Limited Hazardous Materials Abatement Specifications

Terra Linda High School Cafeteria
320 Nova Albion Way
San Rafael, California

September 16, 2020

Terracon Project No. R1207489

Prepared for:
San Rafael City Schools
San Rafael, California

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SECTION 02 08 00

ASBESTOS AND LEAD ABATEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. The general scope of work includes the removal and disposal of identified asbestos containing materials from the Cafeteria/Kitchen building located on the Terra Linda High School Campus located at 320 Nova Albion Way in San Rafael, California.

B. In addition, numerous types of paint and building sealants have been determined to contain lead in concentrations above the laboratory method detection limit. All demolition work impacting lead-containing materials must be conducted in accordance with the OSHA Lead in Construction standard 8 CCR 1532.1. It should be noted that lead hazard abatement is not considered to be a portion of this contract. It is anticipated that lead containing materials will remain throughout the captioned structure until final demolition and disposal. All identified instances of peeling paint systems are to be stabilized by the bidding contractor during the abatement process.

C. The Contractor is responsible for conducting a thorough site visit and for reviewing the information in this specification as well as reviewing application local, state and federal regulations as they pertain to hazardous materials abatement.

D. This document includes minimum requirements for asbestos and lead abatement activities including, but not limited to:

1. Handling and disposal of asbestos-containing building materials (ACBM).
2. Handling and disposal of lead-containing building materials.
3. Criteria for abatement zone clearance testing.
4. Criteria for clearance.

1.2 RELATED DOCUMENTS

A. The General Conditions and Division I General Requirements shall be considered as part of this Section.

B. Examine all other Sections of the Specifications for requirements therein affecting the work of this Section of the Specifications.

1.3 COMPLIANCE AND INTENT

A. The Contractor is responsible for repair, to the satisfaction of the District, of surfaces not scheduled for demolition that become damaged as a result of abatement or demolition activities. All unscheduled repair work shall be at no increase to contract price.

B. Contractor shall coordinate removal with all site requirements related to protection of existing finishes. Water and encapsulants used during abatement work must not migrate beyond established regulated work area barriers.

C. This project involves the abatement of known asbestos containing materials, as well as the stabilization of peeling lead containing materials within the interiors and exteriors of aforementioned classroom structure. During all work, provide monitoring and worker protective equipment in accordance with the California Occupational Safety and Health Administration (Cal-OSHA) and as required by this specification. Where there is conflict, the most stringent requirement shall apply.

D. The work covered by this specification includes the handling, removal, and proper disposal of ACMs and limited lead containing materials. All hazardous materials shall be removed and disposed of according to all federal, state and local regulations. The Contractor shall determine if additional hazardous materials will be impacted by the scope of the abatement work.

E. The abatement workers shall receive EPA-accredited training and be certified for asbestos abatement work. Any contractors involved in the demolition of surfaces containing lead shall conduct all work in accordance with DOSH's lead construction standard, Title 8 CCR 1532.1.

F. Furnish all labor, materials, facilities, equipment, services, employee training, medical monitoring, permits and agreements necessary to perform the work required for asbestos abatement in accordance with this specification.

G. Comply with all federal, state, and local regulations pertaining to asbestos and lead removal, storage, transportation and disposal; employee heath and safety; Contractor certifications; and all licenses, permits, and training.

H. Work on the premises shall be confined to areas designated in the Contract Documents. Materials and equipment shall be stored within areas designated by the District. Should additional space be required, the Contractor shall request permission for additional space and shall adequately safeguard occupants from associated health and safety hazards.

I. Perform all work specified herein with competent persons trained, knowledgeable and qualified in state-of-the-art techniques relating to asbestos and lead abatement, handling, and the subsequent cleaning of contaminated areas.

J. During removal activities, the Contractor shall protect against contamination of soil, water, plant life, sensitive building finishes, adjacent building areas, and shall ensure that there is no airborne release of dusts. The District may collect air samples in the building and in adjacent areas to evaluate the Contractor's performance. Evidence of settled dust or airborne levels of contaminants above background will require the implementation of additional controls at no increase to contract price.

K. It is the Contractor's responsibility to determine the quantities of ACMs and lead materials and surfaces that will require removal or other impact prior to

commencement of the project. The Contractor shall conduct a site visit to determine exact locations of materials that will require abatement.

L. This section provides appropriate protocols for handling and disposal of asbestos and lead containing materials. All hazardous materials shall be removed according to the procedures outlined in this specification. If additional suspect ACMs are discovered during the course of the abatement work, immediately notify the District and/or the District's Environmental Consultant.

M. The work of this section shall be performed by an entity that holds a current, valid asbestos handling license issued by the California State Contractor's Licensing Board (SCLB) and a current valid Certificate of Registration for Asbestos-Related Work issued by the California Department of Industrial Relations-Division of Occupational Safety and Health (Cal-OSHA), unless other specified. Display copies of CSLB license and Cal-OSHA Registration in a visible place at the job-site.

N. Asbestos and lead containing materials removed during the abatement activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations. Appropriate waste manifests or letters of salvage shall be furnished to the District thereby limiting the District's liability for improperly salvaged items. Materials are conveyed to the Contractor "as is," without any warranty, expressed or implied, including but not limited to, any warranty to marketability or fitness for a particular purpose, or any purpose.

O. All interior asbestos abatement work shall be conducted using a negative pressure enclosure and three stage decontamination units unless otherwise specified. The removal of exterior asbestos and lead containing materials shall be conducted in a regulated area with poly drop sheets and appropriate warning signs. Exterior ACM removed using mechanical methods or aggressive methods that render the material friable must be removed in a negative-pressure enclosure. The removal of asbestos-containing roofing materials shall be removed using wet methods and allowing no visible emissions or runoff to storm drains. Evidence of the release of asbestos above the background level will necessitate additional controls including but not limited to an enclosure.

1.4 DEFINITIONS

A. The following definitions pertain to work of this section.

1. Abatement: Process of controlling fiber release from ACMs including encapsulation, enclosure, controlled renovation procedures, removal, clean-up and disposal.

2. ACM: Asbestos-containing material

3. Action Level - Lead: Employee exposure without regard to the use of respirators, to an airborne concentration of 30 micrograms per cubic meter of air (30 mg/m3) calculated as an 8-hour time-weighted average (TWA).

4. Activity Class/Category - Lead: The designation assigned to work activities specified for removal of lead by pressure blasting, grinding, scraping, needle-gunning, chiseling, hammering, or wire brushing. Activity Classes I through III

determine the minimum surveillance measures and exposure controls of the Contractor(s).

5. Aggressive Sampling: Air sampling either during or following the agitation of the air.
6. AHERA: Asbestos Hazard Emergency Response Act (40 CFR Part 763).
7. Airlock: A system for permitting ingress and egress with minimum air movement between a contaminated area and uncontaminated areas. Typically consists of two curtained or gasketed doorways separated by a distance of at least six feet such that one passes through one doorway into the airlock, allowing the doorway to close off the opening. This airlock must be maintained in uncontaminated condition at all times.
8. Ambient Air Quality: The quality of air (in terms of airborne fiber/lead content) that is present in a given space.
9. Area Monitoring: Sampling of airborne asbestos fiber/lead concentrations within the work area and outside the work area. Sampling shall represent airborne concentrations that may reach the breathing zone.
10. Asbestos Fibers: Refers to asbestos fibers having an aspect ratio of 3:1, and those fibers longer than five (5) microns.
11. Asbestos Permissible Exposure Limit (PEL): A level of airborne fibers specified by OSHA as an occupational exposure standard for asbestos. This level represents the 8-hour time-weighted average of 0.1 fibers per cubic centimeter of air as measured by Phase Contrast Microscopy (PCM) analytical method.
12. Asbestos-Containing Material (ACM): Those manufactured products and construction materials including structural and mechanical building materials, as well as packings and gaskets that contain more than one percent (1.0%) asbestos by weight.
13. Asbestos: Asbestos includes asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-gunerite (amosite), anthophylite, tremolite, and actinolite. For the purposes of determining worker respiratory protection, both the asbestiform and non-asbestiform of the above minerals, and any chemically treated or altered materials shall be considered as asbestos.
14. Authorized Visitor: Designated employees or consultants for the District and representatives of any federal, state or local regulatory or other agency having jurisdiction over the project.
15. Baseline: Refers to the background levels of asbestos monitored before abatement.
16. Breathing Zone: A hemisphere forward of the shoulders and head with a radius of approximately six to nine inches.
17. Breach: A rift or gap in the critical or secondary barriers that allow egress of air from the containment to outside, or vice versa.

