Santa Clara County Office of Education

ADDENDUM 02

APRIL 13, 2026

B 04_25_26 – WALDEN WEST MODERNIZATION

FOR

THE SANTA CLARA COUNTY OFFICE OF EDUCATION

This Addendum is hereby made part of the bid documents for the above-referenced project and serves to modify the original project specifications as outlined below. Please acknowledge receipt of this Addendum in your proposal. Failure to do so may result in disqualification of your response.

Hazardous Materials Reports and Specifications

The attached hazardous materials reports and related specification sections are included for bidder reference and shall be incorporated into the Contract Documents.

Contractor Responsibility

The Contractor shall be responsible for all work required to address hazardous materials as indicated in the Contract Documents, including but not limited to:

- All labor, materials, equipment, and supervision required to perform abatement
- Coordination with demolition and all other trades
- Compliance with all applicable regulatory requirements
- Proper handling, removal, transportation, and disposal of hazardous materials

The Contractor shall include all costs associated with hazardous materials work in their Bid, regardless of actual quantities encountered.

Owner Responsibility

The Owner will retain a third-party consultant to perform hazardous materials monitoring, air sampling, and clearance testing. The Contractor shall coordinate all abatement activities with the Owner's consultant.

+++ END OF ADDENDUM 02 +++

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. The General Conditions and Division I General Requirements, if used, shall be included in, and made part of, this Section.

B. Examine all project drawings and documents, including other Sections of the Specifications, for requirements affecting the work of this Section of the Specifications.

1.02 COMPLIANCE AND INTENT

A. The Contractor is responsible for repair, to the satisfaction of the Owner, of surrounding buildings, hardscape and landscaping not scheduled for demolition that become damaged as a result of the work. All unscheduled repair work shall be at no increase to contract price.

B. This specification outlines the abatement and general contractor requirements necessary for the abatement of all assumed and identified asbestos containing materials (ACMs) in buildings B and L and the adjacent covered walkway.

C. 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 requirements shall apply.

D. The work covered by this specification includes the handling, removal, and proper disposal of ACMs from buildings B and L and the adjacent covered walkway. All hazardous materials shall be removed and disposed of according to all federal, state, and local regulations. The packaging and disposal of any incidental asbestos found in areas undergoing abatement that become separated from the building during the dismantling process are included as part of the work.

E. The abatement workers shall have received Cal-OSHA accredited training and be certified for asbestos abatement work.

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 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 Owner. 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 abatement, handling, and the subsequent cleaning of contaminated areas.

J. During removal activities, the Contractor shall protect against contamination of soil, water, plant life, and adjacent building areas and shall ensure that there is no airborne

release of dusts. The Owner may collect air samples 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 that will require removal prior to commencement of the project. The Contractor shall conduct a site visit to determine the exact locations and quantities of materials that will require abatement. Quantities noted in this specification are general estimates.

L. This section provides appropriate protocols for handling and disposal of ACMs and materials with asbestos content. All ACMs 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 Owner and/or the Owner's Designated Representative.

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 jobsite.

N. ACMs removed during the course of the abatement work 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 Owner thereby limiting the Owner'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. The Owner or the Owner's Environmental Consultant shall approve the non-ACM hazardous waste disposal site(s) prior to disposal for materials that will be disposed of in that manner.

O. All interior asbestos abatement work shall be conducted using a negative pressure enclosure and three stage decontamination units with showers and/or wash stations as applicable, unless otherwise specified. The removal of any exterior ACMs by mechanical methods or aggressive methods that render the materials friable, must be removed in a negative-pressure enclosure. Evidence of the release of asbestos above the background level will necessitate the implementation of additional engineering controls.

1.03 DEFINITIONS

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. Aggressive Sampling: Air sampling either during or following the agitation of the air.
4. AHERA: Asbestos Hazard Emergency Response Act (40 CFR Part 763).
5. 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.

6. Ambient Air Quality: The quality of air (in terms of airborne fiber content) that is present in a given space.
7. Area Monitoring: Sampling of airborne asbestos fiber concentrations within the work area and outside the work area. Sampling shall represent airborne concentrations that may reach the breathing zone.
8. Asbestos Fibers: Refers to asbestos fibers having an aspect ratio of 3:1, and those fibers longer than five (5) microns.
9. 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.
10. Asbestos-Containing Material (ACM): Those manufactured products and construction materials that contain more than one percent (1.0%) asbestos by weight.
11. Asbestos-Containing Construction Material (ACCM): Any manufactured product or construction material that contains more than 1/10th of 1% (0.1%) asbestos by weight.
12. 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.
13. Authorized Visitor: Designated employees or consultants for the Owner and representatives of any federal, state, or local regulatory or other agency having jurisdiction over the project.
14. Baseline: Refers to the background levels of asbestos monitored before abatement.
15. Breathing Zone: A hemisphere forward of the shoulders and head with a radius of approximately six to nine inches.
16. Breach: A rift or gap in the critical or secondary barriers that allow egress of air from the containment to outside, or vice versa.
17. Bridging Encapsulant: An encapsulant that forms a discrete layer on the surface of an in-situ asbestos matrix.
18. Cal-OSHA: State of California, Occupational Safety & Health Administration.
19. 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.
20. Change Rooms: Refers to the two chambers in the decontamination area used to change into and out of protective clothing.
21. Certified Industrial Hygienist (CIH): A person certified by the American Board of Industrial Hygiene.

22. 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.

23. Clearance Level: Clearance level for samples analyzed by PCM will be less than 0.01 fibers per cubic centimeter (f/cc) 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.

24. 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.

25. 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.

26. CSLB: Contractors State Licensing Board

27. 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.

28. DOP: Dioctylphthalate, the challenge aerosol formerly used to perform on-site leak testing of HEPA filtration equipment. This chemical is no longer in use, but the acronym persists as synonymous with testing HEPA equipment.

29. DOT: Federal Department of Transportation.

30. DOSH: Division of Occupational Safety & Health (see also Cal-OSHA)

31. 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.

32. 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.

33. 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 according to 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

34. 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).

35. 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.

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

37. Environmental Consultant: CIH, Certified Asbestos Consultant (CAC), and/or Certified Site Surveillance Technician (CSST) retained by the Owner or Contractor.

38. 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.

39. 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.

40. 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.

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

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

43. 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.

44. 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.

45. 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 mil, and shall be labeled appropriately.

46. 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.

47. 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.

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

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

50. 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.)

51. 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.

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

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

54. 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).

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

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

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

58. Owner: Santa Clara County Office of Education.

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

60. Permissible Exposure Limits (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 and 30-minute excursion limit of 1.0 fibers per cubic centimeter of air as measured by Phase Contrast Microscopy (PCM) analytical method.

61. 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.

62. 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.

63. 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.

64. 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.

65. 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.

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

67. 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.

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

69. 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.

70. TSI – Thermal Systems Insulation

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

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

73. 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.

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

75. 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.

76. 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.

1.04 SCOPE OF WORK

A. This is a full demolition work effort. The Scope of Work consists of the removal of ACCMs, ACMs, and materials with asbestos content and demolition work that will impact known and assumed ACCMs and ACMs as specified in this section. Reference all other sections of the Specifications included in the contract documents for information and requirements that affect the work of this Section. The work shall include but not be limited to the following:

-BUILDING B (DORMATORY)

a. Remove all 12" x 12" brown vinyl floor tile and mastic from the individual dorm rooms.

b. Remove all tan vinyl sheet flooring and mastic from the restrooms.

c. Remove all asbestos cement (e.g., Transite) ceiling and wall panels throughout the building.

d. Remove all baseboard mastic in the staff dormitory area.

e. Remove all caulking connecting the window frames to the asbestos cement wall panels or rock partition wall.

-BUILDING L (CHANGING AREA, RESTROOMS, SHOWERS, STAFF LOUNGE)

a. Remove all perimeter and partition drywall with joint compound from the building interior.

b. Remove all residual black floor mastic from under leveling compound in the lounge, workroom, and hub areas, under cabinets in the girls' dorm room, and under partition wall base plates. [Note – the presence of black floor mastic is assumed and will need to be field verified during abatement.]

c. Remove all caulking connecting door frames to CMU walls.

-COVERED WALKWAY

a. Remove all ACM black roofing tar from the asphaltic shingle roof system.

B. Table 1 attached, provides estimated quantities of known and assumed ACMs that are present in the project work areas. The Contractor is responsible for field verifying quantities of ACMs to be abated and difficulty in abating the same. Material quantities in the attached table is a general estimate and should not be used for bidding purposes.

C. The following materials shall be disposed of as regulated asbestos-containing material (RACM): drywall walls systems with ACM joint compound and all Category I and Category II non-friable 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: asphaltic roofing with ACM tar and resilient flooring systems with associated mastics.

E. The following materials can be disposed of as Category II Non-friable ACMs if not rendered friable during removal: Door sealants, windows sealants, baseboard mastic, and asbestos cement ceiling and wall panels.

F. Note: Some asbestos containing materials are associated with lead containing materials and/or paint. Coordinate removal and disposal with Section 02 83 00 – Lead-Containing Paint Removal and Lead-Related Construction.

1.05 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, 1979 (R 1991), Fundamentals Governing the Design and Operation of Local Exhaust Systems
2. ANSI Z87.1, 2003, Occupational and Educational Eye and Face Protection
3. ANSI Z88.2 1992, Respiratory Protection
4. ANSI Z89.1, 1986, Requirements for Protective Headgear for Industrial Workers
5. ANSI Z41, 1999, Personal Protection – Protective Footwear
6. ANSI Z88.6, 1984, Respiratory Protection – Respiratory Use Physical Qualifications for Personnel
7. ASTM C 732, 1982 (R 1987) Aging Effects of Artificial Weathering on Latex Sealants
8. ASTM D 522, 1993 (Rev. A) Mandrel Bend Test of Attached Organic Coatings
9. ASTM D 1331, Solutions of Surface-Active Agents
10. ASTM D 2794, 1993 Resistance of Coatings to the Effects of Rapid Deformation (Impact)
11. ASTM E 84, 1991 (Rev. A) Surface Burning Characteristics of Building Materials
12. ASTM E 96, 1994 Water Vapor Transmission of Materials
13. ASTM E 119, 1988 Fire Tests of Building Construction and Materials
14. ASTM E 736, 1992 Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members
15. ASTM E849, 1986 Safety and Health Requirement Relating to Occupational Exposure to Asbestos
16. ASTM E 1368, 1990 Visual Inspection of Asbestos Abatement Projects
17. ASTM E1494, 1992 Specifications for Encapsulants for Friable Asbestos-Containing Building Materials

B. California Assembly Bills (CAB)

1. CAB 040, Yearly Registration of Contractors

C. 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 3203, Injury and Illness Prevention Program
8. CCR 3204, Access to Employee Exposure and Medical Records
9. CCR 3220, Emergency Action Plan
10. CCR 3221, Fire Prevention Plan
11. CCR 5144, Respiratory Protection Equipment Standard
12. CCR 5194, Hazard Communication Standard
13. CCR 6003, Accident Prevention Signs
14. Title 22, Division 4, Minimum Standards for Management of Hazardous and Extremely Hazardous Waste

D. 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"

E. California Health and Safety Code (CHSC)

1. CHSC Division 20, Commencing with Section 24200

F. California Labor Code (CLC)

1. CLC Division 5, Part 1, Commencing with 6300

G. California Propositions (CP)

1. CP 65, Proposition 65

H. California State Board of Equalization (CSBE)

1. CSBE ETU, Excise Tax Unit

I. California State License Board (CSLB)

1. CSLB CBPC, California Business and Professional Code Sections 7058.5 and 7058.7, "Certification"

J. 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 1926.65, Hazardous Waste Operations and Emergency Response
7. 29 CFR 1926.59, Hazard Communication
8. 29CFR 1910.1000, Air Contaminants
9. 29 CFR 1926.1101, Asbestos
10. 40 CFR 61-SUBPART A, General Provisions
11. 40 CFR 61-SUBPART M, National Emission Standard for Asbestos
12. 40 CFR 260, Hazardous Waste Management Systems: General
13. 40 CFR 745, Lead; Requirements for Lead-Based Paint Activities
14. 40 CFR 763, Asbestos Containing Material in Schools

K. State and Local Regulations

1. Bay Area Air District (BAAD), Regulation 11, Rule 2

L. UL Solutions (UL)

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

1.06 SUBMITTALS PRIOR TO START OF WORK

A. The reviews by the Owner or Owner's designated representative are intended to be only for general conformance with the requirements. The Owner or the Owner's designated representative 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 Owner or Owner's designated representative:

1. Provide a detailed asbestos abatement work plan that follows Attachment A – Asbestos Abatement Work Plan Outline.
2. Provide an asbestos 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 examination of a Cal-OSHA accredited asbestos training course.
4. Workers: Demonstrate education and specialized training with successful completion of a Cal-OSHA accredited asbestos training course.
5. 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. 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.
6. 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.
7. 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.
8. 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. The submitted document must be less than eleven (11) months old.
9. 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.
10. 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 Owner or Owner's designated representatives.
11. 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.
12. Submit uniform 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 Owner or Owner's designated representative within ten working days after delivery.
13. Satisfactory proof that written notification and subsequent updates have been provided to the Bay Area Air District, in accordance with Regulation 11, Rule

2, Cal-OSHA, and Title 40 CFR Part 61 Subparts A&M, National Emission Standards for hazardous Air Pollutant, U.S. EPA as needed for any friable removal.

14. Licenses: Submit copies of state and local licenses, evidence of Cal-OSHA registration and permits necessary to carry out the work of this contract.

15. 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.

16. Safety Data Sheets/Specification Sheets: The Contractor shall submit Safety Data and Specification Sheets for all chemicals, encapsulants, etc. to be used for this project.

1.07 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 Owner's representative 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 Owner or Owner’s designated representative within ten working days after delivery.

5. Personal air sample results.

6. Pressure differential readings for each differential recording device on the site.

7. Project Summary:

   a. Abatement contractor’s name and address, certification number (CSLB), registration number (DOSH) and Tax ID number.

   b. Hazardous waste hauler certifications (DHS, 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.

1.08 CONTRACTOR MONITORING

A. The owner or owner's designated representative reserves the right to perform air sampling in selected areas during the course of the project. The owner or designated representative reserves the right to stop work within in an area if in the course of performing monitoring, 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 are observed. 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 0.01 f/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. The owner or their representative 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 owner and ensure the cooperation of his workers during collection of air samples and work area inspections.

C. When visual inspections or air monitoring are specified, the Contractor shall notify the owner or designated representative 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.

D. Air monitoring generated by the owner or designated representative 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 owner or designated representative be construed to meet the Contractor's compliance with applicable health and safety regulations.

PART 2 - PRODUCTS

2.01 SIGNS AND LABELS:

A. 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.

B. 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.

C. 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

D. 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
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

2.02 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.

2.03 PLASTIC SHEETING:

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

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

2.04 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.

C. Fire resistant sealants shall be compatible with concrete, metals, wood, etc. Sealant shall prevent fire, smoke, water, and toxic fumes from penetrating. Sealant shall have a flame spread, smoke and fuel contribution of zero, and shall be ASTM and UL rated for 3 hours for standard method of fire test for fire stop systems.

2.05 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. Chart recorder(s) shall be used to document the level of pressure difference between the containment space and all other spaces. Defective or non-operating instrumentation may require temporary cessation of work until instrumentation is repaired or replaced.

C. The strip chart recorder will be checked a minimum of four times per day by a person familiar with the operation. Each check shall be documented on the circular chart with a time and date notation and the initials of the person performing the check. A copy of the circular chart shall be submitted daily to the Owner or Owner's designated representative.

