# SECTION 02 08 00.2

# HAZARDOUS MATERIALS ABATEMENT SPECIFICATIONS
**FORMER SAN DIEGO TRANSAMERICA BUILDING (804)**
**1301 STATE STREET,**
**SAN DIEGO, CALIFORNIA 92101**

**OCTOBER 25, 2024**

**Existing building is considered dilapidated and unsafe and State Representatives will be unable to enter and perform observation or clearance duties. The entire building at 1301 State Street and it's contents are to be considered hazardous waste. Removal and disposal of hazardous materials shall comply with this Specification Section.**

**Containment and demolition means and methods shall comply with State and local regulations, including but not limited to, the City of San Diego Air Pollution Control District.**

# SECTION 02 08 00.2 ASBESTOS

# ASBESTOS ABATEMENT

## PART 1 – GENERAL

### 1.1.0 STIPULATIONS

A. The procedures specified herein are guidelines for minimum performance. The Contractor is responsible for their own methods of operations and conformance to regulatory codes, rules, and guidelines. The Contractor is required to obtain all permits-licenses and approvals to perform the work, including any rights to use patented systems.

### 1.1.1 SCOPE OF WORK

A. Work included: The licensed Contractor shall furnish all labor, employee training, materials, services, permits and agreements, insurance (specifically covering the handling and transportation of Asbestos-Containing Material, Asbestos-Containing Construction Material and Asbestos-Containing Waste Material), and equipment which is specified, shown, or reasonably implied for abatement or disturbance of the materials included for abatement and all other work in accordance with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the State of California Division of Occupational Safety and Health (DOSH), San Diego County Air Pollution Control District (APCD) and any other applicable federal, state and local government regulations.

B. The scope of work for this project includes the removal and disposal of the identified asbestos-containing materials (ACMs) and asbestos-containing construction materials (ACCMs) as listed in Table 1-1, 1-2 and 1-3. These materials were identified in the Titan Environmental Solutions Hazardous Materials report, dated November 7th 2023 and in the State of California, DGS, Environmental Safety Health and Operations Program (ESHOP) Hazardous Materials Investigation Memorandum report, dated October 11th, 2007.

C. Contractor shall submit an Abatement Work Plan which describes specifically how the abatement work is to be completed. At a minimum the Abatement Work Plan shall address work area preparation, work practices, decontamination unit location, respiratory protection and disposal; approval of the Work Plan must be obtained through the Owner prior to the start of work. Procedures outlined in the Abatement Work Plan must be followed throughout the abatement phase. Any changes in the Abatement Work Plan must obtain prior approval from the Owner.

**Table 1-1: Identified ACMs**
**Titan Environmental Solutions**
**November 7, 2023**

| HA No. | Sample No. | Sample Locations | Material Description | Class. | Material Location(s)* | Friable/ Non-Friable | Condition (G, D, SD) | Estimated Quantity* | Asbestos Analytical Results | Cat. |
|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 1107-01-01<br>1107-01-02<br>1107-01-03<br>1107-01-04<br>1107-01-05<br>1107-01-06<br>1107-01-07 | N Wall W End,<br>N Wall W End,<br>N Wall W End,<br>N Wall,<br>N Wall E End,<br>N Wall E End,<br>N Wall E End | Tan Exterior Stucco | Surf | Within Exterior 301 | F | G | 6,000 SF | <1% Chrysotile | RACM |
| 02 | 1107-02-08<br>1107-02-09<br>1107-02-10<br>1107-02-11<br>1107-02-12<br>1107-02-13<br>1107-02-14 | W Wall N End,<br>W Wall N End,<br>W Wall S End,<br>S Wall W End,<br>S Wall W End,<br>S Wall W End,<br>S Wall | Multi-Color Exterior Stucco | Surf | Within Exterior 1301 | F | G | 12,000 SF | <1% Chrysotile | RACM |
| 03 | 1107-03-15<br>1107-03-16<br>1107-03-17<br>1107-03-18<br>1107-03-19<br>1107-03-20<br>1107-03-21 | E Wall N End,<br>E Wall N End,<br>E Wall N End,<br>E Wall S End,<br>E Wall S End,<br>E Wall S End,<br>E Wall S End, | Tan Gray Cinder Block | Misc. | Within Exterior 1301 | NF | G | 5,000 SF | <1% Chrysotile | Cat. I ACM |
| 04 | 1107-04-22<br>1107-04-23<br>1107-04-24<br>1107-04-25<br>1107-04-26<br>1107-04-27<br>1107-04-28 | E Wall N End,<br>E Wall N End,<br>E Wall N End,<br>E Wall<br>E Wall S End,<br>E Wall S End,<br>E Wall S End | Tan /Gray Cinder Block Mortar | Misc. | Within Exterior 1301 | NF | G | 5,000 SF | <1% Chrysotile | Cat. I ACM |