18. Bridging Encapsulant: An encapsulant that forms a discrete layer on the surface of an in-situ asbestos matrix.
19. Cal-OSHA: State of California, Occupational Safety & Health Administration.
20. CDPH: California Department of Public Health
21. Chain-of-Custody: A legal concept involving documentation of the physical possession of a sample(s) from the moment it is collected, transported, analyzed, and ultimately stored in an archive.
22. Change Rooms: Refers to the two chambers in the decontamination area used to change into and out of protective clothing.
23. Certified Industrial Hygienist (CIH): A person certified by the American Board of Industrial Hygiene.
24. Clean Room: An uncontaminated area or room that is part of the worker decontamination enclosure system, with provisions for storage of workers' street clothes and protective equipment.
25. Clearance Level: Clearance level for samples analyzed by PCM will be less than 0.01 fibers per cubic centimeter of air and for TEM will be less than 70 structures per square millimeter (<70 s/mm^2). Samples may be collected by aggressive or non-aggressive sampling methods and the minimum air volume shall be 1,200 liters.
26. Competent Person: One who is capable of identifying existing and predictable hazards and who has the authority to take prompt corrective measures to eliminate them.
27. Critical Barrier: A unit of temporary construction that provides the only separation between asbestos work area and an adjacent potential occupied space. This includes the decontamination unit, perimeter walls, ceilings, penetrations and any temporary critical barriers between the work area and the uncontaminated environment.
28. CSLB: Contractors State Licensing Board
29. Decontamination Area: Area which is constructed to provide the means for workers to store clothing, equipment and other articles, and to properly remove contamination upon concluding work activities that result in exposure to these hazardous materials.
30. DOP: Dioctylphthalate, the challenge aerosol used to perform on-site leak testing of HEPA filtration equipment.
31. DOT: Federal Department of Transportation.
32. DOSH: Division of Occupational Safety & Health (see also Cal-OSHA)
33. Decontamination Unit: Refers to system of airlocks used to decontaminate personnel, waste bags, equipment, etc. when exiting the work area. A decontamination unit shall be set up for each containment area.

34. Demolition: The wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

35. Disposal Bag: Minimum six (6) mil thick leak-tight plastic bags used for transporting asbestos waste from a work area to disposal or shipping container. Each disposal bag must have required labels per Title 8 CCR 1529 (Cal-OSHA asbestos rule), 5194 (HAZCOM). RACM waste must be additionally labeled according to 49 CFR 171-179 (USDOT), and 40 CFR 61 Subpart M (NESHAP). Hazardous waste disposal bags must be labeled with generator's name, address, site location, generator number, and the following information:

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
AVOID BREATHING AIRBORNE ASBESTOS
RQ WASTE ASBESTOS, 9 NA 2212 PG III
(Class 9 placard)
HAZARDOUS WASTE
STATE AND FEDERAL LAW
PROHIBITS IMPROPER DISPOSAL
IF FOUND, CONTACT THE NEAREST
POLICE OR PUBLIC SAFETY
AUTHORITY OR THE CALIFORNIA
DEPARTMENT OF TOXIC SUBSTANCES CONTROL

36. District: San Rafael City Schools

37. District's Environmental Consultant: Environmental Consulting firm and its representatives retained to provide compliance oversight and monitoring for the Contractor's asbestos abatement work activities.

38. Encapsulant: A liquid material that can be applied to ACMs that controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging) or by penetrating into the material and binding its components together (penetrating encapsulant).

39. Encapsulation: A specified procedure necessary to coat ACMs or asbestos contaminated surfaces with an encapsulant to control the possible release of asbestos fibers into the ambient air.

40. Enclosure: The construction of an airtight, impermeable, permanent barrier surrounding the ACM to prevent the release of asbestos fibers into the air.

41. Equipment Decontamination Enclosure System: A decontamination enclosure system for materials and equipment, typically in a designated area of the work area, and including a washroom, a holding area, and an uncontaminated area.

42. Equipment Room: A contaminated area or room that is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment. The equipment room shall be kept clean from asbestos-containing debris at all times.

43. Excursion Limit: A California Code of Regulations (Title 8 CCR 1529) requirement that ensures no employee exposed to airborne concentrations of asbestos in excess of 1.0 fibers per cubic centimeter of air as averaged over a sampling period of thirty (30) minutes.

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

45. Fixed Object: A unit of equipment or furniture in the work area that cannot be removed from the work area.

46. Friable Asbestos-Containing Material: Material that contains more than 1.0% asbestos by weight, and that can be crumbled, pulverized or reduced to powder by hand pressure when dry.

47. Foreman: An individual who typically fulfills the duties of "competent person" as defined by Title 8 CCR 1529. This individual must supply documentation of a passing grade in a Cal-OSHA accredited course in Asbestos Contractor/Supervisor training. The foreman must be on-site during all abatement work.

48. Glove Bag: A polyethylene bag with two inward projecting long sleeve gloves, designed to enclose an object from which an ACM is to be removed. Bags shall be seamless at the bottom, have a minimum thickness of 6 mils, and shall be labeled appropriately.

49. Glove Bag Technique: A method for removing ACM from heating, ventilation and air conditioning (HVAC) ducts, piping runs, valves, joints, elbows, and other non-planar surfaces. The glove bag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. Secondary containment shall be provided for all glove bag work unless otherwise noted.

50. Gross or Full Abatement: Designated rooms, spaces, or areas of the project that have been totally sealed, contained in polyethylene, equipped with decontamination enclosure systems, and placed under negative pressure.

51. HEPA: High Efficiency Particulate Air filter capable of filtering out airborne particulate 0.3 microns or greater in diameter at 99.97 percent efficiency.

52. Lead: Toxic metallic element of atomic number 82, or any other materials, substances or compounds that may contain lead. Note for metal painted surfaces lead is often found in combination with chromates. For the purposes of this specification, lead also refers to lead-chromate paints.

53. Lead Hazardous Waste: Paint, sludge, debris or cleaning materials are to be treated as a hazardous waste if laboratory results indicate a lead (Pb) concentration of 5 milligrams per liter (mg/l) or greater using the EPA approved Toxicity Characteristic Leaching Procedure (TCLP) test. The waste will also be classified as hazardous waste if the Total Threshold Limit Concentration (TTLC) of measured lead is greater than 350 mg/kg or if the Soluble Threshold Limit Concentration (STLC) of measured lead is greater than or equal to 5 mg/l.

54. Manifest: The document authorized by both Federal and State authorities for tracking the movement of ACMs.

55. Movable Object: A unit of equipment or furniture in the work area that can be removed from the work area (e.g., smoke detectors, lights, etc.)

56. 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.

57. Negative Pressure: Air pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).

58. NESHAP: National Emission Standard for Hazardous Air Pollutants – EPA Regulation 40 CFR Subpart M, Part 61.

59. NIOSH: National Institute for Occupational Safety and Health: Sets test standards, analytical methods, and certifies performance of various respirator designs (research institute within Federal OSHA).

60. NIST: National Institute of Standards and Technology: Administers the NVLAP Program.

61. NOA – Naturally Occurring Asbestos. Found in soil, fill and concrete.

62. NVLAP: National Voluntary Laboratory Accreditation Program – evaluates and certifies laboratories doing PLM and TEM analyses.

63. Passive Sampling: Refers to air sampling with no air agitation.

64. Permissible Exposure Limits (PELs) - Asbestos: A level of airborne fibers specified by OSHA as an occupational exposure standard for asbestos. This level represents the 8-hour time-weighted average of 0.1 fibers per cubic centimeter of air and 30-minute excursion limit of 1.0 fibers per cubic centimeter of air as measured by Phase Contrast Microscopy (PCM) analytical method.

65. Permissible Exposure Level (PEL) - Lead: An eight-hour time weighted average concentration of 50 micrograms of lead per cubic meter of air (50 µg/m3).

66. Personal Monitoring: Sampling for asbestos and lead concentrations within the breathing zone of an employee.

67. Phase Contrast Microscopy (PCM): Technique using a light microscope equipped to provide enhanced contrast between the fibers and the background. Filters are cleared with a chemical solution and viewed through the microscope at a magnification of approximately 400X. This method does not distinguish between fiber types and only counts those fibers longer than 5 microns and wider than approximately 0.25 microns. Because of these limitations, fiber counts by PCM typically provide only an index of the total concentration of airborne asbestos in the environment monitored.

68. Polarized Light Microscopy (PLM): An optical microscope technique used to identify asbestos content and distinguish between different types of asbestos fibers by their shape and unique optical properties.

69. Powered Air Purifying Respirator (PAPR): A full facepiece respirator that has the breathing air powered to the wearer after it has been purified through a filter.

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

71. Remodel: Replacement or improvement of an existing building or potion thereof where exposure to airborne asbestos may result. Remodel includes, but is not limited to, installation of materials, demolition, cutting, patching, and removal of building materials.

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

73. Soluble Threshold Limit Concentration (STLC): A material is considered as hazardous waste if laboratory test result indicate Soluble Threshold Limit Concentration of measured lead are greater than or equal to 5 milligrams per liter (mg/l).

74. Shower Room: A room between the clean room and the equipment room in the work decontamination enclosure system. This room contains hot and cold or warm running water and soap suitably arranged for complete showering during decontamination. The shower room comprises an airlock between contaminated and clean areas.

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

76. Transmission Electron Microscopy (TEM): Asbestos structure analysis for a specified volume of air. TEM is a technique that focuses an electron beam onto a thin sample. As the beams transmits through certain areas of the sample, an image resulting from varying densities of the sample is projected onto a fluorescent screen. TEM is the state-of-the-art analytical method for identifying asbestos fibers collected in air samples in non-industrial settings. TEM microscopes equipped with selected area electron diffraction (SAED) capabilities also can provide information on the crystal structure of an individual particle.

77. Toxicity Characteristic Leaching Procedure (TCLP): Test developed by U.S. Environmental Protection Agency (USEPA) to simulate landfill conditions and the potential for a waste to leach hazardous materials (40 CFR 261 - Appendix 2).

78. Total Threshold Limit Concentration (TTLC): A material is considered as hazardous waste if laboratory test result indicate Total Threshold Limit Concentration of measured lead are greater than or equal to 350 milligrams per kilogram (mg/kg).