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 connected to an appropriate strip chart recorder. 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.

2.06 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. Provide documentation to the Owner or Owner's designated representative within 5 days of DOP testing.

2.07 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 Owner or Owner's designated representative. Exhausted air shall not be near or adjacent to other building intake vents or louvers or at entrances to buildings.

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. Provide documentation to the Owner or Owner's designated representative within 5 days of DOP testing.

2.08 RESERVE EQUIPMENT:

A. Contractor shall have the following equipment on site: one reserve, functioning and DOP-tested HEPA Filter Vacuum Cleaning Units, one reserve and DOP-tested HEPA area filtration unit. Contractor shall also have sufficient polyethylene (poly), respirators, protective equipment, tape, tools, and decontamination enclosure systems for each work area.

B. Provide authorized visitors, Owner, Consultants or other contractors 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.

2.09 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. Contractor must comply with Owner's and General Contractor's Fall Protection Requirements. Scaffolding shall be adequately protected to prevent contamination of planking and framing.

2.10 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.

2.11 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.

2.12 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.

2.13 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 Owner or Owner's designated representative:

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 Owner or Owner's designated representative.
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 Owner or Owner's designated representative.
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

3.01 INITIAL AREA ISOLATION

A. The Owner, or the Owner's designated representative, 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 Owner or the Owner's designated representative.

C. If sample results indicate that conditions have exceeded the baseline or clearance criteria, as determined by the Owner or Owner's designated representative, 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, control water, fire life safety lines and sprinkler systems to the work area have been isolated 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 Owner'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, Owner or Owner'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 Owner and in accordance with Owner requirements.

H. As required, establish designated limits for the abatement work area with continuous barriers. Provide signs around the perimeter of all the interior works areas according to EPA and Cal-OSHA.

I. Contractor shall store all materials, equipment, and supplies for the project inside the building or in areas designated by the Owner.

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 or equivalent, 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.

3.02 CONTAINMENT SET-UP PROCEDURES

A. Containment is not required for the removal of asphaltic roofing materials 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. Drop sheeting will be placed to a sufficient distance from exterior walls to ensure that all generated debris does not make contact with ground surfaces. Any contamination introduced by the contractor during the process or removal shall be remediated at no cost to the owner.

B. Containment is required for removal of all interior ACMs. Contractor shall construct critical barrier containment(s). The work area(s) shall be placed under negative pressure as outlined in this specification throughout the abatement work period.

C. 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.

D. To permit the owner or their representative 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.

E. 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. Calibration shall be performed by qualified technicians following the procedures outlined by the manufacturers. Provide documentation of calibration before beginning work.

F. A two-chamber decontamination unit will be required 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 prefabricated unit is acceptable.

G. A three-chamber decontamination unit will be required if ACMs are removed by aggressive means or mechanical removal methods. The unit shall be located immediately outside the contained area. A prefabricated 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 wastewater 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. 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 owner or their representative prior to the set up of any work areas.

J. A decontamination area shall be established on the roof for abatement of asphalt roofing materials and immediately adjacent to all exterior regulated work areas. Decontamination areas shall include a wash area. All wash water shall be captured and disposed or filtered as specified above.

3.03 PERSONNEL PROTECTION

A. Informed Workers:

1. All workers shall be informed of the hazards of ACMs 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 ACMs. 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 Owner or Owner's designated representative 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 mastics and caulks, wall systems, flooring systems, ACCM compounds, roofing materials, and any Class III work: 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 1 below:

Table 1 – 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 (1,000 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. Provide dark blue *Tyvek* suits for all exterior work including roof, door sealant, and window sealant with gasket abatement.

3. 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.

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 certified 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.

3.04 ASBESTOS REMOVAL (GROSS REMOVAL TECHNIQUE)

A. The Contractor shall abate all ACMs identified in this specification and/or that require disturbance to complete work specified in other specification sections.

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 ACMs shall be immediately packaged in leak-tight containers following removal.

C. Minimize removal activities of ACMs that generate airborne particulate. To the extent feasible, score or cut-out ACMs 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 brushed and/or 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 Owner or Owner's designated representative.

E. All waste materials must be packaged in leak tight containers before end of each abatement shift.

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

G. Non-friable waste shall be packaged in 6-mil polyethylene, clear, leak tight containers or bags and properly labeled while stored on-site.

H. Drywall and joint compound may be removed and packaged in sealed bulk containers. Waste containers must be leak tight and labeled as ACMs per Cal/OSHA requirements. All drywall debris must be packaged at the conclusion of each shift.

I. Asbestos-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.

3.05 ROOFING AND EXTERIOR ASBESTOS REMOVAL

A. Establish a regulated area consisting of barrier tape and asbestos warning signs at least 10 feet from the work area, with conditions specified within containment set up section. 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 materials and exterior window sealants 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 owner or designated representative reserves the right to conduct visual inspections at the completion of the work.

3.06 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.

3.07 AIR MONITORING

A. The purpose of any air monitoring that may be conducted by the Owner or Owner's designated representative 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 Owner or Owner's designated representative 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 Owner or Owner's designated representative.

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.

3.08 CLEARANCE INSPECTIONS

A. The Owner's Independent Observation Service shall conduct visual inspections. Contractor shall notify the CAC 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 CAC determines that the work area is sufficiently clean, the Contractor may proceed. If the CAC determines that certain areas require additional cleaning, the Contractor shall re-clean the work area and request a second inspection of the recleaned area.

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 CAC shall conduct air clearance sampling. Clearance air sampling shall not take place until all encapsulant is dry. The Owner or Owner's designated representative reserves the right to approve the initiation of clearance sampling.

3.09 ASBESTOS CLEARANCE CRITERIA:

A. 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). Aggressive air sampling shall be used for clearance purposes. Multiple samples shall be collected in large containment areas.

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

C. The Owner or Owner's designated representative shall notify the Contractor in writing of acceptable asbestos fiber concentrations. The Contractor shall then remove all the remaining barriers in the work area.

3.10 ASBESTOS 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 that polyethylene bags are sealed airtight. All bags shall be wet cleaned prior to removing them from the equipment decontamination enclosure system.

C. Ensure all disposal containers are properly labeled according to 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.

D. 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 wastewater release.

E. Asbestos-containing waste that is properly labeled and double-bagged may be temporarily stored in areas approved by the Owner. Areas must be made secure before storing the waste. Waste is not to remain in temporary storage area for longer than ten (10) days before final load-out of materials.

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

G. 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.

H. Trucks must have an enclosed cargo area with a storage compartment that is fully lined with a minimum of one (1) layer of 6-mil polyethylene on the walls and two (2) layers on the floor. The driver of the vehicle must stop the vehicle in a safe location at least once during each two hours or one hundred miles of travel whichever is less and inspect the contents of the shipment. At the time of inspection if any form of binding is found to be loose the driver shall immediately take action to remedy the situation for safe transportation.

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

J. Contractor shall not throw bags into the truck or off of any roof level at any time.

K. Contractor shall provide at minimum one (1) day advance notification to the Owner 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 Owner and shall also instruct the Owner in writing that they must send the appropriate copy to the Department of Toxic Substances Control.

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

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

N. 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.

O. Debris box shall be constructed with minimum 20-gauge steel with no windows or openings other than the door. The door of the container shall have a secure cover on the locking device with access to the lock only at the keyhole. Once the debris box is filled and the manifest is signed, Contractor must transport the debris box off the job site.

P. Disposal shall be in an Owner approved landfill that meets EPA requirements.

TABLE 1
WALDEN WEST
BUILDINGS B AND L; COVERED WALKWAY
ESTIMATED QUANTITIES OF ASBESTOS-CONTAINING MATERIALS

HM # / Material Description	Material Location	Result	NESHAP Category	Est Qty*
Building B				
From Terracon Survey: March 12-13, 2026				
HM 03 / Tan & White Window Caulk	Metal window frames to asbestos cement wall panels; metal window frame to rock wall at entry hallway	Brown/White Caulk: 2% CH	Cat. II	40 sf
From IHI Survey: November 15-16, 2001				
HM 03 / 12" x 12" Brwon Vinyl Floor Tile with Black Mastic	Dorm rooms under carpet	Brown Floor Tile: 1-5% CH Black Mastic: 1-5% CH	Cat. I	7,609 sf
HM 04 / 2' x 2' Asbestos Cement Ceiling Panel on Fiberboard	Ceilings throughout	Gray Transite: 10-20% CH	Cat. II	10,178 sf
HM 05 / 2.5' x 2.5' Asbestos Cement Wall Panel	Perimeter and soffit walls throughout	Gray Transite: 20-30% CH	Cat. II	3,500 sf
HM 07 / Tan Vinyl Sheet Flooring with Brown/Black Mastic	Restrooms	Tan Sheet Flooring w/ Fibrous Backing: ND Brown/Black Mastic: 1-5% CH	Cat. I	350 sf
HM 09 / White and Brown Mastic Under Gray Baseboard	Staff dorms	Off-white Glue: ND Brown Glue: 1-5% CH	Cat. II	110 sf
Building L				
From Terracon Survey: March 12-13, 2026				
HM 05 / Off-White Caulk (between door/CMU)	Door frames connected to CMU walls	White Caulk: ND Off-White Caulk: 2% CH	Cat. II	20 SF
From IHI Survey: November 15-16, 2001				
HM 20 / Vinyl Sheet Flooring with Black Mastic	HUB Office Material has been removed but residual mastic may be present	Beige Sheet Flooring with Fibrous Backing: ND Black Mastic: 5-10% CH	Cat. I	180 SF (remaining)
HM 22, 25 / Gypsum Wallboard System	Interior walls throughout building	Gypsum Wallboard System: ND Wall Mud: 1-5% CH	RACM	9,709 SF
HM 23 / Beige Floor Tile with Black Mastic	Lounge, workroom, men's and women's restrooms + connecting hallway, girls dorm room, supply room Material has been removed but residual mastic may be present	Off-White Floor Tile: 1-5% CH Black Mastic: 5-10% CH	Cat. I	300 SF (remaining)

HM # / Material Description	Material Location	Result	NESHAP Category	Est Qty*
Covered Walkway				
HM 01 / Roof - Rolled Shingle (very damaged)	Covered Walkway Roof	Black Roofing Shingle: ND Black Roofing Felt: ND Black Roofing Tar: 6% CH	Cat. I	200 SF

CH = Chrysotile, ND = None Detected, 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), SF = Square Feet

ATTACHMENT A
ASBESTOS ABATEMENT WORK PLAN OUTLINE

In accordance with the contract documents, the Contractor is required to prepare a written, site-specific Asbestos Abatement Work Plan, and submit to the Owner for approval prior to start of work. This plan is required for the contractor to meet Cal-OSHA requirements as well as the contract documents and shall describe work procedures and control methods that will protect the Owner's facilities and the environment.

I. Location of Work:

The work to be completed under this work plan will be completed at:
Building name
Location within building

Previous asbestos inspections or surveys have found that ACMs are present at the following locations:
List all materials and locations to assure the Owner and the Contractor are aware of all hazardous materials locations

II. Description of Work:

Describe the anticipated work scope

III. Schedule:

Phase/Task	Anticipated Date(s)
Mobilization	_____
Set-up of work area(s), containments	_____
Abatement	_____
Final Cleaning	_____
Visual Inspection	_____
Final Clearance (visual and air sampling)	_____
Teardown	_____
Demobilization	_____

IV. Equipment and Materials:

List all equipment and materials to be used, such as the following:

HEPA Vacuums	Negative air filtration units
Scrapers	Manometers
Power saws	Shower facilities
Pry bars	Airless sprayers/compressors
Cutting shears	Cleaning detergents
Other hand tools	Solvents (must be approved by Owner)
Encapsulants/sealants	Roller/brushes
Gloves	Disposable coveralls
Respiratory protection	Eye & foot protection

V. Crew

List all workers and supervisors with emergency contact names and phone numbers. Clearly identify the supervisor and competent person who have authority for all safety and health.

VI. Control Measures and Work Practices

Describe in narrative format specific work procedures, exposure/ contamination controls, and engineering controls. This description should include, but not be limited to, the following:

OSHA Class I, II, III and IV work	Wet methods
Negative pressure enclosure	Glove bag removal
Respiratory protection	HEPA vacuums
Mini-containments	Solvent removal of mastic
List other procedures	

VII. Respiratory Protection and Protective Clothing/Personal Protective Equipment

List all respiratory protection including types and manufacturers which are anticipated for this project. Identify the phases of the project for which respirators will be required or likely to be required. List all personal protective equipment anticipated to be used on the project.

VIII. Decontamination/Hygiene Facilities

Identify the types and locations of decontamination or hygiene facilities to be used on this project. Specify use of disposable towels, soap, hot and cold water, and other supplies. Specify the required use of the facilities, including use of the facilities prior to eating, drinking, smoking and before leaving the project site.

Describe handling or treatment of asbestos-contaminated solid waste and wastewater.

IX. Air Monitoring Data

Identify general worker air monitoring protocols to be followed on this project, including worker category classifications, frequency of monitoring, anticipated laboratory to be used for analysis, pump calibration techniques, etc. Identify the competent person responsible for conducting personal air monitoring.

X. Containment Diagram

Include a diagram (handwritten is acceptable) of the containment(s) showing the containment perimeter in relation to the surrounding areas, locations of negative air machines and exhaust locations, direction of airflow, and decontamination areas.

XI. Waste

Describe how all waste on this project will be packaged, labeled, stored, transported, manifested, and disposed

XII. Preparation of Asbestos Abatement Work Plan

Date Prepared and Prepared By (signature, name, and title)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Conditions and Division I General Requirements shall be included in and made part of this Section.

B. Examine all project drawings and documents including other Sections of the Specifications for requirements therein affecting the work of this Section of the Specifications.

1.2 SUMMARY OF LEAD RELATED WORK

A. General: This section involves the requirements for removal and/or disturbance of building materials and painted components that contain detectable quantities of lead. Existing building materials and components with paint coatings are considered to be lead-containing paint (LCP) or lead-containing materials (LCM) unless specifically tested shall be assumed to contain lead. Reference Tables I at the end of this specification for list of paint and materials confirmed to contain lead.

B. The following lead containing materials may require segregation due to lead content:

1. Walden West - Building B
    1) Painted wood siding (tan)
    2) Paint on metal I-beam roof support (brown)

2. Walden West – Building L
    1) 4” ceramic tile on drywall wall (off-white)
    2) Paint on CMU interior wall (beige)
    3) Paint on metal door frame (brown and white)
    4) Paint on wood door (brown and white)
    5) Paint on exterior metal gutter (brown)
    6) Paint on metal handrail (brown)

The intent of this work and the required procedures is to minimize lead emissions and contamination resulting from demolition and dismantling of the buildings and equipment that will impact lead containing materials.

C. Lead-Related Construction Work: The Contractor's lead-related construction work consists of any work activity or task which results in the coincidental removal or disturbance of paints, surface finishes, or other lead containing materials. The Contractor shall determine and implement applicable OSHA worker protection requirements (8 CCR1532.1) and ensure proper clean up and disposal of any resulting paint chips and lead wastes (including water) resulting from all lead-related construction activities including, but not limited to, the following:

1. Removal of all damaged or peeling paint from painted interior and exterior building materials prior to demolition, as needed.

2. Cleanup of paint separated from interior and exterior building components during demolition.

3. Removal of lead containing materials such as ceramic wall and floor tiles.

4. Demolition of building finishes (e.g., drywall, plaster, metal, wood, stucco, concrete, etc.) or mechanical, electrical, or plumbing (MEP) equipment with lead containing paint.