Legend:

HA = Homogenous Material
N = North, E = East, W = West, S = South, SF = Square Feet, LF = Linear Feet, ND = None Detected
Classification (Class.): Misc. = Miscellaneous, Surf. = Surfacing, TSI = Thermal System Insulation
Condition: G = Good, D = Damaged, SD = Significantly Damaged
Categories (Cat.):

- Cal/OSHA: ACCM = Asbestos Containing Construction Materials, ACM = Asbestos Containing Materials - Class I, Class II, Class III, Class IV
- Presumed Asbestos Containing Material (PACM) = means thermal system insulation and surfacing material found in buildings constructed no later than 1980
- NESHAP: Cat I = Category I Non-friable ACM, Cat II = Category II Non-friable ACM, RACM = Regulated Asbestos Containing Materials

*The locations and quantities provided are estimates based solely on accessible materials within the survey area. There may be additional locations and quantities of asbestos-containing materials present at the Subject Property.

**In accordance with 40 CFR Section 61.141 and US EPA Applicability Determination Index Control Number: C112, if the amount by visual estimation appears to be less than 10 percent, the owner or operator may (1) assume the amount to be greater than 1 percent and treat the materials asbestos-containing material, or (2) require verification of the amount by point counting. If a result obtained by point count is different from a result obtained by visual estimation, the point count result will be used. Please note the Certified Asbestos Consultant will assume any material that is <1% analyzed via PLM and not verified by point count as an Asbestos Containing Material (ACM).

The third-party laboratory will discard all submitted samples after thirty (30) calendar days following receipt of the samples. Any additional analysis must be requested within thirty (30) days by the Client.

**Table 1-2: Identified ACMs**
**Titan Environmental Solutions**
**November 7, 2023**

| HA No. | Sample No. | Sample Locations | Material Description | Class. | Material Location(s)* | Friable/ Non-Friable | Condition (G, D, SD) | Estimated Quantity* | Asbestos Analytical Results | San Diego County APCD Categories |
|---|---|---|---|---|---|---|---|---|---|---|
| N/A | N/A | Exterior Roofing Materials | Throughout Roof | Misc. | Throughout Roof | NF | N/A | Unknown | Assumed ACM | Cat. I ACM |
| N/A | N/A | Interior Walls, Floors and Ceilings | Throughout Interior of Building | Misc. | Throughout Interior of Building | NF | N/A | Unknown | Assumed ACM | Cat. I ACM |

**Legend**:

HA = Homogenous Area
N = North, E = East, W = West, S = South, SF = Square Feet, LF = Linear Feet, ND = None Detected
Classification (Class.): Misc. = Miscellaneous, Surf. = Surfacing, TSI = Thermal System Insulation
Condition: G = Good, D = Damaged, SD = Significantly Damaged
Categories (Cat.):

· Cal/OSHA: ACCM = Asbestos Containing Construction Materials, ACM = Asbestos Containing Materials,
· NESHAP: Cat I = Category I Non-friable ACM, Cat II = Category II Non-friable ACM, RACM = Regulated Asbestos Containing Material
*Locations and quantities are estimates based on accessible materials located in the survey area only. Additional locations and quantities may be present at the Subject Property.

**In accordance to 40 CFR 61.141 and US EPA Applicability Determination Index Control Number: C112, if the amount by visual estimation appears to be less than 10 percent, the owner or operator may (1) assume the amount to be greater than 1 percent and treat the materials asbestos-containing material, or (2) require verification of the amount by point counting. If a result obtained by point count is different from a result obtained by visual estimation, the point count result will be used.

