional cost to the Owner and shall be responsible for associated additional re-inspection costs, including laboratory fees.

3.6 WASTE HANDLING AND DISPOSAL

A. The Contractor shall provide for secure on-site storage of lead related waste. Waste storage location, equipment, containers and methods shall be in compliance with the requirements of 40 CFR 262 and 265 and California Code of Regulations Title 22.

B. The Owner's Representative has determined through sampling and analysis, that various building components contain lead which exceeds the TTLC limits of hazardous waste. These items have been presented in the Section 02010 and the associated Hazardous Material Abatement Plans which are part of these documents.

C. The contractor shall remove, handle and dispose of all loose and flaking paint as a RCRA Hazardous Waste.

D. The contractor shall remove, handle and dispose of all listed building components containing lead which exceeds the TTLC limits of hazardous waste as a RCRA Hazardous Waste.

E. At the contractor's sole option and expense, additional waste characterization necessary to determine the soluble characteristics of identified waste streams may be performed. Such additional sampling and analysis shall be performed in accordance with Section 1.7E of this Section. The contractor shall provide all required details of 1.07E in a manner which provides 7 days for review and comment. The contractor shall not proceed with its own waste characterization without achieving written approval from the Owner's Representative.

If the contractor chooses this option, it must demonstrate and certify that the sampling performed is in accordance with Title 22, CCR 66261.20 and EPA SW-846 (most current version) including the Chapter 9 Statistical evaluations.

F. To the extent that the contractor chooses option 3.06E, above, all waste containers and packaged waste shall be stored in a designated, secure waste storage area and labeled "PENDING ANALYSIS" with the following information:

1. Waste Category (Chip/Dust and Removed Components)
2. Date Accumulated
3. Name and Address of Owner
4. Origin of Waste

G. To the extent that the contractor chooses option 3.6E, above, based on the testing protocols. H&S code 25257.8 states that waste that contains total lead (TTLC) between 350 and 1000 ppm, and is not otherwise hazardous waste, will be disposed of as a non-hazardous waste at a Class I Hazardous Waste Disposal Facility.

H. NOT USED.

I. The Contractor is responsible for all costs associated with characterization and landfill profiling of waste.
J. DISPOSAL

1. The Contractor shall submit name, address, and telephone number of landfill or landfills and transporter to Observation Service for approval, prior to disposal. This includes those landfills used for waste categories determined to be non-hazardous.

2. The Contractor shall have all waste transported from the site in accordance with the requirements of 40 CFR 263 and 264, and disposed of properly in accordance with 40 CFR 268, 49 CFR Parts 172, 173, 178, and 179 and California Code of Regulations Title 22.

3. The Contractor shall prepare waste shipping manifests for review by the Owner. The manifests shall be signed by the duly authorized representative of the Owner and copies retained by the Owner.

4. Copies of the landfill weight tickets shall be provided to the Owner to verify the amount of waste disposed of at the site.

5. The Contractor is responsible for all costs associated with transportation and disposal of the waste.

3.7 STOP WORK ORDERS

A. The Owner or Owner representative has the authority to stop work if it is determined that conditions or procedures are not in compliance with the Work Plan and/or applicable regulations; the Contractor is deficient in providing required submittals; the waste is not securely stored; or a potential release of lead dust to outside the Work Area is imminent based on the Owner's or the Owner's representative's judgment.

B. The work stoppage shall remain in effect until conditions have been corrected and corrective measures have been taken to the satisfaction of the Owner and/or Owner's representative.

END OF SECTION
SECTION 02095
OTHER REGULATED MATERIALS – HANDLING & DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The scope of work involves the removal, handling, staging, disposal and/or recycling of hazardous materials as identified in the solicitation and Contract Documents. Removal, handling, staging, disposal and/or recycling of these materials shall be performed in strict accordance with all applicable Federal, State and Local regulations.

B. Related Section:
   1. Section 01050 – General Contractor Health & Safety: Contract Requirements and Disclosure
   2. Section 02010 – Hazardous Material Abatement Summary of Work
   3. Section 02080 – Asbestos Abatement
   4. Section 02090 – Lead Related Construction
   5. Hazardous Material survey Report

1.2 SCOPE OF WORK

A. The work of this section includes the provision for all labor, materials, equipment and services necessary to effect the preparation, removal, and disposal of Other Regulated Materials as indicated by the contract drawings and within Section 02010 of this specification.

B. The work of the Contract can be summarized as follows:
   1. Section 02010, Section 1.1 Paragraph B, subsection 3;
   2. Administrative Requirements necessary to execute the Work, including but not limited to: Preparation and delivery of all required submittals;
   3. Packaging, transportation and disposal (including all prescribed, implied or otherwise required waste characterization and analysis) of all hazardous and non-hazardous materials and components shown, specified or otherwise implied.