5. Demolition that will impact existing painted surfaces including but not limited to drilling, cutting, and removal of existing of attachments such as electrical, mechanical, or structural.

1.3 REGULATIONS

A. The Contractor shall comply with the requirements of the current issue of the following regulations and guidelines governing lead removal, lead-related construction, and disposal and other applicable Federal, State, and Local Government regulations. The regulations listed herein are incorporated by reference.

1. Code of Federal Regulations (CFR):
   a. 29 CFR 1926, Construction Standards
   b. 29 CFR 1926.62, Lead in Construction
   c. 29 CFR 1910.94, Ventilation
   d. 29 CFR 1910.134, Respiratory Protection
   e. 29 CFR 1910.1025, Lead
   f. 29 CFR 1910.1200, Hazard Communication
   g. 29 CFR 1926.55, Gases, Vapors, Fumes, Dusts, and Mists
   h. 29 CFR 1926.57, Ventilation
   i. 40 CFR Part 50.12, Ambient Air Quality Standard for Lead
   j. 40 CFR Parts 260, 261, 262, 263, 264, 265 and 268, Hazardous Waste Management
   k. 49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation

2. California Code of Regulations:
   a. 8 CCR Division 1, Chapter 4, Subchapter 4, Construction Safety Orders
   b. 8 CCR 1532.1, Lead in Construction of Coated Metals
   c. 8 CCR 5144, Respiratory Protection
   d. 17 CCR 35001 – 36100, Accreditation, Certification, and Work Practices for Lead-Based Paint and Lead Hazards
   e. 26 CCR Division 22, Hazardous Waste

3. Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing, U.S. Department of Housing and Urban Development (HUD), June 1995.

1.4 DEFINITIONS

A. Definitions specific to the work of this section:

1. Abatement: Procedures for control of lead exposures to the Contractor's workers, Owner Employees, Public and the environment by removal, enclosure, and/or encapsulation of lead containing paints (LCPs), Lead Containing Construction Materials (LCCMs), and LCP coated components and proper clean up and disposal of resulting lead contaminated dust, chips, debris, and abatement wastes. Also include procedures for control of lead exposures resulting from welding or other hot work on surfaces with LCPs or residues.

2. Action Level (AL): An exposure of 2 µg/m^3 of airborne lead as an 8-hour TWA. When the AL is met or exceeded, certain protective health and safety measures are triggered per 8 CCR 1532.1 Lead.

3. Action Levels for Lead Content: The levels of lead concentration established for each type of analysis performed, which if the lead concentration equals or exceeds the action levels specified herein, renders the material hazardous.

   a. Action Level for Toxicity Characteristic Leaching Procedure (TCLP) by EPA 200.7: Action level for TCLP is 5.0 milligrams per liter.

   b. Action Level for Total Threshold Limit Concentration (TTLC) by EPA 6010: Action level for TTLC is 1,000 milligrams per kilogram.

   c. Action Level for Soluble Threshold Limit Concentration (STLC) by EPA 200.7: Action level for STLC is 5.0 milligrams per liter.

4. Airlock: A system for permitting ingress or egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways at least three feet apart.

5. Air Monitoring: The process of measuring the lead content of a specified volume of air in a stated period of time.

6. Area Monitoring: Sampling of lead concentrations within the lead control area and inside the physical boundaries which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.

7. Authorized Visitor: Owner or Owner’s Representative, Architect, Contractor’s Observation Service, or a representative of any regulatory or other agency having jurisdiction over the project.

8. Change Room and Shower Facilities: Rooms within the designated boundary around the lead control area equipped with separate storage facilities for clean protective work clothing and equipment and for street clothes which prevent cross-contamination.

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

10. Competent Person: An onsite supervisor who has been formally trained in lead abatement and who is capable of identifying lead hazards, substandard and improper lead abatement controls, procedures, practices, and conditions and who has sufficient experience and authority to take prompt corrective measures to eliminate them.

11. Decontamination Room: Room for removal of contaminated personal protective equipment (PPE).

12. DOP Test: Test of a High Efficiency Particulate Absolute filter (HEPA) system to verify that a minimum of 99.97% of all particles 0.3 microns in diameter are captured by the filter system test must be conducted with dioctyl phthalate (DOP) test aerosol or equivalent in accordance with ANSI Z9.2 1979 and Federal Standard 209 B for Class 100 air and as indicated in UL 586.

13. Eight-Hour Time Weighted Average (TWA): Airborne concentrations of lead averaged over an 8-hour workday to which an employee is exposed.

14. Fixed Object: A unit of equipment or furniture in the Work Area which cannot be removed from the Work Area.

15. Hazardous Waste: Lead paint debris and materials shall be classified as hazardous due to the characteristic of toxicity, as determined by testing in accordance with the California Code of Regulations, Title 22, Division 4, Chapter 30, Article 11. Any substance(s) listed in Article 11 Section 66699 at concentrations greater than their listed Soluble Threshold Limit Concentration (STLC) or Total Threshold Limit Concentration (TTLC) may need to be further characterized by the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with 40 CFR 261 and other tests prior to disposal as a hazardous waste.

16. HEPA Exhaust System: A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contained contaminated areas from adjacent uncontaminated areas when used as Differential Pressure Equipment. Also capable of use as a local exhaust to control lead fumes generated from hot work.

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

18. HEPA Vacuum Equipment: High efficiency particulate air (absolute) filtered vacuuming equipment with a filter system capable of collecting and retaining lead dust. Filters shall be certified to be of 99.97% efficiency for retaining particles of 0.3 microns diameter or larger.

19. Intact LCP Components: LCP components removed substantially intact with LCP firmly adhering to the surface. Examples are door, door trim, baseboards, etc., with intact paint. Also referred to as architectural debris with intact paint.

20. Lead Based Paint (LBP): Lead Containing Paint (LCP) that is at least 0.5% lead by weight when analyzed by AAS or ICP AES (equivalent to 5,000 ppm of lead) or 1.0 milligrams of lead per square centimeter (mg/cm2) as determined by XRF testing or as identified by specification. LBP is also a Lead Containing Construction Material (LCCM).

21. Lead Containing Construction Materials (LCCM): Any construction material: (1) containing lead at analytically detectable levels; or (2) containing paints or other finishes with detectable lead levels; or (3) consisting of paints containing lead at any level capable of posing an occupational or environmental hazard during any phase or process of the current construction or demolition project. Occupational hazards shall be considered evident when airborne exposure levels exceed or are likely to exceed the permissible exposure level (PEL) set by Cal/OSHA. Environmental hazards shall be considered evident when lead surface contamination levels exceed 100 µg/ft^2 on Work Area surfaces and/or when any of the State or Federal hazardous waste criteria for lead is met or exceeded.

22. Lead Containing Paint (LCP): Any paint or finish coating with a detectable lead content. Cal/OSHA regulation requires assessment of employee exposure for all tasks where lead is present at this level or higher. Note: At lead levels below 0.06% exposure assessments are still required for "Trigger Tasks".

23. Lead Control Area: An enclosed area or structure with full containment to prevent the spread of lead dust, paint chips, or debris of LCP removal operations. The lead control area is isolated by physical boundaries to prevent unauthorized entry of personnel.

24. Lead Related Waste: Paint chips, vacuum dust, and debris, used cleaning articles, waste water, plastic sheets and other disposable items which were used during the LCP abatement process and as a result are considered lead-contaminated waste or assumed hazardous waste pending further characterization.

25. Lead Impacted Construction: Any construction activity, excluding abatement, which disturbs lead or lead containing paints or coatings and which may, under specific circumstances, result in worker and or environmental exposure.

26. Lead Related Construction: Any construction activity or process including but not limited to lead abatement, LCCM (i.e., paint) removal, lead impacted construction, or welding on lead containing surfaces which may expose workers, building occupants, or the environment to a release of airborne lead or surface lead contamination.

27. Mini containment or Mini enclosure: A small temporary enclosure constructed of impervious material (such as plastic sheeting) with at least one airlock to permit ingress and egress. The entire Work Area is contained or enclosed by this system to prevent the escape of contamination outside the Work Area.

28. Owner: Santa Clara County Office of Education.

29. Owner's Observation Service: Consultant retained by the Owner to inspect work areas, and collect environmental samples (air, bulk, waste).

30. Owner's Representative: Consultant retained by the Owner

31. Permissible Exposure Limit (PEL): An exposure to airborne lead of 10 micrograms of lead per cubic meter of air (10 $\mu g/m^3$), averaged over an 8-hour workday which is referred to as a time weighted average (TWA). This is the highest level of Lead in air an employee can be permitted to be exposed to in an eight-hour workday. For longer workdays, the PEL is lowered and can be determined by dividing 400 by the number of hours worked per day. When the PEL is exceeded, the Contractor must take action to lower the exposure level and protect the worker per 8 CCR 1532.1 Lead.

32. Personal Monitoring: Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour TWA concentration in accordance with Title 8 CCR 1532.1. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulder, with a radius of 6 to 9 inches and the center at the nose or mouth of an employee.

33. Physical Boundary: Area physically roped or partitioned off around an enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area".

34. Qualified Person: The individual identified by the Contractor to be responsible for conducting air sampling, calibration of air sampling pumps, evaluating sampling results, and conducting respirator fit tests.

35. Recognized Training/Educational Institution: University, college, Steel Structures Painting Council, or a professional training organization funded by or meeting U.S. Environmental Protection Agency (EPA) and/or California Department of Public Health (DPH) training accreditation requirements for contractors performing lead-based paint or construction related work that exceeds the Department of Occupational Safety and Health (DOSH) Permissible Exposure Limit (PEL) for lead.

36. Removal: All herein specified procedures necessary to remove and clean up all LCCM or LCP from the designated areas and to dispose of these materials at an acceptable site in accordance with Federal, State and Local Regulations. Removal of LCP may be by whole painted component or by removing LCP from painted components either onsite or offsite.

37. Trigger Task: Task specifically identified by the CAL/OSHA Lead standard as a potential exposure hazard requiring certain protective measures to be implemented prior to obtaining the results of an initial exposure assessment. Trigger tasks include, but are not limited to, any of the following tasks when materials or paints which contain lead are present and will be disturbed:

    a. Manual demolition

    b. Manual scraping or sanding

    c. Heat gun application

    d. Use of power cleaning tools

    e. Rivet busting

    f. Abrasive blasting

    g. Welding, cutting, or torch burning

38. Visually Clean: Free of visible dust, paint chips, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of construction or paint debris, chips, or dust distinguishable from the initial soil or ground conditions.

39. Washroom: A room or area established outside the Work Area for hand washing at minimum. Where the lead PEL is exceeded, the washroom shall contain a shower facility with hot and cold water and a water filtering system.

40. Wet Cleaning: The process of eliminating lead contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been washed with specified detergent solutions and rinsed with clean water.

41. Work Area: A designated and controlled area in which lead abatement actions are undertaken or which may become contaminated as a result of such actions. A Work Area is a controlled area delineated at minimum by barrier tape (or similar means) and signage to restrict access to Authorized Personnel. In some instances, a higher degree of physical isolation and control may be required and specified.

1.5 SUBMITTALS AND NOTICES

A. Requirements are as set forth in General Conditions and Division 1, for items required to be submitted under this section.

B. Product data shall include manufacturer's product data, specifications, samples and application instructions and other pertinent information necessary.

C. Project procedure submittal for LCP coating removal. Submit the following:

1. Detailed work plan for removal of all damaged or intact lead paint including:
    a. removal method to be employed,
    b. lead contamination controls for each different type of method or work operation involving lead containing paint removal,
    c. equipment and materials proposed to be used on LCP coatings,
    d. the procedures and practices for protection of building occupants and the environment, and
    e. detailed description of Work Area preparation and containment controls for lead-related construction work, cleaning and decontamination procedures, signage, and security measures.

2. Detailed plan for disposal of lead contaminated wastes generated by this work in accordance with all applicable Federal, State and Local regulations. Each separate waste stream should be addressed including name of waste stream, methods of handling, packaging, labeling, storage, transportation, and disposal or recycling. For materials to be disposed, indicate the classification of the waste (RCRA hazardous, California hazardous or non-hazardous).

3. Method of transport of hazardous waste includes name, address, EPA I.D. number, and telephone number of the transporter and the name, class, address, EPA I.D. number, and telephone number of hazardous waste site(s) to be utilized for disposal of each waste stream.

4. Proposed location, size, and type of secured waste storage containers to be used. Include system that will be used for segregating different waste streams.

5. Detailed schedule for completion of lead-related construction work to be updated on a weekly basis indicating tasks being performed until job completion.

6. Detailed plan for protection of workers conducting lead-related construction work which includes all information required for the CAL/OSHA lead compliance plan per Title 8 CCR 1532.1. At minimum, for each removal method, the plan shall detail protective clothing and equipment and procedures and worker decontamination facilities and procedures.

D. Project Procedures Submittal for Hot Work on LCP Surfaces

1. Detailed work plan for containment and removal of lead containing paint, capture of fumes from any hot work including welding and torch cutting on painted structural steel or painted mechanical components. Include equipment and materials proposed to remove paint, capture, HEPA filter, and exhaust all lead containing fumes for protection of workers, building occupants, and the environment.

2. Cal/OSHA lead compliance plan for welders per 8 CCR 1532.1 Lead.

3. Daily air monitoring plan to verify that airborne lead levels do not exceed the specified limits in any occupied areas of the building.

E. Project procedure submittal for lead-related construction demolition (removal of drywall, stucco, wood siding, structural steel), MEP equipment with LCP, cutting and demolition of concrete, demolition of painted mechanical components, and removal of ceramic tile. Submit the following:

1. Detailed work plan for all lead-related construction including:

   a. removal method to be employed,

   b. lead contamination controls for each different type of method or work operation involving lead containing materials,

   c. equipment and materials proposed to be used on lead containing materials,

   d. the procedures and practices for protection of building occupants and the environment, and

   e. detailed description of Work Area preparation and containment controls for lead-related construction work, cleaning and decontamination procedures, signage, and security measures.

2. Detailed plan for disposal of lead contaminated wastes generated by this work in accordance with all applicable Federal, State and Local regulations. Each separate waste stream should be addressed including name of waste stream, methods of handling, packaging, labeling, storage, transportation, and disposal or recycling. For materials to be disposed, indicate the classification of the waste (RCRA hazardous, California hazardous or non-hazardous).

3. Method of transport of hazardous waste including name, address, EPA I.D. number, and telephone number of the transporter and the name, class, address, EPA I.D. number, and telephone number of hazardous waste site(s) to be utilized for disposal of each waste stream.

4. Proposed location, size, and type of secured waste storage containers to be used. Include which system will be used for segregating different waste streams.

5. Detailed schedule for completion of lead-related construction work to be updated on a weekly basis indicating tasks being performed until job completion.

6. Detailed plan for protection of workers conducting lead-related construction work which includes all information required for the CAL/OSHA lead compliance plan per Title 8 CCR 1532.1. At minimum, for each removal method, the plan shall detail protective clothing and equipment and procedures and worker decontamination facilities and procedures.