Please note the Certified Asbestos Consultant will assume any material that is <1% analyzed via PLM and not verified by point count as an Asbestos Containing Material (ACM).

| Table 1-3: Identified ACMs<br>Environmental Safety Health and Operations Program (ESHOP) Memorandum Report<br>Conducted October 11, 2007 | | |
|---|---|---|
| **Material #** | **Material Type** | **Result** |
| 004 | Layer 1 - Tan 9”x9” Floor Tile w/Mastic Backing | 1-7% |
| | Layer 2 - Dark Beige 9”x9” Floor Tile w/Mastic Backing | 1-2% Asbestos Detected in Tile |
| 005 | Light Beige 9”x9” Floor Tile w/Mastic Backing | 1-2% Asbestos Detected in Tile |
| 006 | Light Beige 9”x9” Floor Tile w/Mastic Backing | 1-5% Asbestos Detected in Tile & Mastic |
| 007 | Dark Tan 9”x9” Floor Tile w/Mastic Backing | 1-5% Asbestos Detected in Tile |
| 008 | Cream/Beige 9”x9” Floor Tile w/Mastic Backing | 1-5% Asbestos Detected in Tile & Mastic |
| 010 | Black Base Cove w/Adhesive Backing | <1% Asbestos Detected in Adhesive Backing* |
| 012 | Brown Base Cove w/Adhesive Backing | <1% Asbestos Detected in Adhesive Backing* |
| 014 | 12”x12” Wall Tile w/Adhesive Backing | <1% Asbestos Detected in Adhesive Backing* |
| 015 | Plaster w/Texture, Interior | 1-2% Asbestos Detected in Texture |
| 016 | Sheetrock/Joint Compound/Texture | <1% Asbestos Detected in Texture |
| 018 | Dark Beige 9”x9” Floor Tile w/Mastic Backing | 1-5% Asbestos Detected in Tile & Mastic |
| | Asphalt Roofing Materials | Assumed Asbestos-Containing |

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

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

1. Code of Federal Regulations (CFR) Publications:

| | |
|---|---|
| 29 CFR 1910.1001 | Asbestos |
| 29 CFR 1926.1101 | Asbestos |
| 29 CFR 1910.1200 | Hazard Communication |
| 29 CFR 1910.1020 | Access to Employee Exposure and Medical Records |

| | |
|---|---|
| 29 CFR 1910.132 | General Requirements - Personal Protective Equipment |
| 29 CFR 1910.133 | Eye and Face Protection |
| 29 CFR 1910.134 | Respiratory Protection |
| 29 CFR 1910.145 | Specifications for Accident Prevention, Signs and Tags |
| 29 CFR 1910.146 | Confined Space |
| 29 CFR 1910.147 | Lockout/Tagout |
| 40 CFR 61, Subpart A | General Conditions |
| 40 CFR 61, Subpart M | National Emission Standards for Asbestos |
| 40 CFR 61.152 | Standard for Waste Disposal for Manufacturing, Demolition, Renovation, Spraying and Fabrication Operations |

2. American National Standard Institute/American Industrial Hygiene Association (ANSI/AIHA) Publications:

| | |
|---|---|
| Z9.2-2006 | Fundamentals Governing the Design and Operation of Local Exhaust Systems |

3. American National Standard Institute/American Society of Safety Engineers (ANSI/ASSE) Publications:

| | |
|---|---|
| Z88.2-2015 | Practices for Respiratory Protection |

4. National Fire Protection Association (NFPA):

| | |
|---|---|
| Standard 90A | Installation of Air Conditioning and Ventilation Systems, 2015 Edition |

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

Publication No.

| | |
|---|---|
| 560/5-85-024 | Guidance for Controlling Asbestos-Containing Materials in Buildings, June, 1985 |

6. American Society for Testing and Materials (ASTM) Publications:

| | |
|---|---|
| E 849-82 | Safety and Health Requirements Relating to Occupational Exposures to Asbestos |
| P 189 | Specifications for Encapsulants for Friable Asbestos-Containing Materials |

7. National Institute of Occupational Safety and Health (NIOSH) Publications:

Manual of Analytical Methods, 2nd Edition, Volume 1

| | |
|---|---|
| Method 7400 | Asbestos and Other Fibers by PCM |

8. Underwriters Laboratories, Inc. (UL) Publications:

| | |
|---|---|
| 586-77 (R1982) | Test Performance of High Efficiency Particulate Air Filter Units |

9. California Code of Regulations (CCR) Publications:

| | |
|---|---|
| 8 CCR 1529 | Construction Safety Orders-Asbestos |
| 8 CCR 5208 | General Industry Safety Orders-Asbestos |
| 8 CCR 5144 | Respiratory Protective Equipment |

10. San Diego County Air Pollution Control District (APCD):

Rule 1206 -Asbestos – Demolition and Renovation

11. Other Local or Regional Regulations that apply to Asbestos-Related Work.

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

## 1.1.2 DEFINITIONS

A. Owner: State of California

B. Abatement: Procedures to control fiber release from Asbestos-Containing Materials (ACM) & Asbestos Containing Construction Materials (ACCM). Includes removal, encapsulation, and enclosure.