1.3 TRAINING, PERMITS, LICENSES AND NOTIFICATIONS

A. The Contractor shall be responsible for obtaining all training, permits, certifications and notifications required for the safe removal, handling, disposal and/or recycling of these materials. All Contractor and Subcontractor personnel must have completed all required federal, state and local training and hazard communication prior to work. The contractor shall also obtain and submit documentation that disposal and recycling facilities have all required permits and certifications, as required by federal, state and local laws and regulations.
1.4 SUBMITTALS

A. The Contractor shall submit a detailed plan of action describing the methods to be utilized to accomplish the work. Plan shall include, at a minimum:

   1.4.1 lockout/tagout,
   1.4.2 emergency spill procedures,
   1.4.3 hazard communication training,
   1.4.4 personal protective equipment,
   1.4.5 removal, handling, staging, packaging, disposal and/or recycling procedures,
   1.4.6 list of disposal/recycling facilities,
   1.4.7 location of staging area,
   1.4.8 signage and control procedures.

Contractor shall coordinate signing of all manifests with the University and shall provide copies upon request of all manifests, weight tickets, receipts and/or statements that all materials have been properly disposed and/or recycled.

1.5 PERSONNEL PROTECTIVE EQUIPMENT (PPE)

A. The Contractor will take all necessary precautions to ensure that employees are not exposed to hazardous materials. Employees shall utilize personal protective clothing, eye protection and hand protection when handling hazardous materials. Contractor shall provide suitable hand/face and eye wash stations or equivalent.

PART 2- PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 Phasing of Work

Salvage operations (includes removal and recycling), shall commence prior to abatement and demolition/renovation.

Shut down and lock out electric power to all work areas as necessary. The Contractor shall provide temporary power and lighting, and ensure safe installation of temporary power services and equipment, as specified in applicable electrical code requirements.

The Contractor shall use a California licensed electrician to isolate all electrical sources from lighting fixtures, emergency lighting, switches, gauges, pumps, vacuums, mechanical equipment, etc. prior to removal of ballast’s, light tubes, oils, fluids, etc. Isolation and disconnect of any other equipment/system to accomplish work shall be the responsibility of the contractor.

Establish a designated staging area(s) as described in submittals, for temporary placement of hazardous materials. Cover the floor with one (1) layer of 6-mil plastic sheeting (as a drop cloth), taped down. Segregate materials shall be segregated based on constituent, condition and proposed disposal/recycling point.

3.2 PCB Ballast, PCB Transformers and Fluorescent Light Tubes

The Contractor shall remove lamps from fixtures. Lamps shall remain intact (unbroken) and shall be placed carefully into cardboard containers designed to hold lamps (preferably obtained from the manufacturer or lamp recycling facility). Special care shall be taken not to break tubes during, removal, handling and transport.
The Contractor shall HEPA vacuum and thoroughly decontaminate any areas where lamps are accidentally broken.

The Contractor shall visually inspect light ballasts and transformers. Ballasts and transformers labeled “No PCB’s” will be placed in an on-site receptacle and disposed as construction debris. All other unlabeled PCB-containing ballasts and transformers will be removed and placed into 55-gallon steel drums (17C or 17H) or other DOT-approved container appropriately labeled in accordance with EPA and DOT regulations.

The Contractor shall wrap any leaking ballasts in 6-mill plastic disposal bags and place in a separate steel drum (17C or 17H). Light fixtures containing leaking PCB-containing ballasts shall also be disposed as PCB waste. Each disposal drum will have a sufficient amount of oil absorbent material placed in the bottom to contain any oil from ballast’s that may leak during transport. Any materials that come in contact with leaking PCB wastes shall be considered contaminated and disposed of as PCB waste.

Transport all properly containerized lamps, ballasts and transformers to an approved recycling facility. The Contractor shall be responsible for determining and complying with all current applicable regulations pertaining to waste handling and transport of PCB-containing ballast’s, transformers and mercury-containing lamps. The original waste shipment record documenting proper transport, recycling, and incineration of unrecycled components (i.e., PCB-containing solids and liquids) shall be completed and submitted to Owner’s Representative upon project completion. No hazardous wastes will be stored at the project site for more than 90 days from the date of first accumulation.

END OF SECTION
MILL VALLEY UNIFIED SCHOOL DISTRICT

Pleasant Hill, CA

MILLENNIUM CONSULTING ASSOCIATES

ABATEMENT PLAN
ROBINS NEST (EAST CAMPUS)

EDNA MAGUIRE ELEMENTARY SCHOOL

NOTE:

1. All buildings (not shown on plans)
2. All roofing systems (not shown on plans)