F. Lead Paint Removal Personnel Qualification and Protection Submittal. Submit the following:

1. Employee training certifications demonstrating that all employees engaged in LCP removal (damaged or intact) activities have attended formal lead hazard and lead related construction training by a Recognized Training/Educational Institution. All training for other lead related construction activities shall be in accordance with the worker training provisions in the CAL/OSHA and California Department of Public Health (DPH) lead regulations and this specification:

a. The minimum acceptable training course duration is 40 hours for the Contractor's lead abatement Supervisor/Competent Person and all workers conducting removal of LCP.

b. The minimum training course for workers conducting other lead related construction work shall meet all requirements of 8 CCR 1532.1, Lead. Documentation shall consist of training institution certificates or certification by trainer for each employee with dates trained and a copy of the training syllabus.

c. Updated information shall be provided in advance of on-site lead worker personnel changes.

2. Documentation that all employees engaged in lead-related construction activities or the "Trigger Tasks" have had the appropriate medical examinations specified in Title 8 CCR 1532.1 within the prescribed time periods immediately preceding project start up. It shall be the Contractor's responsibility to secure any and all medical and exposure information releases required for employee records in accordance with regulation. Evidence of medical requirement compliance shall include, but are not necessarily limited to:

a. Documentation of medical surveillance examination by a licensed medical physician prior to commencement of onsite LCP related work including baseline blood lead levels performed within the last six (6) months.

b. Statement by the examining physician that employee is fit to wear a respirator in accordance with 8 CCR 1532.1 within the last twelve (12) months.

3. Documentation that all employees required to wear respirators has passed respirator fit tests within the past twelve (12) and has been assigned individual respirators which fit them.

4. Methods, procedures, and plan for monitoring employee airborne lead exposure during lead abatement activities. Methods and procedures, at a minimum, shall comply with requirements outlined in Title 8 CCR 1532.1 Lead.

G. Lead Related Construction and Equipment Submittal. Submit the following.

1. Calibration data showing where secondary standards (rotameter) for personal air monitoring equipment have been calibrated from a primary standard within the last 30 days from the date of submittal.

2. Product data sheets and safety data sheets (SDSs) for each product proposed for use on this project such as wetting agents, chemical paint removers, detergents, adhesives, and abrasives.

3. Manufacturer’s certification that HEPA vacuums, HEPA ventilation equipment, and other equipment required to contain airborne dust and fume conform to ANSI Z 9.2

4. Certification that HEPA filter exhaust systems have been DOP-equivalent tested on site after installation and been found to provide 99.97% efficient air cleaning for particulates greater or equal to 0.3 microns in diameter. All DOP-equivalent filter certification testing shall be conducted on site by an independent testing firm.

H. Lead Related Construction/Paint Removal Daily Submittal. Submit the following documentation daily to the Owner’s Observation Service within 24 hours of initiation:

1. An accurate daily entry log or roster of all authorized personnel entering and exiting the Work Area.

2. Copies of initial and periodic personnel air monitoring laboratory results and calculated eight-hour time weighted average results for each employee monitored shall be provided within 48 hours of sample collection.

3. Provide Owner's Observation Service at least 24 hours' notice prior to scheduling startup of each different by type of lead related construction operation including chemical paint removal, manual demolition of paint finishes or equipment, and hot work on lead containing surfaces.

4. Updated training and medical certifications (as required herein) shall be provided prior to assignment of new personnel and for existing personnel prior to the stated allowable time limits or expiration dates. The allowable intervals since the last medical examination (12 months), blood lead test (6 months), or fit test (12 months), shall not be exceeded.

1.6 OBSERVATION SERVICE

A. The Owner's Observation Service is authorized to provide lead removal and lead related construction compliance observation and monitoring, testing, and technical oversight services including, but not limited to:

1. Airborne lead monitoring to evaluate the effectiveness of the Contractor's lead dust and fume control work practices, procedures, and dust containment methods. The results from this monitoring shall be used to evaluate the Contractor's personal monitoring data and to evaluate the Contractor's compliance with occupational and environmental regulations.

2. Visual inspections to verify if the Contractor has met the requirements for various phases of the lead related construction process including Work Area preparation, removal, and clean up and decontamination.

3. Verify the classification of the typical waste streams produced by lead-related construction work according to existing California hazardous waste criteria by laboratory analysis.

B. The Owner's Observation Service will perform the following:

1. Inspect the preparation of work areas prior to lead paint removal or lead-related construction work.

2. Review the Contractor's initial and periodic lead exposure air monitoring results.

3. Inspect paint removal on painted steel prior to hot work.

4. Periodically, inspect lead-related construction work areas.

5. Conduct a post work visual inspection of all work areas and wipe testing if requested by the Owner.

6. Verify waste stream testing produced by lead-related construction work according to existing California hazardous waste criteria by laboratory analysis.

1.7 CONTRACTOR'S COMPLIANCE AND QUALITY ASSURANCE

A. The Contractor shall have a Competent Person onsite at all times while lead-related construction work is in progress. The Contractor's Competent Person shall communicate and coordinate with the Owner's Observation Service with regard to work schedule, inspections, daily submittals, and compliance issues.

B. The Contractor's Competent Person shall:

1. Ensure the Contractor's compliance with the plans, specifications, and work plans.

2. Conduct worker exposure monitoring using a Qualified Person and provide results to the Owner's Observation Service.

3. Pre-inspect Work Areas for compliance and completion prior to notifying the Owner's Observation Service of the Work Area's readiness for inspection.

4. Accompany the Owner's Observation Service during Work Area pre-start and clearance inspections upon request.

5. Ensure all of the Contractor's lead related construction workers have current valid medical, blood lead test, training, and respirator fit testing records where required and provide copies of all new or updated records to the Owner's Observation Service for approval before assigning the workers to any work within Work Areas.

6. Take timely and appropriate corrective actions to ensure compliance with the lead-related construction specifications and to eliminate unsafe, unhealthy, and environmentally unsound work practices regardless of whether or not they are brought to the Contractor's attention by the Owner's Observation Service.

7. Adhere to the initial characterization of waste for proper packaging, labeling, storage, transportation, and disposal of waste. Ensure any additional waste testing required is completed and ensure proper storage, shipping, and timely disposal of all hazardous waste.

PART 2 - PRODUCTS

2.1 PROTECTIVE COVERING

A. Polyethylene sheets, fire resistant, of 6 mil thickness in size (dimensions) to minimize the frequency of joints.

2.2 CLEANERS

A. For cleanup and decontamination, a tri-sodium phosphate (TSP) wash solution containing at least five percent (5%) TSP shall be used. Alternative cleaning and decontamination agents shall be subject to approval by the Owner's Observation Service and Owner's Representative.

2.3 TAPE

A. Duct tape (or approved equivalent) two (2) inches or wider, capable of sealing joints of adjacent sheets of polyethylene sheeting and for attachment of polyethylene sheeting to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions.

2.4 CHEMICAL PAINT REMOVAL SYSTEMS

A. Chemical paint removal systems shall be selected on the basis of the type of paint/coating to be removed, the substrate type, and chemical compatibility with new coating systems to be applied. Chemical removal systems shall effectively remove paint without adversely affecting the treated surface's suitability for repainting or adversely affecting the bonding, appearance, or durability of the coatings to be applied.

B. Chemical paint removal systems containing methylene chloride are prohibited.

C. Submit manufacturer's product data sheets for each chemical remover for review and evaluation by the Owner’s Observation Service and Owner’s Representative. All chemical paint remover products are subject to approval by the Owner’s Observation Service and Owner’s Representative.

2.5 SPRAY ADHESIVE

A. Provide spray adhesive in aerosol cans which is specifically formulated to stick to sheet polyethylene.

2.6 DISPOSAL CONTAINERS

A. Provide six (6) mil thick polyethylene sheeting, six (6) mil leak tight polyethylene bags and other impervious containers as required by applicable regulations. All waste shall be labeled as hazardous or potentially hazardous waste unless proven otherwise by appropriate sampling and laboratory analysis.

B. All hazardous waste shipping containers shall meet applicable DOT requirements.

2.7 WARNING SIGNS AND LABELS

A. Caution Signs: To be minimum of 20 x 14 inches and includes phrase “Caution Lead Hazard, Keep Out Unless Authorized” in minimum two-inch-high letters. These shall be posted at each approach to each lead or removal Work Area or area where lead related construction hot work is conducted.

B. CAL/OSHA Lead Warning Posters shall be posted at the entrance to each Work Area:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING.

C. Labels: Hazardous waste shall be labeled according to Federal, State and Local regulations including, but not limited to, the California Code of Regulations, Title 22, Chapter 30 and the U.S. Department of Transportation 49 CFR Parts 172, 173, 178 and 179.

2.8 PERSONAL PROTECTIVE EQUIPMENT

A. Personal protective equipment shall comply with the requirements of Title 8 CCR 1532.1 Lead.

B. Minimum protective clothing and equipment for lead-related construction work shall consist of fire retardant, disposable, full body coveralls, disposable boots, gloves, or equivalent in accordance with ANSI Z41. Sleeves at wrists and cuffs at ankles shall be secure.

C. Eye protection and hard hats shall be available and worn at all times and shall conform to ANSI 87.1 and ANSI 89.1

D. The Contractor shall provide Authorized Visitors with suitable disposable protective clothing, headgear, respirators, and footwear whenever authorized visitors are required to enter the Work Area. Up to an average of ten sets per day of suitable personal protective equipment shall be made available for authorized visitors.

E. All disposable clothing worn during each work shift shall be removed prior to exiting the Work Area and shall be properly segregated and placed in container for proper waste characterization. The Contractor shall bear full responsibility for additional costs associated with waste profiling and disposal if wastes are not properly segregated.

2.9 RESPIRATORS

A. Provide workers with personally issued respiratory equipment approved by NIOSH and suitable for the lead exposure level in the Work Area. Where respirators with disposable filters are employed, provide sufficient filter for replacement as required by the worker or applicable regulation. Each respirator shall be washed whenever the worker wearing it showers or at least daily prior to storage. The following general conditions shall apply to respirator use:

1. All respirators used must be certified by NIOSH and a respirator program shall be established and implemented.

2. Respirators shall be used whenever airborne lead concentrations will exceed, or are likely to exceed, 10 µg/m^3, and for any of the Trigger Tasks which have not been demonstrated to be below the PEL by initial monitoring, and for all operations involving the removal of LCP or welding on surfaces with paint or lead contamination regardless of airborne lead concentrations.

3. Prior to initial monitoring, the level of protection shall follow CAL/OSHA requirements for the specific Trigger Task. Otherwise, the respirators worn shall be selected based on measured or reasonably expected airborne concentrations of lead as follow:

   a. Half face negative pressure air purifying respirator: up to 100 µg/m^3

   b. Powered air purifying respirators: up to 10,000 µg/m^3

   c. Type C supplied air respirator full face piece pressure demand mode: up to 20,000 µg/m^3

4. Disposable respirators are not acceptable at any time. It is always permissible to upgrade to a more protective type of respirator.

5. During all segments of LCP removal and cleanup activities and hot work on LCP coated surfaces, respirator usage shall be required of all persons within the designated Work Areas at all times regardless of airborne lead concentrations.

B. The Contractor is responsible for determination of airborne lead concentration levels for the Contractor's personnel and for providing and enforcing use of appropriate personnel respirator protection based upon airborne lead concentrations and this specification.

C. Respirators shall not be removed inside the Work Area. Workers shall proceed to the designated washing area and clean the external surface of the respirator body before removing the respirator.

2.10 TOOLS AND EQUIPMENT

A Provide suitable tools for the removal of LCP and LCCM contamination including required HEPA exhaust systems, HEPA exhausted portable welding fume control systems, HEPA vacuums, ground fault circuit interrupters (GFCIs), ladders, scaffold, garden sprayers and portable eyewash systems.

B All tools and equipment brought onsite shall be clean and free of lead and other hazardous material contaminants. HEPA vacuums shall be labeled with a lead warning label and dedicated to LCP work to prevent commingling of lead wastes with asbestos or other wastes. HEPA filtered exhaust systems shall be DOP-equivalent tested on site to verify 99.97% effectiveness as an installed system and shall have accurate Magnehelic gages to indicate filter performance while in use. Provide sufficient back up equipment for use in the event of equipment failure. Ensure all equipment has been fitted with any necessary feasible noise attenuators to meet occupational and environmental noise standards for building occupants.

C Provide enough support equipment, including but not limited to, lumber, nails, hardware, shower stalls, hoses, plumbing, drain pans, sump pumps, and wastewater storage drums to construct and operate the required hand washing system and portable Washroom with showers. The number of showers shall be sufficient for the number of workmen scheduled on the job. The water hose used to connect the drain to the showers will not be used for any other purpose. The supply side water hose shall have a check valve to prevent back-flow under any circumstance.

PART 3 - EXECUTION

3.1 GENERAL

A. Public Warning and Safety Information to be Posted

1. Post signs at all approaches to the lead Work Area entrance to read "Caution Lead Hazard -Keep Out Unless Authorized." In addition, post the CAL/OSHA Lead Hazard Warning Poster at the immediate Work Area entrance.

2. A list of phone numbers for the local hospital and for emergency personnel, the local fire department, a representative of the Contractor who may be reached 24 hours a day, the Owner’s Observation Service, and Owner Representative and any other professional Consultants directly involved in the project.

3.2 GENERAL PREPARATION FOR INTERIOR LEAD REMOVAL AND LEAD-RELATED CONSTRUCTION

A. Move all non-fixed objects out of the Work Areas.

B. Cover all non-moveable objects within five (5) feet of the Work Area with six (6) mil polyethylene sheeting and seal with duct tape.

C. Shut down, lock out, isolate the HVAC systems that supply, exhaust, or pass through the lead control area. All vents and registers shall be sealed with two (2) layers of six (6) mil plastic sheeting and duct tape or equivalent.

D. Provide, at minimum, 10-foot candle illumination lighting to the Work Area.

E. Install lead caution signage at each approach to the lead related construction Work Area and lead warning signage just outside each Work Area entry/exit point.

F. When Work Area preparation is complete, notify the Owner's Observation Service and request an inspection. No work is to proceed in any Work Area until the general Work Area preparation materials, methods, and procedures have been inspected and approved by the Owner's Observation Service.

3.3 GENERAL PREPARATION OF EXTERIOR LEAD REMOVAL OR LEAD-RELATED CONSTRUCTION

A. Cordon off the Work Area extending at a minimum of 10 feet horizontally beyond the area of lead related construction with barrier tape and warning signs as specified herein.

B. Protect windows, doors, and openings within the regulated area adjacent to interior areas of the building with a minimum of one layer of 6-mil poly.

C. Where LCP or LCCM components are likely to generate airborne dust or paint chips, devise a suitable containment to contain such dust and prevent dispersal.

D. Provide a designated entry/exit point to exterior Work Areas suitable for workers to properly decontaminate and exit from the Work Area as specified herein. Install lead caution and warning signage as specified above.

E. Notify the Owner's Observation Service when the Work Area is ready for inspection at the startup of each lead-related construction process not previously evaluated and approved by the Owner's Observation Service. Lead related construction work shall not initially proceed until the Observation Service has checked and approved Work Area preparations.

3.4 WORKER PROTECTION AND DECONTAMINATION PROCEDURES

A. The Contractor shall use only workers medically qualified and trained for lead-related construction, LCP removal, hot work on LCCM surfaces, and respirator usage.

1. Medically qualified shall mean that the worker has had an occupational medical exam for lead exposure and respirator usage within 12 months of abatement start up.

2. The contents of the exam must be in conformance with Title 8 CCR 1532.1.

3. Each worker involved with lead containing paint removal shall have successfully completed formal documented training in lead hazards and lead abatement methods meeting Title 17 California Department of Public Health (DPH) requirements. Workers performing lead-related construction work shall have documented lead training in accordance with Title 8 CCR 1532.1.