C. Adequately Wet: means sufficiently mixed with a liquid or penetrated by a liquid to prevent the release of particulate matter. If visible emissions are observed coming from RACM, ACM, ACCM, ACWM, then the RACM, ACM, ACCM, or ACWM has not been adequately wet.

D. Aggressive Clearance: Final clearance air monitoring of a regulated asbestos work areas which utilizes leaf blowers, fans, and similar tools to “aggressively” disturb and entrain any settled residual asbestos fibers for the purpose of capturing them during sampling.

E. Aggressive Method: means removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

F. Air Lock: A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area (See Decontamination Enclosure System Plan in the Drawing section of this Project Manual).

G. Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time.

H. Air Sampling Professional: The professional contracted or employed to supervise air monitoring and analysis schemes. This individual is also responsible for recognition of technical deficiencies in Worker protection equipment and procedures during both planning and on-site phases of an Abatement Project. Acceptable Air Sampling Professionals include Industrial Hygienists, Environmental Engineers and Environmental Scientists with equivalent experience in Asbestos air monitoring and Worker protection.

I. Amended Water: Water to which a surfactant has been added.

J. Area Monitoring: Sampling of airborne fiber concentrations within the Asbestos Work Area and outside the Asbestos Work Area which are representative of the airborne concentrations of Asbestos fibers which may reach the breathing zone.

K. Asbestos: Means the asbestiform of six naturally occurring hydrated silicate minerals, these include chrysotile, the asbestiform member of the serpentine group, riebeckite, (2) amosite, the asbestiform variety of cummingtonite-grunerite, (3) anthophyllite asbestos, (4) actinolite asbestos, (5) tremolite asbestos, and (6) any of these minerals that have been chemically treated or altered.

L. Asbestos (CCR definitions): Means fibrous forms of various hydrated minerals including Chrysotile, (fibrous serpentine), Crocidolite (fibrous Riebeckite), Amosite, Fibrous Tremolite, fibrous Actinolite, and fibrous Anthophyllite.

M. Asbestos-Containing Material (ACM): Material composed of asbestos of any type in an amount greater than one percent (1%) by weight, either alone or mixed with other fibrous or non-fibrous materials.

N. Asbestos-Containing Construction Material (ACCM): According to Title 8, Section 1529, asbestos-containing construction material means any manufactured construction material which contains more than 0.1% asbestos by weight.

O. Asbestos-Containing Waste Material (ACWM): Means any waste that contains or is contaminated with friable asbestos waste, RACM generated by a facility. ACWM includes, but is not limited to, RACM stripped or removed from a structure, facility, or component, any materials, soils, and/or debris contaminated with RACM including equipment and clothing, RACM waste and filters from control devices (Pollution Control Devices), particulate asbestos material, RACM slurries bags, packages and containers that previously contained RACM.

P. ACWM Disposal Site: Means any location where ACWM has been abandoned, buried, covered, deposited, or stored. This term includes locations with ACWM where the original source and date of generation cannot be determined.

Q. Asbestos-Related Work: means any activity which by disturbing ACCM may release asbestos fibers into the air.

R. Assumed ACM: Means materials assumed to contain more than one percent (>1%) asbestos.

S. Asbestos Fibers: Asbestos fibers having an aspect ratio of at least 3:1 and 5 micrometers in length when air samples analyzed using Phase Contrast Microscopy (PCM).

T. Authorized Visitor: The Owner's Project Team members, the Owner's Representative, and any representative of a regulatory or other agency having jurisdiction over the Project.

U. Category I Non-Friable ACM: Means asbestos-containing packings, gaskets, resilient floor covering, mastics, and asphalt roofing products containing more than 1 percent (>1%) asbestos.

V. Category II Non-Friable ACM: Means any material containing more than 1 percent (>1%) asbestos, excluding Category I Non-Friable ACM, that when dry, and in its present form, cannot be crumbled, pulverized, or reduced to powder by hand pressure. For the purposes of this Specification, these products include transite board, pipe and asbestos cement products, plaster, stucco, and paint – unless removed by aggressive or mechanical methods.

W. Clean Room: An uncontaminated area or room which is a part of the Worker Decontamination Enclosure with provisions for storage of Workers' street clothes and protective equipment.