79. TSI: Thermal Systems Insulation

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

81. Visual Inspection: A visual inspection by District's Environmental Consultant, of the work area under adequate lighting to ensure that the work area is free of visible PCB material, debris, and dust.

82. Washroom: A room between the work area and the holding area in the equipment decontamination enclosure system equipped with water for decontamination of equipment and sealed waste containers. The washroom or shower room comprises one airlock.

83. Water Filtration: Refers to water filtration to as small a particulate size as technically feasible, but not more than 5 microns.

84. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, HEPA vacuuming, or other cleaning utensils dampened with amended water and afterward thoroughly decontaminated or disposed of as asbestos contaminated waste.

85. Work Area: The area where asbestos removal is performed and that is defined or isolated to prevent the spread of asbestos fibers, dust or debris, and entry by unauthorized personnel. Work area is a regulated area as defined by Title 8 CCR 1529.

86. Zinc Protoporphyrin (ZPP) Test: Biological test for lead exposure that measures the amount of zinc protoporphyrin in blood.

1.5 SCOPE OF WORK

A. Provide the removal of ACMs as specified in this section. Reference all other sections of the Specifications and other documents included in the contract documents for information and requirements that affect the work of this Section.

B. Table 1 below provides estimated quantities of ACMs requiring removal. The Contractor is responsible for field verifying quantities of ACMs and difficulty in abating the same. The quantities provided below are informational in nature. In such cases where discrepancy exists between contractor and specification estimates, the contractor is to submit this information to the district with their bid packages. Undisclosed deviations in quantities shall not constitute change order conditions.

Table 1
Asbestos-Containing Materials

Material Description	General Material Locations	Waste Category	Asbestos Type	Estimated Quantity
Thermal System Insulation - Hard Pack White 3" Elbows	Material was Observed Present on Various Pipes throughout Building Mechanical System	RACM	5% Chrysotile	~50 elbows

Material Description	General Material Locations	Waste Category	Asbestos Type	Estimated Quantity
Thermal System Insulation - Hard Pack White 6” Elbows	Material was Observed Present on Various Pipes throughout Building Mechanical System	RACM	5% Chrysotile	~50 Elbows
Wall Plaster System - Grey with White Finish Coat	Material Appears to be Limited to Eastern Restroom Area Walls and Ceilings	RACM	1% Chrysotile	~1,500 sf
Metal to Concrete Framing Sealant - White	Material is Present throughout Multiple Building Entry Way Frames	Cat. II	4% Chrysotile	200 sf (Multiple Door Frames)
Boiler Door Gasket - White	Material appears Limited to a Single Boiler Unit in the Building Mechanical Room	RACM	90% Chrysotile	1 sf
Roof Coating Material - Silver	Material is Limited to the Northern Library Area Roofing Field	Cat. I	4% Chrysotile	1,200 sf
Roof Penetration Mastic - Black	Material is Present throughout Roofing Field Areas at Penetrations	N/A	0.25% Chrysotile by 400-Point Count	250 sf
Terrazzo Flooring System - Pink with Mortar	Material is Present throughout Various Exterior Areas	N/A	0.5% Chrysotile by 400-Point Count	3,000 sf

NA = Not Applicable, lf = linear feet, sf = square feet, RACM = Regulated asbestos containing material (friable), Cat. I = Non-friable (note ACM must be reclassified as a RACM if rendered friable during removal), Cat. II = Category II Non-friable (note ACM must be reclassified as a RACM if rendered friable during removal)

C. The following materials shall be disposed of as regulated asbestos-containing material (RACM): acoustical wall/ceiling plaster in eastern restroom areas, pipe & fitting insulation, boiler gasket materials, and all Category I and Category II materials rendered friable during the removal process.

D. The following materials can be disposed of as Category I Non-friable ACMs if not rendered friable during removal: asphalt roofing materials.

E. The following materials can be disposed of as Category II Non-friable ACMs if not rendered friable during removal: exterior metal to concrete framing sealant at exterior entry door frames.

F. Roofing mastics and terrazzo flooring systems that contain less than 1.0 percent (<1.0%) asbestos by point count method may be disposed of as construction debris.

G. Table 2 below lists various materials with known lead content. Due to the array of varying lead concentrations reported as well as the age of the affected structure, all

disturbances of paints and surfaces at the affected sites should be performed in accordance with applicable lead related construction regulations.

Table 2
Lead Sample Results

Sample Number	Material Description and Location	Results mg/kg (ppm)
Pb-20	Beige Paint on Concrete Wall System at Cafeteria/Kitchen Interior Northwestern File Storage Area	595
Pb-21	White Paint on Plaster Wall System at Cafeteria/Kitchen Central Refrigerated Storage Room	1,790
Pb-22	Beige Paint on Concrete Wall System at Cafeteria/Kitchen Exterior Northeastern Corner	5,020
Pb-23	Blue Paint on Concrete Wall System at Cafeteria/Kitchen Exterior Northeastern Corner	ND<49.6
Pb-24	Grey Putty Window Glazing Cafeteria/Kitchen Exterior Southwestern Corner	ND<50.0
Pb-25	White Sealant on Concrete/Metal Framing Seam at Cafeteria/Kitchen Southern Entry Way	189

mg/kg= Milligram per kilogram, ppm = parts per million, ND< = Not Detected

1.6 REFERENCES

The publications listed below form a part of this specification by reference. The publications are referred to in the text by basic designation only. If there is a conflict between any of the listed regulations or standards, then the most stringent or restrictive shall apply.

A. American National Standards Institute (ANSI) and American Society for Testing and Materials (ASTM)

1. ANSI Z9.2-2018 Fundamentals Governing the Design and Operation of Local Exhaust Systems
2. ANSI Z87.1-2015, Occupational and Educational Eye and Face Protection
3. ANSI Z88.2-2015, Respiratory Protection
4. ANSI/ISEA Z89.1-2014, Requirements for Protective Headgear for Industrial Workers
5. ANSI Z88.6, 1984, Respiratory Protection – Respiratory Use Physical Qualifications for Personnel
6. ASTM C 732-2017, Aging Effects of Artificial Weathering on Latex Sealants
7. ASTM D 522-2017, Mandrel Bend Test of Attached Organic Coatings
8. ASTM D 1331 - 2014, Solutions of Surface-Active Agents
9. ASTM D 2794 - 1993 (Revised 2019), Resistance of Coatings to the Effects of Rapid Deformation (Impact)
10. ASTM E 84 - 2007, Surface Burning Characteristics of Building Materials
11. ASTM E 96 - 2016, Water Vapor Transmission of Materials
12. ASTM E 119 - 2018, Fire Tests of Building Construction and Materials

13. ASTM E 736 - 2017, Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members
14. ASTM E 1368 - 2014, Visual Inspection of Asbestos Abatement Projects
15. ASTM E1494 - 2018, Standard Practice for Testing Physical Properties of Friable Surfacing Materials
16. ASTM F2412/F2413 - 2005, Personal Protection - Protective Footwear

B. California Assembly Bills (CAB)

C. California Assembly Bills (CAB)

1. CAB 040, Yearly Registration of Contractors

D. California Code of Regulations (CCR)

1. Title 8 CCR 5208, General Industry – Asbestos
2. CCR CARS, Carcinogen and Asbestos Registration Sections 340-344.53, 341.6 Amended, and 341.9 Amended Through 341.14
3. CCR ESO, Electrical Safety Orders, Chapter 4, Subchapter 5
4. CCR 1523, Illumination
5. CCR 1529, Asbestos in the Construction Industry
6. CCR 1531, Construction Respiratory Protective Equipment
7. CCR 1532.1, Lead in Construction
8. CCR 3203, Injury and Illness Prevention Program
9. CCR 3204, Access to Employee Exposure and Medical Records
10. CCR 3220, Emergency Action Plan
11. CCR 3221, Fire Prevention Plan
12. CCR 5144, Respiratory Protection Equipment Standard
13. CCR 5194, Hazard Communication Standard
14. CCR 6003, Accident Prevention Signs
15. Title 22, Division 4, Minimum Standards for Management of Hazardous and Extremely Hazardous Waste

E. California Health Services (CHS) Titles 22 and 23, California Administrative Code Disposal Requirements

1. CHS 25123, Section 25123
2. CHS 25124, Section 25124
3. CHS 25143, Section 25143
4. CHS 25163, Section 25163
5. CHS 66508, Section 66508
6. CHS 66510, Section 66510
7. CHS DIV 4, Division 4, Commencing with Section 66000, "Disposal"

F. California Health and Safety Code (CHSC)

1. CHSC 20, Division 20, Commencing with Section 24200

G. California Labor Code (CLC)
   1. CLC DIVISION 5, Part 1, commencing with 6300

H. California Propositions (CP)
   1. CP 65, Proposition 65

I. California State Board of Equalization (CSBE)
   1. CSBE ETU, Excise Tax Unit

J. California State License Board (CSLB)
   1. CSLB CBPC, California Business and Professional Code Sections 7058.5 and 7058.7, "Certification"

K. Code of Federal Regulations (CFR)
   1. 29 CFR 1910.134, Respiratory Protection
   2. 29 CFR 1910.141, Sanitation
   3. 29 CFR 1910.145, Accident Prevention Signs and Tags
   4. 29 CFR 1926.21, Safety Training and Education
   5. 29 CFR 1926.55, Gases, Vapors, Fumes, Dusts, and Mists
   6. 29 CFR 1926.62, Lead Exposure in Construction
   7. 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response
   8. 29 CFR 1926.59, Hazard Communication
   9. 29 CFR 1910.1000, Air Contaminants
   10. 29 CFR 1926.1101, Asbestos
   11. 40 CFR 61-SUBPART A, General Provisions
   12. 40 CFR 61-SUBPART M, National Emission Standard for Asbestos
   13. 40 CFR 260, Hazardous Waste Management Systems: General
   14. 40 CFR 745, Lead; Requirements for Lead-Based Paint Activities
   15. 40 CFR 763, Asbestos Containing Material in Schools
   16. 49 CFR 178, Shipping Container Specifications

L. National Fire Protection Association (NFPA)
   1. Standard 10, Fire Extinguishers
   2. Standard 70, National Electric Code
   3. Standard 701, Small Scale Fire Test for Flame Resistant Textiles

M. State and Local Regulations
   1. Regulation 11, Rule 2, Bay Area Air Quality Management District

N. U.S Department of Housing and Urban Development (HUD)

1. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing

O. Underwriters Laboratories, Inc. (UL)

1. UL 586-96, 1996 Test Performance of High-Efficiency Particulate Air Filter Units

1.7 SUBMITTALS PRIOR TO START OF WORK

A. The reviews by the District or District's Environmental Consultant are intended to be only for general conformance with the requirements. The District or District's Environmental Consultant assumes no responsibility for permits, licenses, notices, materials and methods, equipment or temporary construction required to execute the work described in this Section of the Specification or in other Sections of the Specification or in other documents included in the contract documents.