4. The Contractor's Competent Person for lead-related construction involving paint removal shall have received at least 40 hours of formal training by a Recognized Training Education Institution in lead hazards and lead abatement.

5. The Contractor shall ensure that no worker is allowed onsite to perform lead removal or lead-related construction work until the Owner's Observation Service has received and approved all of the worker's medical, training, and fit testing certifications.

6. Each worker and Authorized Visitor shall, upon entering the job site, enter the designated clean change room area and put on full body reusable or disposable coveralls, booties or shoe covers, respirator with HEPA filters, and gloves before entering the Work Area.

7. Each worker and Authorized Visitor shall HEPA vacuum contamination from protective clothing.

8. When exiting a Work Area, proceed to vacuum off all reusable work clothing and dispose of outer disposable protective clothing as suspect lead waste. Proceed to a designated wash area, remove, and clean the respirator and store in a clean container.

9. At the end of the workday, all workers are to do the following in addition to those procedures described above: Place disposable outer garments and shoe covers in separate labeled waste containers dedicated to PPE for proper waste characterization; remove inner disposable clothing and place in waste containers; clean protective gear including respirator, shower or wash hands and face at minimum, and put on clean street clothes in the clean room area.

10. All tools and equipment shall be decontaminated by HEPA vacuuming and wet wiping prior to being taken out of the Work Area. Tools and equipment with inaccessible internals shall be externally wet wiped, bagged and sealed prior to being removed from the Work Area.

11. Workers shall not eat, drink, smoke, or chew gum or tobacco at the work site within 20 feet of any Work Area as specified by the Owner or the Owner's Observation Service.

3.5 REMOVAL OF LEAD CONTAINING PAINT BY CHEMICAL REMOVAL

A. Removal of LCP using Chemical Removal system shall be approved for use by the Owner's Representative and Owner's Observation Service.

B. The Contractor shall provide additional security measures as necessary to ensure occupants cannot gain access to chemicals and chemically treated surfaces.

C. Safety data sheets for each chemical substance and product used shall be onsite at all times and available for review by the workers, the Owner's Representative, and Owner's Observation Service.

D. The Competent Person shall review the contents of the safety data sheets and the safe removal procedures with the workers prior to chemical removal.

E. Workers shall wear chemical goggles, face shields, impervious gloves, aprons, and booties over the standard protective clothing prior to starting chemical removal.

F. Stage or install a temporary emergency eyewash capable of providing a 15-minute flush within the immediate Work Area if corrosive organic or corrosive inorganic paint removal (stripping) products are used. In addition, an emergency shower shall be available onsite within 50 feet of the removal operation.

G. Chemical stripping agents (and neutralizers) shall be applied in accordance with the recommendations of the manufacturer. Remove all paint down to the bare substrate. Ensure that the chemicals used, and the associated removal methods leave a clean and smooth surface capable of accepting a suitable primer/sealer coating after final cleaning. No paint or chemical residue shall be visible on the bare metal surfaces to be welded. All chemical residues shall be removed from surface applied.

H. Containerize all paint and chemical waste in impervious containers labeled as hazardous waste.

I. Package all contaminated rags and protective equipment, and disposable cleaning items and plastic sheets in labeled impervious containers and transfer waste containers to secure waste storage units. The Contractor shall assume all such waste to be hazardous unless proven otherwise by objective waste characterization data.

J. Clean and decontaminate the Work Area in accordance with the procedures outlined herein.

K. Decontaminate all tools and equipment before removing them from the Work Area. Seal or bag-up such equipment for transfer to the next Work Area or operation.

3.6 REMOVAL OF LEAD CONTAINING PAINT BY MECHANICAL REMOVAL

A. All mechanical removal equipment and systems shall be approved by the Owner's Representative and Owner's Observation Service. Such equipment includes but is not limited to abrasive blast (all methods), needle guns, abrasive wheels, and roto-peen equipment.

B. All power tools shall be designed and equipped with effective HEPA filter exhaust systems.

C. The Contractor shall submit a separate work plan for containment of lead dust and debris emissions released by vacuum assisted power tools.

D. Work Area preparation and LCP removal shall be in accordance with the approved work plan.

E. Exterior work must include a containment or a proven local exhaust/recovery method.

3.7 CLEANING AND DECONTAMANATION OF REMOVAL WORK AREAS

A. Daily Clean up: Perform the following clean up procedures daily.

1. Clean Work Areas until they are free of loose dust and debris to the satisfaction of the Owner's Observation Service and/or Owner Representative using HEPA and/or wet wiping after picking up of large debris.

2. Wet debris with a fine mist of water and collect material. All material to be properly segregated, bagged in 6-mil plastic bags, sealed, and moved to a designated, secure, waste storage area for waste characterization.

3. At the end of each workday the Contractor's Competent Person shall inspect work performed that day to ensure the work has been completed and no dust or residue remains on the areas removed and/or in the Work Area. The Owner's Representative shall be included in that inspection process when and if they request inclusion.

B. Final Clean up and Decontamination of Work Areas: At completion of lead related construction work perform cleaning as follows:

1. Remove all visible dust, paint debris, lead containing building materials, and building materials with lead containing paint debris as specified above.

2. Clean all Work Areas where lead related work was performed by vacuuming all surfaces with a HEPA vacuum followed by wet wiping with a high phosphate (trisodium phosphate) wash or equivalent. The Contractor shall spray surfaces with a 5-10 percent trisodium phosphate (or approved equivalent) cleaning solution applied with a garden sprayer and wipe or mop surfaces with frequently changed clean towels, rags, or mops.

3. Disassemble and remove containment/barriers at each Work Area location after cleaning as specified above.

4. Place waste rags in segregated six (6) mil plastic bags, seal and store in a designated, secure, waste storage area for waste characterization.

5. The cleaning procedure used shall prevent spread of contamination and effectively clean surfaces while producing minimal waste.

6. Liquid cleaning wastes shall be filtered prior to containerizing for temporary storage pending hazardous waste characterization. Filter systems shall be able to remove particulate two microns and larger in diameter. Permits, if required, are the responsibility of the Contractor.

3.8 LEAD-RELATED CONSTRUCTION WORK

A. Where the Contractor's work requires demolition of lead containing materials, disturbance of materials coated with LCP, or removal of architectural, electrical, plumbing, or mechanical components from existing LCP coated systems, the Contractor shall take the following precautions:

1. Cordon off the work area with caution tape and lead warning signs.

2. Protect workers in conformance with Title 8 CCR 1532.1.

3. Place a plastic drop sheet below the area where LCP paint chips or dust is likely to be released and secure with duct tape.

4. Clean up all resulting LCP chip dust and debris by wet wiping or HEPA vacuuming before moving the drop cloth to the next area. Dispose of paint chip and contaminated cleaning materials as specified herein.

B. Where the Contractor's work involves the removal of LCP components such as painted drywall, concrete, wood, and/or materials such as ceramic tile and window glazing the Contractor shall take the following precautions:

1. Prepare Interior Work Areas as specified for removal.

2. Remove components using wet methods and/or HEPA vacuuming to control dust generated by mechanical cutting and/or disassembly.

3. If torch cutting is required, remove the existing paint on all surfaces at least 12 inches or more in each direction from the hot work as specified herein.

4. Clean up lead containing paint chips, dust, and debris as the removal proceeds and at the completion of work using HEPA vacuums and/or wet wiping. Clean all tools and equipment prior to removing them from the Work Area. Clean all polyethylene sheeting and horizontal surfaces prior to removing the sheeting.

5. Special precautionary controls shall be used as necessary to prevent lead dust, debris, or fume from being carried or blown out of the controlled area by wind or air currents. Torch cutting of components with inaccessible paint shall be done with HEPA filtered local exhaust ventilation to capture fumes unless monitoring data reviewed and accepted by the Owner's Observation Service and Owner's Representative indicates local exhaust is not necessary.

6. LCCM components shall be removed from the work areas. Clean up dust and debris as removal proceeds.

3.9 FINAL CLEARANCE INSPECTION AND TESTING OF REMOVAL WORK AREAS

A. Interior Clearance Inspection and Testing.

1. After the final cleanup of each Work Area by the Contractor, the Owner's Observation Service will conduct a visual inspection to ensure that all visible dust and debris has been removed.

2. If the results of the final visual inspection are satisfactory, the Owner's Observation Service may proceed to collect clearance dust wipe samples in building areas that will be reoccupied. Final dust wipe clearance samples may be omitted for structures that will be demolished.

3. If the Work Area is not visibly clean, as determined by the Owner's Observation Service, the Contractor shall reclean and decontaminate the Work Area.

4. The visibly clean Work Area shall not contain surface lead contamination at or in excess of 400 micrograms of lead per square foot of surface sampled ($\mu g/ft^2$) for exterior floor and exterior horizontal surfaces, 5 $\mu g/ft^2$ for smooth finish floors, and 40 $\mu g/ft^2$ for interior windowsills. Dust wipe samples will be taken using the HUD sampling protocol by the Owner's Observation Service subsequent to the lead paint removal or lead related construction activities to assess adequacy of the Contractor's cleaning and decontamination procedures.

5. Dust wipe samples will be collected using commercial wipes moistened with a non-alcohol wetting agent. Areas of approximately one to two square feet will be selected from horizontal surfaces below in rooms or areas where lead-related construction work or paint removal has been performed.

6. Generally, one dust wipe sample will be collected per room impacted by lead related construction work. One sample may be collected in multiple small contiguous rooms to approximately 200 square feet. Surface samples will be sent under proper chain of custody protocol to an AIHA or ELLAP accredited laboratory or equivalent.

7. All dust wipe samples will be analyzed for lead using either AAS or ICP AES for lead and results will be provided to the Contractor within two days of receipt of sample results.

8. The Contractor's cleaning and decontamination shall be deemed adequate when all collected and analyzed dust wipe sample results from the Work Area are below the following levels of lead:

   a. Smooth finished floor surfaces: 5 micrograms per square foot ($\mu g/ft^2$)

   b. Interior windowsill: 40 $\mu g/ft^2$

   c. Exterior surfaces: 100 $\mu g/ft^2$

d. If any of the dust wipe samples exceed the clearance criteria, the entire Work Area must be cleaned and re-tested until the clearance criteria are met.

3.10 LEAD CONTAMINATION OF BUILDING INTERIOR OR ENVIRONMENT

A. In the event that removed LCCM paint, dust, or debris is not properly contained within the Work Area and thereby escapes, bypasses, or penetrates established barriers, the Contractor shall stop work immediately, notify the Owner's Observation Service and Owner's Representative immediately, and commence clean up and decontamination procedures as described herein or directed by the Owner's Representative.

3.11 WASTE STORAGE, SEGREGATION, AND CHARACTERIZATION

A. The Contractor shall provide for secure onsite temporary storage of LCP or LCCM related waste. Waste storage location, equipment, containers, and methods are subject to prior approval by the Owner's Representative.

B. All lead related waste streams and waste categories shall be considered hazardous until proven otherwise through testing by the Contractor. The Contractor shall be responsible for segregating waste into the below listed categories at minimum. 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.

1. LCP removed by chemical stripping.

2. Painted demolition debris to be landfilled including concrete, drywall, stucco, wood, and metal with lead containing paint.

3. Lead containing ceramic tile.

4. Paint (LCP) chips, dust, and debris, HEPA vacuum waste.

5. Uncleaned plastic sheeting and tape.

6. Disposable Protective Clothing and Equipment (PPE).

7. Cleaning Rags.

C. Intact LCP components: Architectural and mechanical equipment debris with intact LCP shall be considered hazardous until proven otherwise through testing.

D. All lead containing waste streams must be verified for federal hazardous waste characteristics for lead prior to landfill disposal.

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

F. All waste containers, bags, and packaged waste shall be stored in a designated, secure, locked waste storage area and be labeled with the following information:

1. Waste Category: Lead

2. Date Accumulated: (Insert Date)

3. Name, address: (Insert Facility Name and Address)

4. Origin of waste: (Insert Waste Stream Name, i.e., Paint Chips, Vacuum Bags)

G. HEPA vacuum and wet wipe the exterior of all waste containers prior to removing them from the Work Area to the designated storage area.

H. Each category of waste, except components with intact paint, will be tested and characterized by the Contractor using one or more of the following testing protocols:

1. CAL/EPA testing protocol: Criteria

a. Total Threshold Limit Concentration (TTLC): 1,000 ppm lead

b. Soluble Threshold Limit Concentration (STLC): 5 ppm lead

2. Federal EPA testing protocol:

a. Toxicity Characteristic Leaching Procedure (TCLP): 5 ppm lead

I. Based on the testing protocols, any waste greater than or equal to five (5) ppm lead using STLC or TCLP tests or any waste greater than or equal to 1,000 ppm lead using the TTLC test shall be considered a hazardous waste.

J. When the TTLC test result is less than 50 ppm lead, no further testing is required for that waste category sampled unless the waste stream or waste generating process changes. A minimum of four samples will be taken to represent each category of waste generated. It will be the responsibility of the Owner's Observation Service to ensure representative samples are taken by the Contractor from each category of segregated waste.

K. The Contractor shall package, store, handle, transport and dispose of each category of waste generated based on the testing results unless specific written direction is provided by the appropriate regulatory agency and reviewed and approved by the Owner's Observation Service. In all cases, the landfill shall be subject to approval by the Owner's Representative.

L. Upon verbal request of the Owner's Observation Service, the Contractor shall provide samples of lead-related waste to the Owner's Observation Service. The Contractor shall provide samples within full view and presence of the Owner's Observation Service and Owner's Representative upon request.

M. In the event that Owner's Observation Service has determined that waste is not properly segregated, additional waste testing may be conducted of the mixed waste stream. The Contractor shall be responsible for the costs associated with this additional testing.

N. The Contractor shall bear full responsibility for additional costs associated with waste disposal and characterization if waste is not properly segregated as required herein.

3.12 HAZARDOUS WASTE DISPOSAL

A. Site Storage and Handling:

1. The Contractor shall pay strict attention to the requirements of 40 CFR 262 and 265 and Title 22, Chapter 30 for the onsite handling of lead waste/debris, with special attention given to the time of storage, amount of material stored at any one time, use of proper containers, and personnel training. All waste shall be stored in secure, locked, labeled, sealed impervious containers, and not placed on the unprotected ground. All containers shall be shielded adequately to prevent dispersion of the debris by wind or rain and shall be labeled as hazardous waste. Any evidence of improper storage shall be cause for immediate shutdown of the project until a corrective action is taken.

B. Transportation and Disposal of Waste:

1. The Contractor shall arrange to have the LCP waste and debris transported from the site in accordance with the requirements of 40 CFR 263 and 264 and disposed of properly in accordance with 40 CFR 268, GISO 8 CCR Articles 40 and 41, 49 CFR Parts 172, 173, 178, and 179 and Title 22, Chapter 30, Articles 5, 6, 6.5 and 8.

2. The Contractor shall submit to the Owner and the Owner's Observation Service the Name, Class, and EPA I.D. Number of the waste disposal site(s) to be used for each waste category which has been determined by testing to exceed the hazardous waste thresholds provided herein.

3. The Contractor shall prepare waste shipping manifests for review by the Owner's Representative. Upon waste or material pickup by the selected waste transporter, manifests shall be signed by the Owner's Representative and copies retained to verify that all steps of the handling and disposal process have been completed properly.

4. Copies of the landfill weight tickets shall be provided to the Owner's Representative to verify the amount of waste disposed of at that site. The Contractor shall be responsible for all costs associated with transportation and disposal of all wastes generated at the result of this work.

C. No waste characterized as hazardous waste shall be stored onsite for more than 90 days prior to being properly transported for disposal.