X. Clear Leak-Tight Wrapping: Means a clear translucent bag that allows for visual confirmation that the RACM, ACM, ACCM, ACWM inside a bag is kept adequately wet.

Y. Competent Person: In addition to the definition in CFR § 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measure to eliminate them, as specified in CFR § 1926.32 (f): in addition, for Class I and Class II work, one who is specifically trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR § 763) for supervisor, or its equivalent and, for Class III and Class IV work, one who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR § 763.92 (a) (2).

Z. Contained Work Area: A Work Area which has been Isolated, Plasticized, and equipped with a Decontamination Enclosure System.

AA. Critical Barrier: One or more layers of plastic sealed over an opening into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

BB. Curtained Doorway: A device to allow ingress or egress from one area to another while permitting minimal air movement between the areas, typically constructed by placing three overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, and securing the vertical edge of the outer two sheets along the opposite vertical side of the doorway (see detail on Decontamination Enclosure System Plan in the Drawing section of this Project Manual.)

CC. Decontamination Enclosure System: A series of connected rooms, with Air Locks or Curtained Doorways between any two adjacent rooms, for the decontamination of Workers and of materials and equipment. A Decontamination Enclosure System always contains at least one Air Lock to the Work Area.

DD. Differential Air Pressure Equipment: A portable local exhaust fan or "unit" equipped with HEPA filtration and capable of maintaining a constant, negative air pressure differential within the regulated work area by providing a low velocity air flow into contaminate areas from adjacent uncontaminated areas and exhausting filtered air outside the work area.

EE. Disturbance: Means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

FF. Encapsulant (sealant): A liquid material which can be applied to Asbestos-Containing Material, and which controls the possible release of Asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).

GG. Encapsulation: All herein-specified procedures necessary to apply an encapsulant to Asbestos-Containing building materials to control the possible release of Asbestos fibers into the ambient air.

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

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

JJ. Equipment Decontamination Enclosure: That portion of a Decontamination Enclosure System designed for controlled transfer of materials, waste containers and equipment, typically consisting of a Washroom and a Holding Area.

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

LL. Friable Asbestos Material (40 CFR 61, Subpart M Definition): Material that contains more than one percent (1%) Asbestos by weight and that can be broken, crumbled, pulverized, or reduced to powder by hand pressure when dry.

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

NN. Glovebag Method: A method with limited applications for removing small amounts of friable Asbestos-Containing material from heating ventilation and air-conditioning ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces in an (HVAL) Isolated (non-contained) Work Area. The glovebag (typically constructed of six [6] mil transparent plastic) has two inward-projecting long sleeve rubber gloves, one inward-projecting water wand sleeve, an internal tool pouch, and an attached, labeled receptacle for Asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all Asbestos fibers released during the removal process. All Workers who are permitted to use the Glovebag Method must be highly trained, experienced, and skilled in this method.

OO. Grinding: Means to reduce to powder or small fragments and includes mechanical chipping or drilling.

PP. HEPA Filter: A high-efficiency particulate air (HEPA) filter capable of trapping and retaining 99.97 percent of all monodispersed particles (Asbestos fibers) equal to or greater than 0.3 microns in mass median aerodynamic equivalent diameter.

QQ. HEPA Vacuum Equipment: Vacuuming equipment with a HEPA filter system.

RR. Holding Area: A room in the Equipment Decontamination Enclosure located between the Washroom and an uncontaminated area. The Holding Area consists of a chamber with an Air Lock connecting it to the Washroom and an Air Lock connecting it to the uncontaminated area.

SS. Isolation: The sealing of all openings into a Work Area.

TT. Isolated (non-contained) Work Area: A Work Area which is Isolated, but has not been Plasticized and may or may not be equipped with a Decontamination Enclosure System.

UU. Leak-tight: Means that solids, dust, or liquids cannot escape or leak out.

VV. Movable Object: A unit of equipment, furniture or other building component which is detached or can be detached from the building without destructive methods or results.

WW. Miscellaneous ACM: Means building material containing more than one percent (>1%) asbestos that is not surfacing or TSI.

XX. Negative Air Pressure Equipment: A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contaminated areas from adjacent uncontaminated areas.

YY. Negative Initial Exposure Assessment: A demonstration by the employer, which complies with the criteria in paragraph (f)(2)(C) of 8 CCR §1529, that employee exposure during an operation is expected to be consistently below the PEL and Excursion Limit.NIOSH: National Institute of Occupational Safety and Health.

ZZ. NIOSH: National Institute of Occupational Safety and Health.