B. Before commencing work involving the abatement of asbestos, submit the following for review by the District or District's Environmental Consultant.

1. Detailed work plan that includes water and electrical power supply at the site, wastewater discharge from showers and inside the work area; construction, location and number of containments and decontamination units; etc. Schedule showing milestone dates for activities such as mobilization, work area preparation, ACM and lead removal, ACM and lead waste load-out, final clearance evaluations, completion dates, etc. Also, submit variances received from regulatory agencies as applicable.

2. Provide an asbestos and lead site safety plan prior to project initiation. The site safety plan shall deal with, at a minimum: site safety and health hazards; fiber release incidents; control of water leakage or discharge within and/or from the work area; medical emergency; asbestos handling procedures; fall protection; electrical safety; Contractor's internal administrative and inspection procedures; earthquakes and/or fire emergency procedures; protocol for responding to complaints or questions from interested parties; 24-hour emergency telephone numbers for company officers with authority to respond to emergencies.

3. Competent Person (as defined by Title 8 CCR 1529): Demonstrate education and specialized training with successful completion of a Cal-OSHA accredited asbestos training course along with CDPH accredited lead training.

4. Submit current certificates (less than 11 months) signed by each employee and trainer that the employee has received proper training in the handling of materials that contain asbestos and/or lead Include documentation showing that the worker understands the following; health implications and risks involved (including the illnesses possible from exposure to airborne asbestos fibers), the use and limits of the respiratory equipment to be used, and the results of monitoring of airborne quantities of asbestos concerning health and respiratory equipment.

5. Proof of Respirator Fit Testing: Provide proof of respirator fit testing. Fit testing records must be less than eleven (11) months old and document testing on the

type of respiratory protective equipment used for this project. Fit testing records must be signed by the Competent Person.

6. Foreman Training: Submit evidence that the foreman to be used on the job fulfills the qualifications detailed in this specification and has experience in similar jobs.
7. Medical Examinations: Submit evidence signed by a physician that each employee used on the job has received an appropriate medical examination as detailed in Title 8 CCR 1529 and 1532.1. The submitted document must be less than eleven (11) months old.
8. Written Notification to Fire and Police Departments: Provide documentation showing notification to local fire and police departments of the abatement three (3) days before commencement.
9. Rental Equipment: When rental equipment is to be used in the abatement areas or to transport hazardous waste, the Contractor shall provide written notification regarding intended use of the rental equipment to the rental agency before use, with copies to the District's Environmental Consultant.
10. Certificates of Compliance: Submit manufacturer's certification that vacuums, ventilation equipment, and other equipment required to contain airborne asbestos fibers conform to ANSI Z9.2. Submit results of onsite DOP testing of all HEPA-filtered ventilation equipment.
11. Satisfactory proof that written notification and subsequent updates have been provided to the Bay Area Air Quality Management District, in accordance with local rules, and Title 40 CFR Part 61 Subparts A&M, National Emission Standards for hazardous Air Pollutant, U.S. EPA.
12. Licenses: Submit copies of state and local licenses, evidence of Cal-OSHA registration and permits necessary to carry out the work of this contract.
13. Notification of Other Contractors: If other contractors are working at the job site, before beginning any work the Contractor must inform all other contractors in writing regarding the location, nature, and requirements of the work areas.
14. Material Safety Data Sheets/Specification Sheets: The Contractor shall submit Material Safety Data and Specification Sheets for all chemicals, encapsulants, etc. to be used for this project.

1.8 SUBMITTALS AT THE COMPLETION OF THE PROJECT

A. Upon completion of on-site work, Contractor shall provide a detailed project summary that will include each of the items listed below. The project Summary shall be submitted and approved by the District prior to acceptance of final pay request and shall include the following:

1. Copies of the Security and Safety Logs showing names of persons entering the workspace. The logs shall include date and time of entry and exit, supervisor's record of any accident (detailed description of accident).
2. Chain of custody documentation and laboratory reports for all analyses performed.
3. Emergency evacuations and any other safety or health incident.

4. Submit uniform hazardous and non-hazardous waste manifests prepared, signed and dated by an agent of the landfill. The manifest must certify the amount of hazardous materials delivered to the landfill. The manifest must be provided to the District or District's Environmental Consultant within ten working days after delivery.
5. Hazardous waste must be tested (TTLC/STLC/TCLP) and categorized for purposes of disposal. The Contractor shall submit written evidence of approved testing (including copy of the actual chain-of-custody forms) and disposal of hazardous wastes within five (5) days following the completion of each phase of the project.
6. Personal air sample results.
7. Pressure differential strip chart readings for each differential recording device on the site.
8. Project Summary:
    a. Abatement contractor's name and address, certification number (CSLB), registration number (DOSH) and Tax ID number.
    b. Hazardous waste hauler certifications (DOT).
    c. Name, address and registration number of hazardous waste hauler.
    d. Laboratory performing analyses (NVLAP).
    e. Contract number and name of project.
    f. Specific inventory (including locations and approximate quantities) of the hazardous materials which were removed or handled.
    g. Number of employees working on the project.
    h. Dates of commencement and completion of on-site work.
    i. Work method employed (i.e., glove bag, mini-containment, full containment with negative air and decontamination enclosure system, etc.)
    j. Name, location, telephone number and EPA registration of waste disposal site(s) used.
    k. DOP testing results.

1.9 QUALITY ASSURANCE

A. Qualifications:

1. Asbestos Abatement Work: Only qualified persons shall engage in asbestos abatement activities. Work involving asbestos-containing materials exceeding 100 square feet (SF) or 100 linear feet (LF) shall be completed by a Contractor holding a valid asbestos handling license issued by the California State Contractors Licensing Board (SCLB) and a valid current Certificate of Registration for Asbestos-Related Work as issued by the California Department of Industrial Relations - Division of Occupational Safety and Health (Cal/OSHA). Work shall be completed under the on-site supervision of a Competent Person as defined by OSHA Regulation 29 CFR Part 1926.1101 (8 CCR 1529 in California). All abatement workers shall have AHERA training

with annual 8-hour refresher training, current medical exams for the use of respiratory protection, and current fit test of appropriate respirators.

B. Regulatory Requirements: The Contractor shall be alerted to and familiar with the following laws and regulations regarding the hazards, control measures, management, characterizing, transport and disposal of hazardous wastes:

1. Asbestos and Lead Abatement Work: All labor, materials, facilities, equipment, services, employees and training, and testing necessary to perform the work required for asbestos abatement and disposal of waste shall be in accordance with these Specifications and the most current regulations, including but not limited to:

   a. Environmental Protection Agency NESHAP and AHERA regulations (40 CFR Part 763, as applicable).
   b. Occupational Safety and Health Administration (inclusive of OSHA 29 CFR 1926.1101)
   c. California Department of Occupational Safety and Health (inclusive of Cal/OSHA 8 CCR 1529)
   d. California Environmental Protection Agency (Cal/EPA).
   e. Local Air Quality Management District or Air Pollution Control District Rules
   f. San Francisco Lead Ordinance for the Removal of Lead from Exterior Surfaces
   g. Other applicable federal, state, and local governmental regulations pertaining to asbestos-containing materials (ACM) and asbestos waste.

1.10 CONTRACTOR MONITORING

A. The District or District's Environmental Consultant reserves the right to perform air sampling in selected areas during the course of the project. District or District's Environmental Consultant reserves the right to stop work within in an area if in the course of performing monitoring, the District or District's Environmental Consultant observes instances of substantial non-conformance with this Section or other Sections of the Specification presenting health hazards to workers, the general public or the surrounding areas. Work shall not resume until the corrective measures have been enforced. Instances of substantial non-conformance shall include, but not be limited to, the following:

1. Activities or misconduct imperiling worker's safety and health.
2. Airborne fiber concentrations as measured by PCM outside of the containment area exceeding background or 0.01f/cc whichever is greater. Airborne concentrations as measured by TEM outside of the containment area exceeding background or 70 S/mm^2, whichever is greater.
3. Loss of negative pressurization for more than two minutes.
4. Breaches in containment resulting in potential release of asbestos to non-work areas.