D. All equipment, materials, and waste generated on this project must be removed offsite to their proper locations by the Contractor within 14 calendar days from removal and lead related construction work completion.

E. Containers to be loaded for transportation from the storage area must be removed by workers who have entered from uncontaminated areas, dressed in clean coveralls.

3.13 STOP WORK ORDERS

A. The Owner and/or the Owner's Observation Service has the authority to stop work if it is determined that conditions or procedures are not in compliance with the specifications and/or applicable regulations; to the extent of potential endangerment of building users, workers, building occupants, Owner employees, the public or environment. The work stoppage shall remain in effect until conditions have been corrected and corrective measures have been taken to the satisfaction of the Owner's Representative and the Owner's Observation Service. All standby time and testing costs required to correct the above-mentioned problems shall be borne solely at the Contractor's expense. Examples of such conditions that might result in a work stoppage include but are not limited to:

1. Uncontrolled visible emissions which escape the established Work Area or breach physical protective barriers within the Work Area; and/or,

2. Ambient airborne levels of lead outside the construction area at more than 2 micrograms per cubic meters of air (µg/m3) of lead averaged over an eight-hour work period. Measurements of the ambient airborne lead levels shall be made outside the immediate Work Area and at the nearest occupied areas.

3. Unsecured Waste Storage Area and/or improper containment of lead abatement waste or LCP contamination.

3.14 CLOSEOUT

Prior to approval of payment request, the Contractor must provide the following information: copies of hazardous waste manifest, profile sheets and weight tickets for all hazardous waste and for all non-hazardous waste or waste-recycle receipts.

Table I
Lead Containing Paint/Materials

Sample #	Sample Description	Sample Location	Total Lead Result
Building B			
Pb-3	Tan paint on wood siding	Wood siding East elevation	1,100 ppm
Pb-5	Dark brown paint on metal I-beam column	North elevation roof support	18,000 ppm
Building L			
Pb-1	4" Off-white ceramic tile on drywall	Boy's Shower wainscot	500 ppm
Pb-3	Beige paint on CMU wall	Boy's Shower dressing room walls	150 ppm
Pb-9	White paint on metal door frame	Staff Storage Room door frame	570 ppm
Pb-10	White paint on wood door	Staff Storage Room door	300 ppm
Pb-11	Brown paint on metal gutter	Roof gutter North elevation and throughout	180 ppm
Pb-13	Dark brown paint on wood door	North Mechanical Room door	450 ppm
Pb-14	Dark brown paint on metal door frame	North Mechanical Room door frame	150 ppm
Pb-16	Brown paint on metal handrail	North handrail	190 ppm

ppm = parts per million

ATTACHMENT A
LEAD-RELATED WORK PLAN OUTLINE

In accordance with the contract documents, Cal-OSHA Lead in Construction Standard (Title 8 CCR 1532.1) and DPH (17 CCR Division 1, Chapter 8), the Contractor is required to prepare a written, site-specific Lead Compliance Plan, and submit to the Owner for approval prior to start of work. This plan is required for the contractor to meet Cal-OSHA and DPH requirements as well as the contract documents and shall describe work procedures and control methods that will protect the Owner's facilities and the environment. All contractors performing lead-related construction work shall prepare plans.

I. Location of Work:

The work to be completed under this work plan will be completed at:
Building name
Location within building

II. Description of Work:

Describe the anticipated work scope, including:

Paint removal (list paints or coatings, and locations)
Paint stabilization or encapsulation (list paints or coatings, and locations)
Removal and/or replacement of lead-coated components (list components and locations)
Removal of lead containing bulk materials
Dust/residue removal or decontamination (list materials and locations)
Demolition of lead-coated components
Any other activities that will or may result in worker exposures to lead

III. Schedule:

Phase/Task	Anticipated Date(s)
Mobilization	_____
Set-up of work area(s), containments	_____
Lead-related construction	_____
Final Cleaning	_____
Visual Inspection	_____
Final Clearance (visual and air sampling)	_____
Teardown	_____
Demobilization	_____

The competent person, _____, will conduct worksite visual inspections on a daily basis, or more often as necessary.

IV. Equipment and Materials

List all equipment and materials to be used, such as the following:

HEPA Vacuums
Scrapers
Power saws
Pry bars
Cutting shears
Other hand tools
Encapsulants/sealants
Gloves
Respiratory protection
Negative air filtration units
Manometers
Shower facilities
Airless sprayers/compressors
Cleaning detergents
Solvents (must be approved by Owner)
Roller/brushes
Disposable coveralls
Eye & foot protection

V. Crew

List all workers and supervisors with emergency contact names and phone numbers. Clearly identify the supervisor and competent person who have authority for all safety and health.

VI. Control Measures and Work Practices

Describe in narrative format specific work procedures, exposure/ contamination controls, and engineering controls. This description should include, but not be limited to, the following:

Location, size, layout & detail of work	Wet methods
Negative pressure enclosure	Local exhaust ventilation for tools
Respiratory protection	HEPA vacuums
Vacuum assisted blasting	General room ventilation
Containment (i.e., poly barriers)	Interface of trades involved
Pollution control	Methods to assure safety of bldg. occupants

Removal method to reduce lead dust generation

VII. Technology to Be Used in Meeting the OSHA PEL

List all or any specialized equipment to be used to meet the PEL.

VIII. Respiratory Protection and Protective Clothing/Personal Protective Equipment

List all respiratory protection including types and manufacturers which are anticipated for this project.

Identify the phases of the project for which respirators will be required or likely to be required.

List all personal protective equipment anticipated to be used on the project.

IX. Decontamination/Hygiene Facilities

Identify the types and locations of decontamination or hygiene facilities to be used on this project.

Specify use of disposable towels, soap, hot and cold water, and other supplies.

Specify the required use of the facilities, including use of the facilities prior to eating, drinking, smoking and before leaving the project site.

Describe handling or treatment of lead-contaminated solid waste and wastewater.

X. Air Monitoring Data

Identify general worker air monitoring protocols to be followed on this project, including worker category classifications, frequency of monitoring, anticipated laboratory to be used for analysis, pump calibration techniques, etc.

Identify the competent person responsible for conducting personal air monitoring.

XI. Medical Surveillance Program

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The Terms and Conditions, and other General Requirements between Owner and Contractor shall be included in and made part of this Section.

B. Examine all other project documents provided by the Owner, including other specifications sections for requirements therein affecting the work of this Section of the Specifications.

C. PCB-containing Waste removal shall be closely coordinated with the Owner, General Contractor and Demolition Contractor.

1.2 COMPLIANCE AND INTENT

A. This Section specifies requirements for abatement of Polychlorinated Biphenyl (PCB) containing materials. The Contractor shall coordinate all abatement work with the specifications. During all work, provide monitoring and worker protective equipment in accord with the California Occupational Safety and Health Administration (Cal-OSHA) and as required by this section and all other sections of the Specifications. Where there is conflict, the most stringent requirement shall apply.

B. The work covered by this specification includes the removal of PCB containing light ballasts.

C. All work shall comply with Environmental Protection Agency (EPA) rules and regulations governing PCBs: 40 CFR 761, as published in the most recent edition of the Federal Register. Additionally, all work and work-related practices shall comply with applicable federal, state and local rules and regulations including, but not limited to, the California Department of Industrial Relations, California Code of Regulations (CCR) Title 8; Department of Health Services, CCR Title 22 and California Health and Safety Code, Division 20. Where conflicts occur, compliance shall be based upon the most stringent requirements.

D. Workers involved in the removal of PCBs shall have received specific training on the hazards, appropriate personal protection and decontamination procedures associated with PCBs.

E. Furnish all labor, materials, facilities, equipment, services, employee training, medical monitoring, permits and agreements necessary to perform the work required for PCB abatement in accordance with this section of the Specifications, other sections of the Specifications and other documents included in the contract.

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

G. Perform appropriate waste profile testing for all PCB contaminated waste as required by the Specifications, the regulations, and the selected landfill(s). All testing shall be done in the presence of the Owner or Owner’s designated representative. Chain-of-custody forms shall be provided to the Owner within one (1) day following sample delivery to the laboratory.

H. During removal activities, the Contractor shall protect against contamination of soil, water, plant life, and adjacent building areas and shall ensure that there is no release of hazardous materials and dusts. The Owner or Owner’s designated representative may collect air and wipe samples in adjacent areas to evaluate the Contractor’s performance.

I. It is the Contractor's responsibility to determine the quantities of hazardous materials impacted by the planned demolition.

J. Hazardous materials removed during the abatement activities shall be handled, transported and disposed of in accordance with all applicable federal, state and local regulations.

K. Gross abatement of PCB containing materials shall be conducted using containments and decontamination units unless otherwise specified. Evidence of the release of PCBs above the background level will necessitate additional controls including but not limited to an enclosure.

1.3 DEFINITIONS

A. Certificate of Disposal: The document provided to the generator certifying that the PCB wastes were disposed of in strict accordance with all applicable federal, state, and local regulations.

B. Chain-of-Custody: A legal concept involving documentation of the physical possession of a sample/samples from the moment it is collected, transported, analyzed, and ultimately stored in an archive.

C. Competent Person: One who is capable of identifying existing and predictable hazards and who has the authority to take prompt corrective measures.

D. 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.

E. DOP: Dioctyl phthalate, or equivalent; the challenge aerosol used to perform on-site leak testing of HEPA filtration equipment.

F. 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.

G. 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.

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

I. Manifest: The document authorized by both federal and state authorities for tracking the movement of PCB containing wastes.

J. Owner: Santa Clara County Office of Education.

K. PCB Liquid Waste: Any liquid identified to contain PCB through laboratory analysis at a concentration equal to or exceeding 500 PPM.

L. PCB Soild Waste: Any solid that comes in direct contact with PCB liquids which cannot be decontaminated and any solid materials generated as the result of PCB Spill clean-up operations.

M. PCB-Contaminated Liquid Waste: Any liquid identified to contain PCB through laboratory analysis at a concentration greater than or equal to 50 PPM and less than or equal to 499 PPM or those liquids the USEPA requires to be assumed at 50-499 PPM in the absence of testing.

N. PCB Contaminated Solid Waste: Any solid that comes into direct contact with PCB Contaminated liquids which cannot be decontaminated and any solid materials generated as the result of PCB Contaminated spill clean-up operations.

O. PCB Containing Wastes: Any wastes either tested and found to contain PCB greater than or equal to 50 PPM or those requiring assumption under 40 CFR 761. These wastes include both PCB and PCB-contaminated liquids (including all flushing wastes) and solids.

P. PCB Bulk Product Waste: Materials (such as sealants with greater than 50 PPM) and porous contact surfaces impacted by leaching.

Q. PCB Spill: The intentional and/or unintentional spills, leaks, and other uncontrolled discharges where the release results in any quantity of PCB, running off or about to run off the external surface of the equipment; and the contamination resulting from those releases.

R. Polychlorinated Biphenyl (PCB): Any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance.

S. 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.

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

U. Returned Manifest: An original duplicate copy of the manifest provided to the PCB Waste generator within forty-five (45) days of the transport date which acknowledges the receipt of the material at the disposal facility.

V. Visual Inspection: A visual inspection of the work area under adequate lighting to ensure removal of all PCB materials, contaminated waste, and that the work area is free of visible material, debris, and dust.

1.4 PCB CONTAINING MATERIALS

A. The following suspected or confirmed PCB containing materials must be removed prior to demolition of fixtures required by the renovation. Light fixtures must be properly disposed or recycled. Building materials that exceed 50 milligrams per kilogram (mg/kg) PCB content must be disposed at an appropriately certified landfill.

Material	Estimated Quantity/Concentration
Ballasts with Suspect PCB Capacitors	
Fluorescent Light Fixtures – Building B	25/Suspect
Fluorescent Light Fixtures – Building L	30/Suspect

B. All light ballasts are assumed to be PCB containing. All such ballasts shall be inspected by the contractor prior to final disposal. Any ballast not explicitly containing labeling indicating the absence of PCBs shall be disposed of as PCB waste.

C. Other oil-filled devices that contain PCBs may be present and should be evaluated by the contractor prior to final disposal.

1.5 SUBMITTALS PRIOR TO START OF WORK

A. The reviews by the Owner or Owner's designated representative are intended to be only for general conformance with the requirements. The Owner or Owner's designated representative 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. The following items shall be submitted to, and approved by, the Owner or Owner's designated representative before commencing work involving the PCB abatement.
   1. Provide a detailed work plan for PCB abatement and disposal.

2. Provide a site safety plan for PCB abatement prior to project initiation. The site safety plan shall deal with, at a minimum: Personal protective equipment; Site safety and health hazards; PCB Spills; control of water leakage or discharge within and/or from the work area; medical emergency; materials handling procedures; 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 individuals with authority to respond to emergencies.
3. Workers: Demonstrate education and specialized training
4. Respiratory Protection Program (RRP) in compliance with Title 8 CCR 5144.
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. Licenses: Submit copies of state and local licenses, evidence of Cal-OSHA registration and permits necessary to carry out the work of this contract.
7. Safety Data Sheets (SDSs)/Specification Sheets: The Contractor shall submit SDSs and Specification Sheets for all chemicals, encapsulants, etc. to be used for this project.

1.6 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 Owner's representative and shall include the following:
   1. Copies of the Security and Safety Logs showing names of persons entering the work areas. The logs shall include date and time of entry and exit, supervisor's record of any accident (detailed description of accident).
   2. Emergency evacuations and any other safety or health incident.
   3. Waste manifests including Land Disposal Restrictions Notice and Certification, if applicable.
   4. Project Summary including, but not limited to the location(s) and approximate quantity of PCBs removed, hazardous waste hauler certifications, waste disposal/recycling facilities, dates of commence and completion of on-site work.

PART 2 - PRODUCTS

2.1 SIGNS AND LABELS:

D. Warning signs for work areas shall be approximately 18 inches square with yellow background and 1-inch black letters. Signs shall read "DANGER – KEEP OUT – TOXIC CHEMICAL WORK AREA".

E. 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.

2.2 PLASTIC SHEETING:

A. Use fire-retardant (FR) polyethylene (poly) film manufactured by PolyAmerica, Grand Prairie, Texas 75051, or equal.
   1. Thickness - 6-mil, minimum, NO EXCEPTIONS.
   2. Flame Resistance/Flame Spread Rate <25.
   3. Conforms to NFPA #701 and Tested in accordance with ASTM E-84.
   4. Spray adhesive for sealing polyethylene to polyethylene shall contain no methylene chloride or methyl chloroform (1,1,1-trichloroethane) compounds.

2.3 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.

B. All filter media must be disposed as PCB-contaminated waste at the end of filter life and at conclusion of the PCB remediation work at the site.

2.4 LOCAL EXHAUST AND VENTILATION EQUIPMENT:

A. Sufficient High Efficiency Particulate Absolute (HEPA) ventilation units shall be used to maintain negative pressure in each work area and a minimum of four (4) air changes per hour for all dust producing work.

B. Contractor shall provide onsite independent DOP testing to document the effectiveness of the air filtration units. The test results shall be signed by the individual performing the testing. Provide documentation to the Owner or Owner's designated representative.

C. All filter media must be disposed as PCB-contaminated waste at the end of filter life and conclusion of the PCB remediation work at the site.

2.5 OTHER TOOLS AND EQUIPMENT:

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

B. All PCB fluids, PCB-contaminated fluids, including flush and cleaning solvents and mixtures, shall be stored in sealed DOT 17E closed top drums or other waste container approved for storage of these materials.