AAA. Non-friable Asbestos-Containing Material: Material that contains more than one (1) percent Asbestos by weight in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the Asbestos is well bound and will not release fibers during any appropriate end-use, handling, demolition, storage, transportation, processing, or disposal.

BBB. Operations and Maintenance (O&M) Activities: Means repair and maintenance operations which disturb an amount of ACM that does not exceed one 60” by 60” waste bag.

CCC. Owner's Representative: The agent of the Owner or the Owner's Representative who shall observe the Work, perform tests, verify that abatement methods and procedures specified by the Contract Documents are being complied with, and reports all observations and test results to the Owner or the Owner's Representative.

DDD. Permissible Exposure Limit (PEL): An airborne concentration of asbestos, (Chrysotile, Crocidolite, Amosite, Tremolite, Anthophyllite, Actinolite, or a combination of the six (6) types of asbestos) in excess of 0.1 fibers per cubic centimeter (f/cc) of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Appendix A of 29 CFR 1926.1101(c).

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

FFF. Phase Contrast Microscopy (PCM): NIOSH Method 7400 using “A” counting rules.

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

HHH. Presumed Asbestos Containing Material (PACM): Means thermal system insulation and surfacing material found in buildings constructed no later than 1980.

III. Project IH Consultant: Owner’s Industrial Hygiene Consultant (Owner’s Representative) who will provide independent, third-party industrial hygiene consulting services on behalf of the Owner. Such services may or may not include conducting on-site work observations, materials or environmental testing, and/or consulting with the Owner.

JJJ. Regulated Area: Means an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within

which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit. Requirements for regulated areas are set out in Title 8 CCR 1529.

KKK. Regulated Asbestos Containing Material (RACM): The EPA in the National Emission Standard for Hazardous Air Pollutants (NESHAP) defines RACM as (a) Friable asbestos containing material, (b) Category I non-friable asbestos containing material that has become friable, (c) Category I non-friable asbestos containing material that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable asbestos containing material that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by Subpart M.

LLL. Removal: All herein-specified procedures necessary to remove Asbestos-Containing materials from the designated areas and to dispose of these materials at an acceptable site.

MMM. SDS: Safety Data Sheet

NNN. Shower Room: A room between the Clean Room and the Equipment Room in the Worker Decontamination Enclosure with hot and cold or warm running water, and suitably arranged for complete showering during decontamination. The Shower Room comprises an Air Lock between contaminated and clean areas.

OOO. Surfacing ACM: Means building material containing more than one percent (>1%) asbestos that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

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

QQQ. TCLP means the Toxicity Characteristic Leaching Procedure as specified in EPA 530/SW-846, Test Methods for Evaluating Solid Waste.

RRR. Thermal System Insulation (TSI) ACM: Means building material containing greater than one percent (>1%) asbestos that is applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

SSS. Visible Emissions: Means any emission, or evidence of emissions, including, but not limited to: dust, debris, particles, or fibers coming from any RACM, ACM, ACCM, or ACWM that are visually detectable without the aid of instruments. Visible emissions include, but are not limited to, any RACM, ACM, ACCM, or ACWM found outside of contained work areas or outside of leak-tight containers.

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

UUU. Wet Cleaning: The process of eliminating Asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and afterwards disposing of these cleaning tools as Asbestos-contaminated waste.

VVV. Work – Means the obligation of the Contractor under the Contract Documents. Work includes, unless specifically excepted by the Contract Documents, the furnishing of

all materials, labor, equipment, supplies, plant, tools, scaffolding, transportation, superintendence, permits, inspections, occupancy approvals, insurance, taxes, and all other services, facilities, and expenses necessary for the full performance and completion of the requirements of the Contract Documents. Work also means that which is furnished, produced, constructed, or built pursuant to the Contract Documents.

WWW. Work Area (Also known as "Regulated Area"): Designated rooms, spaces, or areas of the Project in which Asbestos Abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A Contained Work Area is a Work Area which has been Isolated, Plasticized, and equipped with a Decontamination Enclosure System. An Isolated (non-contained) Work Area is a Work Area which is Isolated but has not been Plasticized and may or may not be equipped with a Decontamination Enclosure System.

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

## 1.1.3 QUALITY REQUIREMENTS

A. Safety Compliance: In addition to detailed requirements of this Specification, comply with laws, ordinances, rules, and regulations of federal, state, regional, and local authorities and publications regarding handling, storing, transporting, and disposing of Asbestos Waste materials. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the Work. Where the requirements of this Specification and referenced documents vary, the most stringent requirement shall apply.