B. All asbestos and lead containing materials abatement work shall be conducted using good work practices to prevent the release of fibers or dust outside the work area. If poor work practices are observed, the Owner's Consultant shall direct the Contractor to make the necessary corrections. Generally, airborne fiber concentrations measured by PCM inside the regulated areas exceeding 0.2 fibers/cc will be viewed as an indication of poor work practices unless the concentration is a direct result of design or external circumstances anticipated in the project specification.

C. If appropriate conditions are not made after two (2) warnings, or if an immediate threat exists that asbestos fibers or lead dust could be released outside the work area, all abatement work will be stopped. The decision to stop work shall be made jointly by the District's Consultant and the District.

D. The District's Consultant may perform baseline air sampling in selected work areas of the building before the start of abatement work to establish the background total asbestos fiber and lead dust concentrations.

E. The background total fiber concentration (or a total fiber concentration greater than 0.01 f/cc) shall not be exceeded outside the work area during abatement work. If the total fiber concentration exceeds either background or 0.01 f/cc, the Owner's Consultant is authorized to act in accordance with the above provisions to stop work. The Contractor shall perform any and all necessary corrective actions to reduce the fiber concentrations.

F. The District's Environmental Consultant may perform air sampling inside and outside the hazardous materials work area during all phases of the work. The Contractor shall cooperate fully with the District's Environmental Consultant and ensure the cooperation of his workers during collection of air samples and work area inspections.

G. When visual inspections or air monitoring are specified, the Contractor shall notify the District or District's Environmental Consultant in writing 24 hours in advance of the day and time when the Contractor will be ready for such inspections or monitoring. Such requests shall be initiated by the Contractor's Competent Person or Foreman indicating that the work area has been previously inspected and is ready for inspection/testing.

H. Air monitoring generated by the District or District's Environmental Consultant shall not be used by the Contractor to represent compliance with regulatory agency requirements for monitoring of workers' exposure to airborne asbestos, nor shall any other activity on the part of the District or District's Environmental Consultant be construed to meet the Contractor's compliance with applicable health and safety regulations.

PART 2 - PRODUCTS

2.1 SIGNS AND LABELS

I. Provide labeling in accordance with State and Federal EPA requirements. Provide the required signs, labels, warnings, placards or posted instructions for containers used to transport hazardous material to the landfill.

J. Location of Caution Signs and Labels: Provide bilingual caution signs at all approaches to work areas in languages used by the Contractor's employees. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide labels and affix to all asbestos-containing materials, scrap, waste, debris, and other products contaminated with hazardous materials.

K. Warning Sign Format: Vertical format conforming to Title 8 CCR 1529:

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

L. Warning Label Format: Provide labels that comply with Title 8 CCR 1529 of sufficient size to be clearly legible, displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
DO NOT BREATHE DUST
AVOID CREATING DUST

M. Warning Sign Format: Vertical format conforming to Title 8 CCR 1532.1:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

N. Wherever the treatment process is reasonably expected to impact any lead-containing substances:

1. Post a sign 14" by 14" that includes the phrase, "Caution Lead Hazard. Keep Out" in bold lettering at least 2" inches high.
2. Postings shall be in English and Spanish, and in any language used by any of the Contractor's employees as the primary language of communication.

2.2 ENCAPSULANTS

A. Encapsulants shall be U.L. Listed, in full-scale E-119 fire test.

B. Average depth of penetration shall meet manufacturer's recommendations.

C. Dry mil thickness of bridging encapsulating systems (if used) shall be as indicated in the specific treatment instructions included in this specification, and as recommended by the manufacturer.

D. Performance Requirements: Classification - penetrating encapsulant; spray applied and brushable. Product shall be tested and listed by EPA and possess the following characteristics:

1. Flame resistance/flame spread ~25 (ASTM E162) V6.
2. Fire classification - UL Class A approved in the specific or similar assembly to its intended application.
3. Product shall be tested and rated non-toxic and non-irritating under the Federal Hazardous Substances Control Act and contain no methylene chloride.
4. Material shall be tinted sufficiently to provide a readable contrast to background color to which it is applied.

2.3 PLASTIC SHEETING

A. Use fire-retardant (FR) polyethylene (poly) film.

5. Thickness - 6-mil, minimum, NO EXCEPTIONS.
6. Flame Resistance/Flame Spread Rate <25.
7. Conforms to NFPA #701 and Tested in accordance with ASTM E-84.

2.4 TAPE, ADHESIVE, SEALANTS

A. Tape, 2” or wider, shall be capable of sealing joints of adjacent sheet of polyethylene and shall attach polyethylene sheet to finished or unfinished surfaces or similar materials. Tape shall be capable of adhering under dry and wet conditions, including use of amended water. Taping to critical or sensitive surfaces shall be completed using preservation sealing tape.

B. Spray adhesive for sealing polyethylene to polyethylene shall contain no methylene chloride or methyl chloroform (1,1,1-trichloroethane) compounds.

2.5 STRIP CHART RECORDER(S)

A. Where interior work areas are required, each shall have a minimum differential pressure of 0.025 inches water gage at all times. Fluctuations below 0.025 inches of water column are unacceptable and may require temporary cessation of work until conditions are corrected.

B. Multiple manometers shall be used to document the level of pressure difference between the containment space and all other spaces as deemed necessary by the District or District’s Environmental Consultant. Defective or non-operating instrumentation may require temporary cessation of work until instrumentation is repaired or replaced.

C. The manometers will be checked a minimum of four times per day by a person familiar with the operation.

D. Differential air pressure systems shall be in accordance with Appendix J of EPA's "Guidance for Controlling Asbestos-Containing Materials in Buildings, EPA 560/5-85-024. The Differential pressure system shall be continuously monitored by the Contractor using a recording instrument. The recording instrument shall be connected to an audible alarm that will activate at a pressure differential of -0.025 inches water gauge air pressure.

2.6 VACUUM EQUIPMENT

A. All vacuum equipment used in the work area shall use HEPA filtration systems and be of the wet-dry type. The Contractor shall provide on-site independent DOP testing to document the effectiveness of the vacuum units. The test results shall be signed by the individual performing the testing. Repeat DOP testing every thirty (30) days after initial testing. Provide documentation to the District or District's Environmental Consultant with 24 hours of DOP testing.

2.7 LOCAL EXHAUST SYSTEM

A. Where containments are required, sufficient High Efficiency Particulate Absolute (HEPA) ventilation units shall be used to maintain the negative pressure in each interior work area at 0.025 inches of water column and a minimum of four (4) air changes per hour.

B. The ventilation system shall remain in operation 24 hours a day until the work area has passed the specified clearance criteria. HEPA filtered air which is exhausted to maintain negative pressure shall be exhausted from the building at locations approved by the District or District's Environmental Consultant. Exhausted air shall not be near or adjacent to other building intake vents or louvers or at entrances to buildings. Other HEPA units shall operate within the enclosure to circulate air and control fiber counts.

C. The Contractor shall provide on-site independent DOP testing to document the effectiveness of the air filtration units. The test results shall be signed by the individual performing the testing. Repeat testing if the unit or the air filtration units have been repaired or replaced. Repeat DOP testing after thirty (30) days after initial testing. Provide documentation to the District or District's Environmental Consultant with 24 hours of DOP testing.

2.8 HOURS OF OPERATION FOR HEPA FILTRATION UNITS

A. The ventilation system shall remain in operation 24 hours a day until the work area has passed the specified clearance criteria. HEPA filtered air necessary to maintain pressure differential shall be vented to non-contaminated areas outside the building. Other HEPA units shall operate within the enclosure to circulate air and control fiber counts.

2.9 RESERVE EQUIPMENT

A. Contractor shall have the following equipment on site: two reserve, functioning and DOP-tested HEPA Filter Vacuum Cleaning Units, two reserve and DOP-tested

HEPA area filtration units for every four containments. Contractor shall also have sufficient polyethylene (poly), respirators, protective equipment, tape, tools, decontamination enclosure systems for each work area.

B. Provide authorized visitors requiring access to the work area with suitable protective clothing, headgear, eye protection, as described in this specification, whenever the visitor must enter the work area. The Contractor shall have available and maintain at all times a minimum of three (3) suits and other suitable protective equipment for this purpose. All protective equipment shall be new and for the exclusive use of visitors.

C. The Contractor shall document that each visitor has been trained and fit-tested prior to entering an abatement area.

2.10 SCAFFOLDING

A. Scaffolding, as required to do the specified work, shall meet all applicable safety regulations and DOSH standards. A non-skid surface shall be furnished on all scaffold surfaces subject to foot traffic. Scaffolding shall be adequately protected to prevent contamination of planking and framing.

2.11 TRANSPORTATION EQUIPMENT

A. Transportation equipment, as required, shall be lockable and suitable for loading, temporary storage, transit and unloading of contaminated waste without exposure to persons or property. Any vehicle used to transport asbestos waste shall be properly registered with all applicable controlling agencies.

2.12 CONNECTIONS TO WATER SUPPLY

A. Contractor shall assure that all connections to the site's water system shall include backflow protection. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade where water shall not damage existing finishes or equipment.

B. Employ heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system in each work area. Provide fittings as required to allow for connection to existing wall hydrants or spouts.