C. All PCB solid wastes and items including disposable items used in the course of the work such as rags, absorbents, protective clothing, etc., shall be stored in sealed DOT 17C open type drums or other waste container approved for storage of these materials.

D. Any PCB Article Container, other than approved DOT drums, specified in this specification, intended for storage, shall be submitted to the Owner or Owner's designated representative for approval.

E. For removal of PCB fluids or residual material on non-porous surfaces use an appropriate solvent in which PCBs are shown to be at least 5-percent soluble by weight. Solvents specified by the U.S. EPA include kerosene, diesel fuel, terpene hydrocarbons and mixtures of terpene hydrocarbons and terpene alcohols. Care should be taken to limit the complexity of the waste stream. In all cases where solvents are used in the course of work, proper ventilation shall be provided by the Contractor to ensure that resulting fumes/vapors are not dispersed to areas beyond the work area. The manufacturer's recommendations for application and requirements of Cal-OSHA shall be strictly observed.

F. Use an appropriate cleaning agent in which PCBs are shown to be at least 5-percent soluble by weight. Care should be taken to limit the complexity of the waste stream. Numerous, non-toxic, cleaning agents shown to meet or exceed the solubility requirement above are commercially available. In all cases where cleaners are used in the course of work, proper ventilation shall be provided by the Contractor to ensure that resulting fumes/vapors are not dispersed beyond the work area. The manufacturer's recommendations for application and requirements of Cal-OSHA shall be strictly observed.

G. Absorbents: "Safestep" as manufactured by Andesite of California, Inc., or approved equal.

PART 3 - EXECUTION

3.1 SAFETY PROCEDURES AND WORKER PROTECTION

A. Take all precautions and measures required to protect employees, inspection personnel, Owner's on-site personnel and the general public from exposure to PCB solids, liquids and vapors.
   1. All personnel authorized for entry in work areas shall be instructed in the proper procedures for working with or around electrical hazards and PCB containing/contaminated materials.
   2. All electrical equipment upon which PCB related activities are to be performed shall be de-energized, locked out/tagged out and permanently disconnected from any power source prior to the commencement of the work.
   3. Consumption of food or tobacco products shall not be permitted in any of the project work areas where PCBs, volatile solvents and/or other hazardous materials are present. Additionally, no open flames will be permitted in these same areas. Signage to this effect shall be provided for each work area.
   4. The Contractor performing the work of this Contract shall develop, together with applicable subcontractors, a contingency plan covering accidental spills and work exposure to PCBs. The plan shall be submitted to the Owner or Owner's designated representative prior to commencing PCB-related work. The submittal shall also include a separate section to describe the hauler's spill contingency plan and avoidance procedures.

B. Work Area Protection and Marking: Prior to commencing any PCB-related work activities provide barricades and warning signs to clearly identify and effectively guard against unauthorized entry into the work areas. The Owner or Owner's designated representative will inspect and approve all containment setups before any abatement is undertaken. If a containment area is breached (failure of polyethylene seals, visible dust emission, etc.), the Contractor shall take immediate action to control the breach and clean the area to the satisfaction of the Owner or Owner's designated representative. Clearance for any contaminated areas will be determined by the Owner or Owner's designated representative and may include sampling.
   1. Place barricades to maintain a minimum of 25 feet from all perimeters of the work being conducted to the barricades, where feasible.
   2. All equipment such as tools, containers, etc., shall be confined to the work area until work is complete, containers are sealed and equipment properly decontaminated and safely stored for transport.

C. Protective Clothing and Equipment: At all times when suspect PCB fluids or mixtures in any volume are not sealed in drums, containers or electrical equipment, workers shall wear:
   1. Gloves impermeable to both PCBs and the solvent and/or clean up agent in use.
   2. Disposable, full body suit, impermeable to both PCBs and the solvent and/or clean up agent in use.
   3. Appropriate eye protection to ensure that eyes are protected from liquid splatter or exposure to concentrated vapors or fumes.
   4. Respiratory protection appropriate for the concentration of the hazardous material(s) and atmosphere present. Supplied air must meet requirements for Grade D air, at a minimum. Establish a respiratory protections 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.
      a. The Contractor shall provide protective clothing, eye protection, and breathing apparatus as required for authorized inspection personnel upon request.
      b. Pre-cleaning, containment set-up, and containment removal work: NIOSH-approved, half-face respirators with double stack Organic Vapor/HEPA cartridges.

c. All interior/exterior PCB work: NIOSH-approved, half-face respirators with double stack Organic Vapor/HEPA cartridges.

D. Personnel Protection and Procedures: The PCB work area shall at no time be left unattended from the commencement of remediation work and until all PCBs and incidentals have been sealed in approved containers. If immediate transportation to the PCB storage facility or disposal facility is not feasible the work area must be secured in a manner approved by the Owner or Owner's designated representative.
   1. During work procedures and at all times when PCB containing materials/contaminated fluids in any volume are not sealed in drums, containers or electrical equipment, all personnel entering the regulated work area must don protective clothing and equipment. Upon exiting the work area, all disposable protective clothing shall be placed in appropriate waste storage drums and sealed, for subsequent transportation to the on-site storage facility or disposal facility.
   2. Workers with cuts or scratches shall seal these wounds sufficiently to prevent accidental contact of the hazardous materials within the regulated work area prior to entering the regulated work area. Similarly, workers who accidentally incur minor cuts or scratches in the course of work activities shall immediately leave the work area, cleanse the wound with medical grade soap and seal the wound before returning to the work area.

3.2 PERSONNEL PROTECTION

A. Informed Workers:
   1. All workers shall be informed of the hazards of PCBs 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:
   2. 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.
   3. If data gathered by the Owner or Owner's designated representative in areas adjacent to the work areas shows exposure to PCBs 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.

3.3 PCB REMOVAL

A The Contractor shall remove all light ballasts not labeled as "No PCBs" from lighting fixtures throughout the buildings.

3.4 CLEARANCE INSPECTIONS

A Initial Visual Inspection: Contractor shall notify the Owner or Owner's designated representative when the decontamination process in each containment area is complete. Evidence of suspect-PCB 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 Owner or Owner's designated representative determines that the work area is sufficiently clean, the Contractor may proceed. If the Owner or Owner's designated representative 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 Owner for inspections required after the second inspection will be charged to the Contractor.

3.5 HAZARDOUS MATERIALS DISPOSAL

A. It is the responsibility of the Contractor to coordinate waste handling, labeling, transportation, and disposal with the waste transportation and disposal vendor. The Contractor must comply fully with these Specifications, local, state, and federal regulations and provide documentation of the same.

B. Contractor shall provide at minimum three (3) day advance notification to the Owner 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 Owner.

ATTACHMENT A
PCB WORK PLAN OUTLINE

In accordance with the contract documents, the Contractor is required to prepare a written, site-specific PCB Work Plan, and submit to the Owner for approval prior to start of work. This plan is required for the contractor to meet Cal-OSHA requirements as well as the contract document and shall describe work procedures and control methods that will protect the Owner's facilities and the environment.

I. Location of Work:
The work to be completed under this work plan will be completed at:
(Building name)
(Location within building)

II. Description of Work:
Describe the anticipated work scope

III. Schedule (days and hours of operations):

Phase/Task	Anticipated Date(s)
Mobilization	_____
Set-up of work area(s), containments	_____
Abatement	_____
Final Cleaning	_____
Visual Inspection	_____
Teardown	_____
Demobilization	_____

IV. Equipment and Materials
List all equipment and materials to be used, such as the following:

HEPA Vacuums	Gloves
Hand tools	Cleaning Agents
Solvents	Respiratory Protection
Absorbents	Disposable coveralls
Eye & foot protection	

V. Crew
List all workers and supervisors with emergency contact names and phone numbers.

Clearly identify the supervisor and competent person who have authority for all safety and health.

VI. Control Measures and Work Practices

Describe in a narrative format specific work procedures, exposure/ contamination controls, and engineering controls.

VII. Respiratory Protection and Protective Clothing/Personal Protective Equipment

List all respiratory protection including types and manufacturers which are anticipated for this project. Identify the phases of the project for which

respirators will be required or likely to be required. List all personal protective equipment anticipated to be used on the project.

VIII. Decontamination/Hygiene Facilities

Identify the types and locations of decontamination or hygiene facilities to be used on this project. Specify use of disposable towels, soap, hot and cold water, and other supplies. Specify the required use of the facilities, including use of the facilities prior to eating, drinking, smoking and before leaving the project site. Describe handling or treatment of solid waste and wastewater.

IX. Air Monitoring Data

Identify general worker air monitoring protocols to be followed on this project, including worker category classifications, frequency of monitoring, anticipated laboratory to be used for analysis, pump calibration techniques, etc. Identify the competent person responsible for conducting personal air monitoring.

X. Containment Diagram

Include a diagram (hand written is acceptable) of the containment(s) showing the containment perimeter in relation to the surrounding areas and decontamination areas.

XI. Waste

Describe how all waste on this project will be packaged, labeled, stored, transported, manifested and dispose. Provide name of transportation vendor and disposal vendor, location of disposal vendor if not specified by the Owner.

XII. Preparation of PCB Work Plan

Date Prepared and Prepared By (signature, name and title)

END OF SECTION

UNIVERSAL WASTE (UW) AND OTHER RESTRICTED WASTE MATERIAL REMOVAL AND DISPOSAL - SECTION 02 87 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Conditions and Division I General Requirements shall be included in and made part of this Section.

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

1.2 COMPLIANCE AND INTENT

A. This Section specifies requirements for removal of Universal Waste (UW) and other restricted waste building materials. The Contractor shall coordinate all work with the specifications and drawings. 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 section and all other sections of the Specifications. Where there is conflict, the most stringent requirement shall apply.

B. The work covered by this specification consists of the removal of UW including, but not limited to fluorescent light tubes, high intensity discharge (HID) bulbs, thermometers, fire strobes, and batteries throughout the building.

C. Capture of regulated refrigerants in mechanical equipment and proper disposal of smoke detectors and tritium exit signs with radioactive material are also required by this specification, as noted.

D. All work shall comply with Environmental Protection Agency (EPA) rules and regulations governing UW: 40 CFR 273, as published in the most recent edition of the Federal Register. Additionally, all work and work-related practices shall comply with applicable federal, state, and local rules and regulations including, but not limited to, the California Department of Industrial Relations, California Code of Regulations (CCR) Title 8, Division 1, Chapter 4; Department of Health Services, CCR Title 22, Division 4.5 and California Health and Safety Code, Division 20. Where conflicts occur, compliance shall be based upon the most stringent requirements.

E. Workers involved in the removal of UW and other restricted waste building materials shall have received specific training on the hazards, appropriate personal protection equipment, and decontamination procedures associated with UW.

F. Furnish all labor, materials, facilities, equipment, services, employee training, medical monitoring, permits, and agreements necessary to perform the work required for UW and other restricted waste building materials removal and disposal in accordance with this specification.

G. Perform all work specified herein with competent persons trained, knowledgeable, and qualified in state-of-the-art techniques relating to UW and other restricted waste building materials removal/disposal and the subsequent cleaning of any potentially contaminated areas.

H. Perform appropriate waste profile testing for all UW and other restricted waste building materials waste as required by this specification, the regulations, and the selected disposal/recycling facility. All testing shall be done in the presence of the Owner or Owner's designated representative. Chain-of-custody forms shall be provided to the Owner within one (1) day following sample delivery to the laboratory.

I. During removal activities, the Contractor shall protect against contamination of soil, water, plant life, and adjacent building areas, and shall ensure that there is no release of hazardous materials.

J. It is the Contractor's responsibility to determine the quantities of UW and other restricted waste building materials required for removal to facilitate the planned demolition/renovation.

K. UW and other restricted waste building materials removed during the abatement activities shall be handled, transported, and disposed or recycled in an approved manner complying with all applicable federal, state, and local regulations.

1.3 DEFINITIONS

A. Certificate of Disposal: The document provided to the generator certifying that the UW and other restricted waste building materials wastes were disposed or recycled in strict accordance with all applicable federal, state, and local regulations.

B. 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.

C. 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.

D. 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.

E. DOP: Dioctyl phthalate or DOP-equivalent, the challenge aerosol used to perform on-site leak testing of HEPA filtration equipment.

F. 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.

G. 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.

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

I. Manifest: The document authorized by both federal and state authorities for tracking the movement of hazardous wastes.

J. Owner: Santa Clara County Office of Education.

K. 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.

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

M. Returned Manifest: An original duplicate copy of the manifest provided to the waste generator within forty-five (45) days of the transport date which acknowledges the receipt of the material at the disposal facility.

N. Visual Inspection: A visual inspection of the work area under adequate lighting to ensure removal of all UW and that the work area is free of visible material, debris, and dust.

1.4 SCOPE OF WORK

A. The work covered by this specification consists of the removal of UW including, but not limited to fluorescent light tubes, high intensity discharge (HID) bulbs, thermometers, fire strobes, and batteries throughout the building. The work covered by this specification also consists of the removal of restricted waste and/or hazardous materials including but not limited to mechanical equipment with refrigerants and smoke detectors and tritium exit signs with radioactive materials.

B. The estimated quantities for UW and regulated or restricted waste disposal materials are listed below:

MATERIAL	GENERAL LOCATION(S)	ESTIMATED QUANTITY/
Building B		
Mercury Containing Lighting/Equipment		
Fluorescent Light Tubes - 4’	Interior of building	50
Batteries		
Smoke Detectors with Backup Batteries	Interior of building	12
Building L		
Mercury Containing Lighting/Equipment		
Fluorescent Light Tubes - 4’	Interior of building	60
Batteries and Radioactive Material		
Smoke Detectors with Backup Batteries	Interior of building	10

C. Prior to removal of lighting fixtures, fire alarm devices, and emergency egress equipment scheduled for removal, UW such as fluorescent light tubes and batteries must be removed.

D. Smoke detectors (ionization type) shall be removed and disposed through an approved vendor or manufacturer of the device.

1.5 SUBMITTALS PRIOR TO START OF WORK

A. The reviews by the Owner or Owner's designated representative are intended to be only for general conformance with the requirements. The Owner or the Owner's designated representative 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. The following items shall be submitted to and approved by the Owner or Owner's designated representative before commencing work involving the UW and regulated waste.

1. Provide a detailed work plan for UW removal, temporary storage, and disposal. Identify vendor(s) that will be engaged for off-site disposal/recycling for approval by the Owner or Owner's representative.

2. Provide a site safety plan for UW removal prior to project initiation. The site safety plan shall include, at a minimum:

   a. List of personal protective equipment, site safety and health hazards

   b. Protocol for prevention and clean-up of UW and regulated waste spills

   c. Control methods for water leakage or discharge within and/or from the work area

   d. Materials handling procedures

   e. Contractor's internal administrative and inspection procedures

   f. Medical emergencies, earthquakes and/or fire emergency procedures

   g. Protocol for responding to complaints or questions from interested parties

   h. 24-hour emergency telephone numbers for individuals with authority to respond to emergencies

3. Provide documentation that details the workers' education and specialized training in the handling of regulated UW.

4. Submit copies of state and local licenses, evidence of Cal-OSHA registration, and permits necessary to carry out the work of this contract.

5. Provide Safety Data Sheets (SDSs)/Specification Sheets for all materials and equipment to be used for this project.

1.6 SUBMITTALS AT COMPLETION OF 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 Owner or Owner's representative and shall include the following:

1. Copies of the Security and Safety Logs showing names of persons entering the work areas. The logs shall include date and time of entry and exit and supervisor's record of any accident (detailed description of accident).