B. Reference Standards:

- Regulations: Applicable regulations pertaining to this asbestos abatement work include, but are not necessarily limited to, the following:

- San Diego County Air Pollution Control Board (SDCAPCD) – Asbestos Removal, Renovation, And Demolition Rule 1206, dated 11/15, 2017 or more recent.

- California Division of Occupational Safety and Health (Cal-OSHA) Construction Safety Orders - Asbestos, Title 8, California Code of Regulations section 1529, et. seq. (8 CCR §1529).

- California Health and Safety Code Section 25163, et. seq. (Transportation of Hazardous Waste).

- Title 22, California Code of Regulations, Section 66261.24 et. seq. (Characteristics of Hazardous Waste Toxicity).

- Title 22, California Code of Regulations, Section 66268.7(a)(l 1).

- Title 22, California Code of Regulations, Section 66268.114 et. seq. (Treatment Standard for Asbestos-Containing Waste).

- California Labor Code sections 6501.5 (Employer Registration); and
- 6501.9 (Determining the Presence of Asbestos Prior to Contracting for Work).

- California Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop. 65).

- Title 29, Code of Federal Regulations, Parts 1910 and 1926.1101.

- Title 40, Code of Federal Regulations, Part 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP). U.S. Environmental Protection Agency (U.S. EPA).

- Title 49, Code of Federal Regulations, Part 172, U.S. Department of Transportation.
- All other applicable Federal, State, and/or Local regulations, codes, and ordinances.

Standards: Applicable industry standards pertaining to asbestos abatement work include, but are not limited to, the following:

- American National Standard Institute (ANSI) Publications:

  - Z9.2 Fundamentals Governing The Design and Operation of Local Exhaust Systems; and
  - Z88.2 Practices for Respiratory Protection.

- National Institute of Occupational Safety and Health (NIOSH) Publications:

  - Manual of Analytical Methods:
    - Method 7400
    - Method 7402

- Applicability. The most current version of each document will apply. Where conflicts among these regulations or standards exist, the more stringent requirement or interpretation will apply.

    - Asbestos and Other Fibers by PCM; and
    - Asbestos Fibers by TEM
    - Underwriters Laboratories, Inc. (UL) Publication
    - UL 586 High Efficiency, Particulate, Air Filter Units

C. Before the commencement of any work at the site, the Contractor shall post bilingual (as appropriate) EPA, OSHA and DOSH caution signs at entrances/exits to the Work Area to comply with EPA, OSHA and DOSH regulations.

D. Area Monitoring shall be performed by the Owner's Representative, which will conduct air sampling of the Abatement Project (1) outside the building, (2) immediately outside the Work Area, (3) in the Work Area, and (4) for Work Area Clearance Testing after decontamination operations.

E. Personal Monitoring and other monitoring, which are required by law, or considered necessary by the Contractor for Worker protection, shall be the responsibility of the Contractor.

## 1.1.4 SUBMITTALS AND NOTIFICATIONS

A. Personnel Training: Prior to the start of work, the Contractor shall submit (1) declaration certifying that all Contractor employees have been adequately trained, and (2) photocopy of training certificates for each employee from their respective training agency or organization. When certified or other formal worker training is required by state or local agencies, Contractor may submit a photocopy of the employee's Asbestos Worker Certification card in lieu of training certificates.

B. Respirators: Submit prior to the start of work, manufacturer's certification that the respirators to be used in this Project comply with government agency requirements. Contractor's certifications for each employee must clearly state that each employee has been fit tested and properly trained for respirators.

C. Medical Examinations:

- Submit proof that all individuals providing labor and/or professional services who will enter contaminated areas have had a current medical examination (within one year of the project start date).
- Provide the physician's interpretation of the medical examination to the Owner before the start of work or before the individual commences work on the project.
- For individuals providing labor and/or professional services after the start of the project, for whom a certificate was not initially provided, submit the physician's interpretation prior to their participation.
- Alternative Option: Current medicals will be acceptable if they include a statement indicating the worker is fit to wear a negative pressure respirator while performing their duties.
- The contractor shall resubmit the physician's interpretation for any worker or professional whose annual or employment termination medical examination becomes due while participating in the project.
- This requirement can be waived or modified only by the Owner, either in writing or verbally, followed up in writing.