2.13 WATER HEATER

A. The hot water supply must be adequate to allow for 15 minutes of continuous usage while maintaining a water temperature of 85 F °. At minimum provide UL rated 40-gallon electric water heater to supply hot water for the decontamination unit shower. Provide relief valve compatible with water heater operation; pipe relief valve down to drip pan on floor with type L copper. Drip pans shall consist of a 24 inch X 24 inch X

6 inch deep pan, made of 19 gauge galvanized steel with handles. Drip pan shall be securely fastened to the water heater with bailing wire or similar material. Wiring of the water heater shall comply with NEMA, NEC and UL standards.

2.14 OTHER TOOLS AND EQUIPMENT

A. The Contractor shall provide other suitable tools for the stripping, removal and disposal activities.

B. Prohibited Equipment: The following equipment is prohibited from use on this project unless accepted in writing by the District or District's Environmental Consultant:

1. High or low pressure water blasting equipment for hosing of work areas.
2. Bead blasting or other uncontained abrasive blasting methods.
3. Vacuum-powered removal or collection equipment located outside the asbestos work area, such as a "Vacu-Loader".
4. Gasoline, propane, diesel or other fuel powered equipment inside the building, unless previously approved in writing by the District or District's Environmental Consultant.
5. Equipment that creates excessive noise or vibration that would affect the safety of the building or generate complaints from neighboring building occupants. No equipment shall exceed an A-weighted sound level of 85 dB as measured at 3 ft. from the radiating source without written permission of the District or District's Environmental Consultant.
6. Metal wire-brushes.
7. Flammable solvents with a flash point below 140 degrees F or materials containing ethylene glycol ether, methylene chloride, ethyl chloroform (1,1,1-trichloroethane), or other hazardous substances.
8. Non-fire retardant polyethylene sheeting.
9. Polyurethane spray foam for application in fire-rated assemblies, including but not limited to penetrations into stairwells, mechanical rooms, electrical closets, rated floor-to-floor assemblies, etc.

PART 3 - EXECUTION

3.1 INITIAL AREA ISOLATION - ASBESTOS AND LEAD

A. The District or District's Environmental Consultant reserves the right to inspect and approve all containment setups before any abatement is undertaken.

B. If a containment area is breached (failure of polyethylene seals, visible dust emission, fiber counts above background level, etc.), the Contractor shall take immediate action to control the breach and clean the area to the satisfaction of the District or District's Environmental Consultant.

C. If sample results indicate that conditions have exceeded the baseline or clearance criteria, as determined by the District or District's Environmental Consultant, all work

shall cease. Work shall not recommence until the condition(s) causing the increase have been corrected.

D. Verify that all electrical power, gas, sewage, water, phone lines, fire life safety lines and sprinkler systems to the work area have been shut down and disconnected so that there is no possibility of reactivation and electrical shock.

E. Provide all connections for temporary utilities in the work area needed throughout abatement. Temporary electrical power shall be according to OSHA and the National Electrical Code for Wet Environments.

F. Contractor shall conform to the District's lockout requirements, and secure the work area at all times. Area entrances and exits shall be secured by the Contractor throughout the abatement phase. Unauthorized visitors are strictly prohibited. Only the Contractor, District or District's designative representatives are permitted at the job site. Contractor shall ensure that all doors, gates, windows, and potential entrances to the work areas and the designated waste location areas are secured and locked at the end of each workday.

G. Contractor shall store all materials, equipment, and supplies for the project inside the building or in areas designated by the District and in accordance with District's requirements.

H. As required, establish designated limits for the abatement work area with continuous barriers. Use barrier tape (3-inch) with a pre-printed asbestos warning throughout exterior asbestos abatement activities. Provide signs around the perimeter of all the interior works areas per the EPA and Cal-OSHA.

I. Contractor shall provide temporary sanitary services of adequate capacity to handle the maximum estimated crew size plus an additional twenty percent. Contractor shall maintain the temporary facilities throughout the duration of the project.

J. The Contractor shall be responsible for identifying all HVAC components (if applicable) that lead into or out of the work areas. All components shall be disconnected and sealed airtight for the duration of the abatement work. All openings shall be sealed with two (2) layers of 6 mil polyethylene secured with duct tape, as applicable.

K. Pre-clean the work area and fixed objects in the work area using HEPA filtered vacuums and/or wet cleaning methods. Protect fixed objects with protective barriers (as appropriate) and cover with 6 mil poly sealed with tape.

3.2 CONTAINMENT SET-UP PROCEDURES - ASBESTOS AND LEAD

A. Containment is not required for exterior work including removal of asphalt roofing materials, window putties and window sealant mastics if removed in a non-friable state. However, all work shall be conducted within an asbestos regulated area as required by Cal-OSHA. Contractor shall seal operable windows and air intakes within 50 feet of the work area with 6-mil polyethylene sealed with tape.

B. Contractor shall construct a full negative pressure containment for the removal of known asbestos-containing interior materials including but not limited to thermal system insulation and boiler gasket materials. Install critical barriers consisting of one layer of 6-mil poly on windows and doors. Cover floor and wall surfaces with 6-mil poly sealed with tape (as appropriate). Cover floors first so that plastic extends up the walls at least 12 inches, then cover walls with 6-mil poly to the floor level, thus overlapping the floor material by a minimum of 12 inches. Pony walls shall be constructed with 6-mil poly if the perimeter walls of the containment area do not extend to the deck above. The work area(s) shall be placed under negative pressure as outlined in this specification throughout the abatement work period.

C. Contractor shall construct critical barrier negative pressure containment(s) for the removal of asbestos-containing plaster systems, terrazzo flooring systems and other asbestos products that contain less than 1%. The work area(s) shall be placed under negative pressure as outlined in this specification throughout the abatement work period.

D. Any disturbance of ACMs must be performed within a regulated area. If dust or debris is generated from asbestos related activity, work must be performed in a mini-enclosure with negative pressure or critical barrier containment.

E. To permit the inspector to view the majority of the work area, the Contractor shall provide easily accessible viewing ports from the clean space into each abatement area. Viewing ports must be a minimum of 2' x 2', clear-see-through plastic with no scratches, tape or glue marks.

F. Pressure differential recorders with strip charts are required to monitor the pressure differential in the work area. The recorders must be calibrated prior to arriving on site.

G. A three-chambered decontamination unit shall be required during the abatement work conducted in full containment. The unit shall be located immediately outside the contained area. A pre-fabricated unit is acceptable. Chambers shall be arranged as follows: (1) a clean/change room shall be the first chamber entered from outside the work area, (2) a shower shall be located between the clean/change room and the dirty/change room, and (3) a dirty/change room shall be the last chamber before entering the work area.

   1. The clean/change room of the worker decontamination unit shall be of sufficient size to accommodate the work crew and their belongings. It shall include a respirator storage area and be fully equipped with reserve equipment and materials such as clean suits, towels, soap, tape, and respirator filters.
   2. Worker decontamination unit walls shall be a minimum of two layers of 6-mil fire retardant poly and floors shall be constructed with a minimum of three layers of fire retardant poly. All entry and exit doorways shall consist of at least two sheets of overlapping, fire resistant poly. At no time shall the flapped doors be taped open in order to expedite material or personnel load-out.

H. All water from the shower and bag wash area shall be filtered to the technically feasible limit but not more than five (5) microns before disposal. In addition, the

Contractor shall comply with all current local, state and federal codes relating to waste water release. All water connections must be verified leak for leaks and turned-off at the conclusion of each shift. All shower water shall be drained from the shower pan at the end of each shift.

I. A two-chamber decontamination unit may be allowed, unless noted elsewhere, during the abatement work conducted in critical barrier containments. The unit shall be located immediately outside the contained area and shall contain a wash down area. A pre-fabricated unit is acceptable.

J. Contractor shall construct an equipment decontamination enclosure system consisting of a washroom, holding area and clean room separated by airlocks.

K. Approved fire extinguishers (Class ABC, multi-purpose, dry chemical type, rated: 4A; 60BC) shall be readily available to workers (maximum travel distance of 50 feet) inside and adjacent to work area(s). Personnel and emergency exits shall be clearly indicated on the inside of the containment area. The emergency exit plan shall be approved by the District's Environmental Consultant prior to the set up of any work areas.

L. A decontamination area shall be established on the roof for abatement of asphalt roofing materials and immediately adjacent to all exterior regulated work areas. The contractor may utilize remote decontamination chambers for exterior work, provided that measures are taken to prevent contamination of adjacent campus areas. Decontamination areas shall include a wash area. All wash water shall be captured and disposed or filtered as specified above.

3.3 PERSONNEL PROTECTION

A. Informed Workers:

1. All workers shall be informed of the hazards of ACMs, lead and any other hazardous materials exposure. Workers shall also be instructed in the use and fitting of respirators, protective clothing, decontamination procedures, and all other aspects associated with the abatement work.

B. Personal Hygiene Practices:

1. The Contractor shall enforce and follow good personal hygiene practices during the abatement of hazardous materials. These practices will include but not be limited to the following: no eating, drinking, smoking or applying cosmetics in the work area. The Contractor shall provide a clean space, separated from the work area, for these activities.

2. Workers shall remove street clothes in the clean room and put on a respirator and clean protective clothing before entering the work area. Upon exiting the work area, remove gross contamination from clothing before leaving the work area; proceed to the change room and remove clothing except respirators; proceed to the shower; clean the outside of the respirator with soap and water while showering; remove respirator and thoroughly wash. Following showering, proceed directly to the clean room and dress in street clothes. Do not wear disposable clothing outside the decontamination enclosure system.