2. Emergency evacuations and any other safety or health incident.

3. Waste disposal documents.

4. Project Summary including, but not limited to, the following: location and approximate quantity of UW and restricted waste materials removed, waste hauler certifications, waste disposal/recycling facilities, dates of commencement and completion of on-site work.

PART 2 - PRODUCTS

2.1 SIGNS:

A. Warning signs for work areas shall be approximately 18 inches square with yellow background and 1-inch black letters. Signs shall read “DANGER – KEEP OUT – TOXIC CHEMICAL WORK AREA”.

B. Location of Signs: Provide bilingual 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.

2.2 PLASTIC SHEETING:

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

1. Thickness - 6-mil, minimum, NO EXCEPTIONS.

2. Flame Resistance/Flame Spread Rate <25.
3. Conforms to NFPA #701 and tested in accordance with ASTM E-84.

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

2.3 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 equivalent testing to document the effectiveness of the vacuum units. The test results shall be signed by the individual performing the testing.

B. HEPA-rated vacuums shall not be used for mercury spill cleanup unless equipped with an activated charcoal filter. Vacuum exhaust must be monitored with a direct read mercury vapor meter to verify the air quality of the vacuum discharge air.

2.4 MATERIALS AND EQUIPMENT:

A. Storage Containers:

1. All UW fluids, UW-contaminated fluids, including flush and cleaning solvents and mixtures, shall be stored in sealed DOT 17E closed top drums or other waste container approved for storage of these materials.

2. All UW solid wastes and items, including disposable items used during the work such as rags, absorbents, protective clothing, etcetera, shall be stored in sealed DOT 17C open type drums or other waste containers approved for storage of these materials.

3. Any UW Article Container, other than approved DOT drums, specified in this specification, intended for storage, shall be submitted to the Owner or Owner's designated representative for approval.

B. Solvents, Cleaning Agents, and Absorbents:

1. Solvents: An appropriate solvent in which UWs are shown to be soluble in. Care should be taken to limit the complexity of the waste stream. In all cases where solvents are used during work, proper ventilation shall be provided by the Contractor to ensure that resulting fumes and/or vapors are not dispersed beyond the work area. The manufacturer's recommendations for application and requirements of Cal-OSHA shall be strictly observed.

2. Cleaning Agents: An appropriate cleaning agent in which UWs are shown to be soluble in. Care should be taken to limit the complexity of the waste stream. Numerous, non-toxic, cleaning agents shown to meet or exceed the solubility requirement above are commercially available. In all cases where cleaners are used during work, proper ventilation shall be provided by the Contractor to ensure that resulting fumes and/or vapors are not dispersed beyond the work area. The manufacturer's recommendations for application and requirements of Cal-OSHA shall be strictly observed.
3. Absorbents: "Safestep" as manufactured by Andesite of California, Inc., or approved equal.

PART 3 - EXECUTION

3.1 SAFETY PROCEDURES AND WORKER PROTECTION

A. Take all precautions and measures required to protect employees, inspection personnel, Owner's on-site personnel, and the public from exposure to regulated waste and UW solids, liquids, and vapors.

1. All personnel authorized for entry in work areas shall be instructed in the proper procedures for working with, or around, electrical hazards, regulated waste, and UW containing and/or contaminated materials.

2. All electrical equipment upon which UW related activities are to be performed shall be de-energized, locked out/tagged out, and permanently disconnected from any power source prior to the commencement of the work.

3. Consumption of food or tobacco products shall not be permitted in any of the project work areas where regulated waste, UWs, volatile solvents, and/or other hazardous materials are present. Additionally, no open flames will be permitted in these same areas. Signage to this effect shall be provided for each work area.

4. The Contractor performing the work of this Contract shall develop, together with applicable subcontractors, a contingency plan covering accidental UW and restricted waste spills or releases and worker exposure. The plan shall be submitted to the Owner or Owner's designated representative prior to commencing UW-related work. The submittal shall also include a separate section to describe the hauler's spill contingency plan and avoidance procedures.

B. Work Area Protection and Marking: Prior to commencing any UW-related work activities, provide barricades and warning signs to clearly identify and effectively guard against unauthorized entry into the work areas.

1. Place barricades to maintain a minimum of 25 feet from all perimeters of the work being conducted to the barricades, where feasible.

2. All equipment such as tools, containers, etc., shall be confined to the work area until work is complete, containers are sealed, and equipment properly decontaminated and safely stored for transport.

C. Protective Clothing and Equipment: At all times when regulated waste and UW fluids or mixtures in any volume are not sealed in drums, containers, or electrical equipment, workers shall wear:

1. Gloves impermeable to the specific regulated waste or UWs and the solvent and/or clean up agent in use.

2. Disposable, full body suit, impermeable to both UWs and the solvent and/or clean up agent in use.

3. Appropriate eye protection to ensure that eyes are protected from liquid splatter or exposure to concentrated vapors or fumes.

4. Respiratory protection appropriate for the concentration of the hazardous material(s) and atmosphere present. As applicable, supplied air must meet requirements for Grade D air, at a minimum.

   a. Cleanup of broken mercury containing products such as light tubes and thermometers (mercury vapor producing materials) require the usage of NIOSH-approved, half-face respirators with double stack Mercury Vapor/HEPA cartridges.

D. The Contractor shall provide protective clothing, eye protection, and breathing apparatus as required for authorized inspection personnel upon request.

E. Personnel Protection and Procedures: The regulated waste or UW work area shall at no time be left unattended from the commencement of the removal work until all UWs and incidentals have been sealed in approved containers. If immediate transportation to the regulated waste or UW storage facility or disposal facility is not feasible, the work area must be secured in a manner approved by the Owner or Owner's designated representative.

1. During work procedures and at all times when regulated waste or UW containing or contaminated fluids in any volume are not sealed in drums, containers or electrical equipment, all personnel entering the regulated work area must don protective clothing and equipment. Upon exiting the work area, all disposable protective clothing shall be placed in appropriate waste storage drums and sealed, for subsequent transportation to the on-site storage facility or disposal facility.

2. Workers with cuts or scratches shall seal these wounds sufficiently to prevent accidental contact with the hazardous material(s) within the regulated work area prior to entering the regulated work area. Similarly, workers who accidentally incur minor cuts or scratches during work activities. shall immediately leave the work area, cleanse the wound with medical grade soap, and seal the wound before returning to the work area.

3.2 SPILL CLEAN-UP, CONTAINERIZATION AND MARKING

A. Clean-up of Work Area, UW Articles and Spills:

1. Equipment and Tools: After the last regulated waste or UW has been removed, and all fluids and solids cleaned from fixtures, all tools and equipment used in the work shall be decontaminated and properly stored for reuse. All tools that may have come in contact with regulated or UW at any concentration shall be thoroughly double washed/rinsed with an appropriate cleaning agent, wiped clean, and properly stored.

2. UW Contaminated articles: All exterior surfaces of equipment that may have come in contact with UW or regulated waste or contaminated solids or fluids either during work activities or due to past leaks shall be double washed/rinsed, at a minimum, with an appropriate cleaning agent and wiped clean.

3. Solid Impenetrable Surfaces: All metal surfaces and surfaces with impervious liners which have come in contact with regulated waste, UW, or UW mixtures in the course of the work or as a result of past leaks shall be thoroughly cleaned using a combination of absorbents and solvents or cleaning agents.

   a. Minimum cleaning requirements for these surfaces include removal of bulk material and two rinses with the cleaning agent of the surfaces, which came in contact with UW or UW mixtures during the work or as a result of past leaks.

   b. The work area shall be effectively ventilated during operations such that vapors used in decontamination and cleaning are not vented to occupied building areas.

   c. Upon completion of UW-related activities, if fumes or vapors are still present in levels which could impede breathing or be considered toxic under state and/or NIOSH standards, the Contactor shall provide additional ventilation to accelerate drying.

   d. An auxiliary breathing apparatus may only be used by personnel trained in the use of this equipment and experienced in conducting electrical work while wearing equipment, which could impede safe work practices.

4. Soils and Porous Materials: The U.S. EPA, Region IX, regards soil, asphalt, wood, cement and concrete as porous materials that absorb UW. Where practicable, these materials must be removed when they are within the spill or contamination boundary.

5. Decontamination Verification: Completion of decontamination activities will be verified by the Owner or Owner's designated representative.

B. Containerization and Marking:

1. All liquid generated as a result of work activities and cleanup operations shall be placed in appropriate waste containers and the containers sealed.

2. All solids such as absorbents, rags, disposable protective clothing, soils, and other incidentals shall be placed in appropriate waste containers and the containers sealed.

3. All drums shall be permanently marked as to specific contents and dated. In addition, each drum (and container) shall be marked with the standard EPA, UW, ML label (40 CFR 273) and hazardous waste label (40 CFR 262).

3.3 HANDLING AND TRANSPORTATION TO STORAGE FACILITIES

A. Drums: All closed and open top drums must be permanently sealed and marked prior to loading on transport vehicle. Filled drums shall be loaded on the transport vehicle by any of the following methods.

1. Hoist or lift truck utilizing a two-point drum lifter

2. Hoist or lift truck provided with a band-around type drum lifter

3. Lift truck lifting the drums from underneath by a pallet attached to the drum by a banding arrangement.

B. Drums shall not be lifted by the following methods.

1. Any rope, chain or cloth slings tied about the drum.

2. Placement of drums on bare lift truck forks.

3. Forcing drums between forks of a lift truck.

4. Any commercial drum lifters exerting force of the sides of a drum.

C. All drums or article containers shall be secured to the transport vehicle to prevent movement in transport.

3.4 TRANSPORTATION TO DISPOSAL FACILITY

A. General: All regulated waste and UW articles removed and all drums containing liquids, solids, and incidentals shall be transported to the off-site regulated waste/UW approved and permitted recycling/disposal facility.

1. The Contractor performing the work of this section shall be licensed for the transportation and hauling of extremely hazardous wastes. The Contractor shall provide a route plan, which clearly identifies the routes proposed while transporting UW items from the work site to the off-site facilities.

2. A minimum of two operators shall be in attendance at all times when UW items are being transported, loaded, and unloaded.

B. The rules in this section apply to each motor carrier engaged in the transportation of hazardous materials by a motor vehicle, which must be marked or placarded in accordance with DOT 177.

C. Every motor vehicle transporting or storing articles and items containing regulated or UWs or hazardous materials must be operated in compliance with the laws, ordinances, and regulations of the state jurisdiction of which it is being operated in, unless they are at variance with specific regulations of the Department of Transportation which are applicable to the operation of that vehicle which impose a more stringent obligation or restraint.

D. Unless there is no practicable alternative, a motor vehicle which contains regulated or UWs or hazardous materials must be operated over routes which do not go through or near heavily populated areas, places where crowds are assembled, tunnels, narrow streets, or alleys. Operating convenience is not a basis for determining whether it is practicable to operate a motor vehicle in accordance with this paragraph.

E. No person may smoke within 25 feet of any Contractor's vehicle(s), which contains flammable materials (flushing solvents), or an empty tank motor vehicle, which has been used to transport flammable materials.

F. When a motor vehicle which contains hazardous materials is being fueled, its engine must not be operated.

G. Motor vehicles transporting regulated, UWs, or hazardous materials must have all containers properly secured in place to ensure that no equipment items or containers can be loose or unsafely placed into the transport vehicle. This may include chaining, roping, or strapping and winching. Any equipment, drums or other articles carried in an open, flatbed or stake type truck shall be covered with a tarp to protect it from the elements.

H. A motor carrier that transports hazardous waste must furnish the driver of each motor vehicle in which the waste is transported with the following documents.

   1. A document containing instructions on procedures to be followed in the event of accident or delay. The documents must include the names and telephone numbers of persons to be contacted, the substances of the hazardous wastes being transported, and the precautions to be taken in emergencies such as fires, accident, or leakages.

   2. Manifest and permit documents described in this specification and required for waste transport.

I. A motor vehicle being operated must be marked if that vehicle is transporting UWs or hazardous materials of a kind that require the vehicle to be marked or placarded in accordance with DOT 177.

3.5 UW AND RESTRICTED WASTE DISPOSAL

A. The Contractor shall treat and dispose of all UW and restricted wastes collected and generated during the execution of this Contract including articles, fluids, etcetera, set forth in Section 1.04 of this specification.

B. Except as may be otherwise specifically directed by the Owner or Owner's designated representative, the Contractor shall treat and dispose of regulated and UW materials as governed by 40 CFR 273, California State regulations, local regulations, and subsequent amendments.

1. By incineration or recycling at a facility approved for such use by the U.S. EPA, and all other controlling regulatory agencies and bodies of the state, county, and municipality of that facility's location all UW fluids, flushing fluids, and other UW contaminants. If the Contractor so elects, waste contaminated solids may also be incinerated as suitable and allowed for this type of disposal.

C. All UW and regulated wastes generated as part of these operations will be disposed of by the Contractor in a legal manner.

D. The Contractor shall not sell, transfer, or recover any material from the wastes received from the state without their prior written consent.

3.6 MANIFESTS AND RECORDS

A. The Contractor shall provide the Owner or Owner's designated representative with a compliance certificate verifying that all waste received by it has been properly treated and disposed.

B. The Contractor shall provide the Owner or Owner's designated representative copies of all manifests, permits, or other documents currently in effect relating to the specific UW and restricted wastes to be transported, treated, and disposed hereunder except as otherwise stated in this Section. The Contractor shall also promptly furnish to the Owner or Owner's designated representative copies of all new or renewal permits or other documents applicable to this agreement as soon as the Contractor receives same.

C. The Contractor shall furnish complete State of California Hazardous Waste Manifests (or the Uniform Manifest – 40 CFR Parts 260, 262, 271 – if effective at time of preparation) for all UW articles to be collected from the facility at which the removal and decontamination occurred. The Owner or Owner's designated representative shall sign the manifests. These manifests shall accompany the waste loads to disposal and be properly completed by the hauler and disposal agent as required by federal and state hazardous waste management law. The final manifest shall then be returned by registered mail to the Owner or Owner's designated representative within the designated time period specified by Federal law.

D. It shall be the responsibility of the Owner or Owner's designated representative to finalize their UW records regarding the removal and final disposition of UW.

E. The contract work will not be considered complete until the Owner or Owner's designated representative receives certifications of incineration (for fluids), disposal, and/or recycling.

3.7 PLACEMENT IN STORAGE AND RECORDS

A. Transport vehicles shall be unloaded utilizing the same equipment and methods as for loading.

B. Drums and articles shall be placed in the storage facility in locations as directed by the Owner or Owner's designated representative.

1. Articles shall be placed such that ample clearance is provided around equipment to facilitate future inspection.

2. Drums shall be placed on pallets of sufficient strength.

3. Immediately following unloading of the regulated or UW transport vehicle, the cargo area shall be inspected to check for fluid leaks. If any fluids are found, the source of the leaking drum or items shall be identified and sealed. The contamination cargo area shall be thoroughly double washed/rinsed clean with absorbents, solvents, and liquid cleaner. Cleaning agents, solvents and solids shall be placed in proper drums for disposal.

C. Records: Upon completion of all regulated and UW work related activities the Contractor shall provide a complete record of such activities and storage data to the Owner or Owner's designated representative. The record shall include the following data:

1. Name of the firm performing the work of this Section and technician in charge.

2. Drum (30 or 55 gallon) or container sizes

3. Identification of contents (liquids, cleaning solvents for solids, rags, absorbents, soil, etc.)

4. Weight in kilograms or gallons of contents of each drum or container.

5. Date placed in storage.

END OF SECTION