3. If data gathered by the District or District's Environmental Consultant in areas adjacent to the work areas shows exposure to airborne asbestos or other hazardous materials exceeding Cal-OSHA criteria, that area will become regulated and workers must wear protective clothing and approved respirators and must have a shower facility provided to them.

C. Respirators:

1. Establish a respiratory protection program as outlined by ANSI and required by Cal-OSHA. Select respirators from those approved by the National Institute for Occupational Safety and Health (NIOSH). Respirators selected must be approved by the Competent Person. Submit program for review a minimum of five (5) working days prior to the commencement of abatement activities.
2. Provide workers with approved and personally-issued respirators with replaceable filters. Provide sufficient quantity of filters approved by NIOSH for use in asbestos environments so that workers can change filters as required by the manufacturer.
3. At a minimum, provide each employee with the following respiratory protection for each work phase:
   a. Pre-cleaning, containment set-up, and containment removal work: NIOSH-approved, half-face respirators with HEPA cartridges.
   b. Asbestos abatement of thermal systems insulation: full-face powered-air purifying respirators (PAPRs) with HEPA cartridges.
   c. Asbestos abatement of all other asbestos containing materials that are not designated as TSI or surfacing compouns as well as disturbance of surfaces with known or unknown lead concentrations: half-face respirators with HEPA cartridges and organic vapor cartridges (as necessary).
4. At all times, respiratory protection selected shall, at a minimum, meet the requirements of the Table 3 below.

Table 3 – Respiratory Protection

Airborne Concentration of Asbestos	Required Respirator
Not in excess of 1.0 f/cc (10 X PEL)	Half-mask air purifying respirator other than a disposable respirator, equipped with high efficiency filters
Not in excess of 5.0 f/cc (50 X PEL)	Full facepiece air purifying respirator equipped with high efficiency filters
Not in excess of 100 f/cc (1000 X PEL)	Any powered air purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode
Not in excess of 100 f/cc (1,000 X PEL)	Full facepiece supplied air respirator operated in pressure demand mode
Greater than 100 f/cc or unknown concentration	Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive

pressure self-contained breathing apparatus

5. Provide Type C continuous flow or pressure-demand, supplied-air respirators if the average airborne concentration of asbestos exceeds 100 times the permissible exposure limit; i.e., 8-hour time-weighted average (TWA) and ceiling limit. Use the respirators presented in Title 8 CCR 1529 that afford adequate protection at such upper concentrations of airborne asbestos. When Type C Respirators are required provide the following:
    a. The air supply system shall provide Grade D breathing air that conforms to OSHA and ANSI Commodity Specification for Air.
    b. Compressed Air System for Type C Respirators shall be high pressure, with a compressor capable of satisfying the respirator manufacturer's recommendations. The compressed air system shall have compressor failure alarm, high temperature alarm, and a carbon monoxide alarm. It also shall have suitable in-line air purifying absorbent beds and filters to assure Grade D breathing air.
    c. Use of Belt: Type C respirators shall be worn with belt to minimize possibility of dislodging face mask when hose is snagged in the work area.

D. Protective Clothing:
    1. Provide personnel exposed to asbestos fibers with fire retardant disposable protective whole body clothing, head coverings, gloves, and foot coverings. Provide appropriate gloves to protect workers hands from exposure to hazardous materials. Make sleeves secure at the wrists and make foot coverings secure at the ankles with tape. Ensure that all personnel entering and leaving the work area follow this procedure. Suits shall be of adequate size to accommodate the largest employee. Foot covers may be part of the coveralls. Non-disposable footwear shall be left in the work area until it is decontaminated or disposed of at the completion of the job.
    2. Protective clothing 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.
    3. For all work conducted outside of a fully contained work area, such as activities performed at exterior elevations and roof levels, all workers shall don dark blue Tyvek (or equivalent) suits at all times.

E. Eye Protection: Provide safety glasses or goggles to personnel removing or handling asbestos-containing materials and waste.

F. Shower Requirements: Contractor shall assure that all employees and visitors use protective equipment and the shower or wash down facility following each entry into the containment area after the start of the asbestos abatement.

G. Emergency Precautions and Procedures:
    1. Establish emergency and fire exits from the work area. Display necessary signage at exits and paths to exits with representative visual aids. A diagram

of all emergency and fire exits shall be posted in a conspicuous area proximate to the entrance to each work area.

2. The Contractor's supervisor/competent person shall be trained and certified in first aid and CPR, and be prepared to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated without delay for decontamination. When an injury occurs, the Contractor shall implement fiber reduction techniques until the injured person has been removed from the work area.

3. In the event of a loss of negative pressure to the work area, work shall stop immediately and entrances to the work area sealed tight. The Contractor shall also institute fiber reduction controls until negative pressure is re-established to acceptable levels.

3.4 CONTAINMENT AND DECONTAMINATION AREAS/SYSTEMS

A. Prior to each work shift and continuously throughout the project, each containment and decontamination enclosure shall be inspected and repaired as needed.

B. Ambient asbestos fiber levels outside each work area shall not exceed 0.01 f/cc (PCM) or 70 s/mm2 (TEM). If the asbestos fiber concentrations outside each work area should exceed those levels shown above, then abatement must stop and operations be reviewed and modified until the fiber count can be reduced to within the acceptable limits.

3.5 ASBESTOS REMOVAL (GROSS REMOVAL TECHNIQUE)

A. The Contractor shall abate all ACMs identified in this specification that will be impacted during the performance of construction activities.

B. The Contractor shall continuously apply wetting agent throughout the removal process. The wetting agent shall be applied with a low-pressure fine spray to minimize fiber releases. The materials shall be thoroughly saturated so that there is no detectable fiber release. All ACM and lead containing debris shall be immediately packaged in leak-tight containers following removal.

C. Minimize removal activities of ACMs and that generate airborne particulate. To the extent feasible, score or cut-out ACMs and/or LCMs in sections, wetting along the scoring line continually, and misting the air with an airless sprayer to knock down suspended particulate. After completion of removal work, surfaces from which asbestos has been removed shall be wet cleaned to remove all visible material and residue.

D. Wet clean the exterior surfaces of waste containers in the equipment decontamination enclosure system prior to removal from the work area. Ensure that workers do enter from uncontaminated areas into contaminated areas in the equipment decontamination enclosure system. The Contractor shall transport asbestos-containing waste bags to the waste debris box at designated hours approved by the District or District's Environmental Consultant. RACM shall be

packaged in a minimum of two (2) 6-mil polyethylene bags. Bags shall be properly labeled for RACM disposal including site-specific generator labels.

E. Non-friable waste shall be packaged in clear, leaktight containers and properly labeled while stored on-site.

F. All products with asbestos content (<1%), such as terrazzo flooring and roofing mastics, as confirmed by point counting data in accordance with state and federal regulations, shall be packaged in leaktight containers while stored onsite. No specific labeling is required.

G. In the absence of point counting data, all known ACMs shall be treated as containing greater than 1% asbestos

H. Asbestos/lead containing debris and contaminated water shall be cleaned from the work area at the end of each work shift. The Contractor shall clean the work area using wet methods and HEPA vacuum equipment.

3.6 ASBESTOS REMOVAL (GLOVEBAG TECHNIQUE)

A. Bags commercially manufactured specifically for glovebag enclosure removal of asbestos shall be used. All bags shall be a minimum of 6 mils clear poly, appropriately sized for removal area and task.

B. Maximum temperature of components allowable for glovebag work shall be as specified by glovebag manufacturer. Glovebag procedures shall not be permitted on live steam equipment or any equipment in excess of 150 degress Frahenheit.

C. Pre-clean the work area and protect immediate work area by covering floor and nearby equipment with 6 mil poly. Temporarily wrap damage/deteriorated asbestos insulation adjacent to the work with 6 mil poly to prevent further damage or disturbance during removal.

D. Provide two (2) workers for each glovebag operation.

E. Install glovebag around pipe, seal with staples and tape leaving enough sealed space above the pipe to allow access. Secure bag to pipe to support weight of stripped insulation and water (additional support may be provided by a chair or ladder).

F. Insert HEPA vacuum nozzle and flexible tubing or wetting agent sprayer into hole location provided and seal airtight with duct tape.

G. Smoke test the glovebag and repair leaks as required.

H. During removal, periodically use HEPA vacuum to compensate for any leaks and wet the inside surfaces of the bag to control fiber release.

I. Cut the insulation sharply for neat sealing of exposed insulation. Leave 4 inches margin at the bag/seal point.

J. After removal and detail cleaning, wash down all surfaces to below the levels where the bag will be sealed, and saturate the waste.

K. Upon completion of the removal work but prior to commencing with encapsulation, the District or District's Environmental Consultant reserves the right to conduct visual inspections.

L. Seal all substrate surfaces from which asbestos material was removed with an approved encapsulant.

M. Gather tools in a glove hand and pull the glove inside out. Seal the arm with a minimum of six (6) inches of tape and cut through the middle of the tape. Bend and re-tape the ends. Save the "bagged" tools for the next glovebag operation or clean by placing in a pail of water.

N. Collapse the bag with the HEPA vacuum. With the vacuum still applied, seal the bag just above the glove level. Remove the nozzle and tubing. Place a 6 mil waste bag over the glovebag and carefully remove the glove bag from the component and immediately seal it in a labeled waste bag. Check the component for loose waste and vacuum as required.

O. Seal exposed insulation with fiberglass wettable cloth or other approved material while the insulation is damp, unless other removal is planned.

3.7 EXTERIOR AND ROOFING ASBESTOS REMOVAL

A. Establish a regulated area consisting of barrier tape and asbestos warning signs at least 10 feet from the work area. The edge of the roof can be considered one such barrier if sufficient controls have been established to prevent loss of roofing debris from the roof.

B. Provide a decontamination area at the point of entry/exit to the regulated exterior or roof work area.

C. Seal off openings within 50 feet of the work area including ducts, grills, and windows.

D. Utilize fall protection and safety devices at all times during roof work whenever exposed to falls greater than six feet including at perimeter, shafts or skylights.

E. Weather conditions should be dry and wind conditions less than 15 mph for roof and other exterior abatement activities. Establish a waste storage area where sealed bags of roofing materials are stored during removal. Line the storage area with a layer of 6-mil polyethylene sheeting. Dampen the surfaces with a fine spray of amended water before proceeding with removal. Keep ACMs damp throughout the removal process. Cut, peel, and scrape the roofing materials as required to remove the largest pieces possible in layers. Continue the removal until the roof decking is reached. Remove contaminated sleepers, flashing, and counter flashing as applicable.

F. Place all removed asbestos roofing, exterior sealants, and window putty in waste bags or containers. All waste shall be removed from exterior and roofing regulated work areas by the end of each workday. In no case shall waste disposal containers be dropped or thrown. All ACM waste disposal containers shall be handled in a careful manner to prevent spills.

G. Acceptable clearance criteria for exterior and roofing removal shall be no visible three-dimensional residue at removal locations. The District or District's Environmental Consultant reserves the right to conduct visual inspections at the completion of the work.

3.8 DECONTAMINATION - ASBESTOS AND LEAD

A. Following the abatement work, all reusable, contaminated equipment, such as masks, hard hats, boots, etc. shall be thoroughly decontaminated through wet cleaning methods before removal from the work area.

B. No accumulation of debris or standing water will be permitted following the initial decontamination. All visible asbestos debris on soil will be removed to baseline concentrations.

3.9 WASTE LOAD OUT PROCEDURES

A. Ensure that polyethylene bags are sealed air-tight. All bags shall be wet cleaned prior to removing them from the equipment decontamination unit.

B. Ensure all disposal containers are properly labeled in accordance with 8 CCR 1529, 5194 (HAZCOM), 49 CFR 171-179 (USDOT), 40 CFR 61 Subpart M (NESHAP), and any local regulations and state regulations as required by this specification.

3.10 REGULATED AREA MONITORING

A. Prior to each work shift and continuously throughout the project, each containment and decontamination enclosure system shall be inspected and repaired as needed.

B. Ambient asbestos fiber levels outside each work area shall not exceed 0.01 f/cc (PCM) or 70 s/mm^2 (TEM) or background whichever is greater. If the asbestos fiber concentrations outside work areas exceed those levels shown above, then abatement must stop and operations be reviewed and modified until the fiber count can be reduced to within the acceptable limits.

3.11 AIR MONITORING

A. The purpose of any air monitoring that may be conducted by the District or District's Environmental Consultant will be to detect possible release of fibers or dusts (asbestos or lead) emanating from the work areas.

B. All PCM air sample analysis shall comply with NIOSH Method 7400. All TEM analysis shall be consistent with modified-AHERA protocols or NIOSH 7402.

C. The District or District's Environmental Consultant reserves the right to perform and / or observe final clearance inspection and sampling.

D. The method of analysis for pre-abatement and clearance air samples shall be via Phase Contrast Microscopy (PCM). The method of analysis for in-progress asbestos air samples shall be PCM and TEM at the option of the District or District's Environmental Consultant.

E. The Contractor shall be responsible for all personal air sampling. These samples shall be taken each shift and for each distinct crew operation, and shall be used to verify adequacy of fiber control and respiratory protection. Personal breathing zone air sampling shall be in accordance with the Cal-OSHA asbestos standard. A minimum of 25% of the workforce shall be monitored during each shift. All sample results shall be available on-site within 24-hours of sample collection. If two consecutive shifts of non-compliant or overloaded samples are noted, the contractor shall hire a CAC/CSST at their own expense to assist in compliance with the specifications.

3.12 CLEARANCE INSPECTIONS - ASBESTOS AND LEAD

A. The District or District's Environmental Consultant reserves the right to conduct visual inspections. Contractor shall notify the District or District's Environmental Consultant when the decontamination process in each containment area is complete. Evidence of debris will require additional clean up by the Contractor. Contractor shall be responsible for re-cleaning all areas found to be deficient.

B. If the District or District's Environmental Consultant determines that the work area is sufficiently clean, the Contractor may proceed. If the District or District's Environmental Consultant determines that certain areas require additional cleaning, the Contractor shall re-clean the work area and request a second inspection of the recleaned area. All costs incurred by the District or District's Environmental Consultant for inspections required after the second inspection will be charged to the Contractor.

C. Once the initial visual is passed, the Contractor shall remove all but the containment critical barriers.

D. Following the visual inspection, the Contractor shall provide a coating of non-diluted encapsulant in the work area. The Contractor shall allow the encapsulant to dry for the period specified by the manufacturer.

E. Asbestos Clearance Testing: Following encapsulation and drying time, the Contractor shall conduct air clearance sampling. Clearance air sampling shall not take place until all encapsulant is dry. The District or District's Environmental Consultant reserves the right to approve the initiation of clearance sampling.

3.13 ASBESTOS CLEARANCE CRITERIA:

A. The District's Consultant will conduct a final inspection of each work area. Any remaining asbestos containing materials or debris found shall be cleaned by the

Contractor and any repairs to existing conditions shall be made at no additional cost to the District or Environmental Consultant. When the area is clean, the Owner's Consultant shall provide the Contractor with a written notice of acceptance.

B. Multiple samples will be collected depending on the size and configuration of the work areas. Due to the intended fate of the structure, full AHERA clearance protocols will not be utilized upon completion of abatement activities.

C. The clearance level per containment shall be less than 0.01 fibers per cubic centimeter via phase contrast microscopy (PCM) or less than 70 structures per square millimeter via transmission electron microscopy (TEM).

D. If air samples do not pass the required clearance criteria, the area shall be recleaned and new samples shall be collected by the District or District's Environmental Consultant. The Contractor shall be responsible for all costs associated with re-sampling and re-analyses. This amount will be deducted by the District from the Contractor's final payment.

E. The District or District's Environmental Consultant shall notify the Contractor in writing of acceptable asbestos fiber concentrations. The Contractor shall then remove all the remaining barriers in the work area.

3.14 HAZARDOUS MATERIALS DISPOSAL

A. It is the responsibility of the Contractor to determine current waste handling, labeling, transportation and disposal regulations for the work site and for each waste disposal landfill. The Contractor must comply fully with these Specifications, local, state, and federal regulations and provide documentation of the same.

B. Ensure all disposal containers are properly labeled per 8 CCR 1529, 5194 (HAZCOM), 49 CFR 171-179 (USDOT), 40 CFR 61 Subpart M (NESHAP), and any local regulations and state regulations as required by this specification.

C. Filter all wastewater to the technically feasible limit, but not more than five (5) microns before disposal. Comply with all current local, state and federal codes relating to waste water release.

D. Asbestos-containing waste that is properly labeled and sealed may be temporarily stored in areas approved by the District. Areas must be made secure before storing the waste. Waste is not to remain in temporary storage area for longer than one (1) week before final load-out of materials.

E. All friable asbestos waste shall be double-wrapped prior to transport from the site.

F. All lead related waste streams and waste categories shall be considered hazardous until proven otherwise through testing by the Contractor. If the Contractor allows different waste stream to become co-mingled, the waste will be classified as hazardous if any single component waste stream is hazardous.

G. Each lead related waste produced shall be placed in properly segregated, labeled and sealed, impervious containers.

H. Each category of waste, except components with intact paint, will be tested and characterized by the Design Build Entity's Observation Service using one or more of the following testing protocols:

1. Total Threshold Limit Concentration (TTLC): 1,000 ppm lead.
2. Soluble Threshold Limit Concentration (STLC): 5 µg/L lead.
3. Toxicity Characteristic Leaching Procedure (TCLP): 5 µg/L lead.

I. Based on the testing protocols, any waste greater than TTLC, STLC or TCLP concentrations listed above shall be considered a hazardous waste.

J. All vehicles used to transport hazardous waste must be registered with the Department of Toxic Substances Control and Department of Transportation and maintain proper registration and with vehicle at all times.

K. All vehicles and containers used to transport waste are subject to inspection and approval of District prior to departure from site.

L. Contractor shall not throw bags into the truck in a way that may cause the bags to burst open.

M. Contractor shall provide at minimum one (1) day advance notification to the District when signatures are required on manifest(s). The Contractor shall ensure that the Hazardous Waste Manifest is correctly filled out. The Contractor shall give the appropriate copies to the District and shall also instruct the District in writing that they must send the appropriate copy to the Department of Toxic Substances Control.

N. If a debris box is used, the Contractor shall make all necessary arrangement with the District including obtaining all appropriate permits.

O. Contractor is responsible for all coordination with the waste disposal site and with the waste hauling company.

P. Debris box shall be constructed with minimum 20-gauge steel with no windows or openings other than the door. Debris box for hazardous waste shall be fully lined with a double layer of polyethylene sheeting and must be locked at all times when unattended. Once the debris box is filled and the manifest is signed, Contractor must transport the debris box off the job site.

Q. Disposal shall be in a District approved landfill that meets EPA requirements.

END OF SECTION 02 08 00