D. Product Submittals and Substitutions: Comply with pertinent provisions of Section 01340.

E. Abatement Product Data: Not less than ten (10) business days prior to the date of intended use of the product on the work site, submit, before the start of work, the manufacturer's catalogue, the manufacturer’s technical data for all types of encapsulants, samples, all Safety Data Sheets, (SDS) and other items needed to demonstrate fully the quality of the proposed abatement materials. Under no circumstances shall proposed materials be used before written approval from the Owner, Owner's Representative. Submittals are required if the following materials are proposed (not necessarily a complete list.) Do not submit data on products not proposed for this project:

1. Encapsulant,
2. Surfactant,
3. Protective packaging,
4. Lagging adhesive,
5. Glove bags,
6. Resaturant, and
7. Solvents.

F. Permits: Submit prior to the start of work proof satisfactory to the Owner, Owner's Representative that all required permits have been obtained. If no permits are required, submit a notarized letter stating such.

G. Waste Transportation: Submit prior to the start of work the method of transport of Hazardous Waste, including the name, address, EPA ID number, and telephone number of the Transporter(s).

H. Hazardous Waste Disposal Facility: Submit for approval prior to the start of work the name, address, EPA ID number, and telephone number of the Hazardous Waste Disposal Facility(s) to be used.

I. Contractor's Abatement Work Plan: Submit prior to the start of work a detailed work plan indicating the practices and procedures proposed for use in complying with the requirements of this specification. Include in the plan schematic drawings with depictions of the locations and general configurations of all regulated work areas. Mark-ups of current project plans will suffice to satisfy this requirement. For each regulated work area, indicate the planned locations of personal decontamination units, equipment decontamination and waste load-out chambers, exhaust air filtration units, air exhaust locations, temporary utilities locations, work area view ports and any other elements or conditions of significance to the controlled completion of the Work (e.g., location of sanitary or storm drains that will require protection). The text of the Work Plan should address the sequencing of the asbestos work; the interface of any skilled trades involved in the performance of the Work; the methods to be used to assure the safety of site workers and visitors to the site; a disposal plan including the on-site location(s) of secured waste storage areas; and a detailed description of the methods to be employed to prevent environmental impairment of the work site and its surrounding area. Expand upon the use of methods of removal to prohibit visible emissions from within the work areas, and for the packaging and transport of removed asbestos waste or debris.

Such a plan shall include:

1. Location of Asbestos Work Areas.
2. Layout and construction details of Decontamination Enclosure Systems.
3. Project schedule including important milestones, critical paths and interface of trades involved in the Work.
4. Personal air monitoring procedures.
5. Detailed description of the method to be employed in order to control pollution, including negative air equipment calculations.
6. Names of Superintendent, Foremen, Project Manager and other key personnel, and their day time and emergency telephone numbers.
7. Security Plan including sketches necessary to clearly describe the plan.
8. Emergency evacuation plan for injured workers, compressor failure, fire and other emergencies.

9. Firewatch Plan including any sketches necessary to clearly describe the plan.

10. Contingency Plan: Submit a contingency plan for emergencies including, but not necessarily limited to: fire, accidents, medical emergencies, power failures, differential air pressure ("negative air") system failures, or any other event that may require modification of decontamination methods or work area isolation procedures. Include in the plan specific procedures for work area isolation and/or decontamination. **Note**: Nothing in this specification should be interpreted as instructions to impede the rapid and safe exiting from the work area(s), nor to impede the provision of adequate medical attention in the event of an emergency.

11. The Abatement Work Plan must be approved in writing by the Owner's Representative and Owner before the start of any work.

J. Equipment Certification: Submit prior to the start of work, manufacturers' certification that vacuums, negative air pressure equipment filters, and other local exhaust ventilation equipment conform to ANSI Z9.2-2006.

K. Rental Equipment: When rental equipment is to be used in removal areas or to transport waste materials, a copy of the written notification provided to the rental company informing them of the nature of use of the rented equipment shall be signed by the rental company and submitted to the Owner's Representative prior to the start of work. Rental equipment must be decontaminated prior to returning it to the rental agency.

L. Notifications: As required, notification in writing of proposed asbestos work, with copy to the Owner, the EPA Regional Office, Cal/OSHA, local air pollution agency, and local authority with responsibility for enforcement of occupational health and safety regulations and enforcement of NESHAP regulation and with jurisdiction within the State of California.

Contact the following government agencies in writing by certified/registered mail or overnight mail service, postmarked or delivered at least ten (10) days prior to Project commencement:

1. California Division of Occupational Safety and Health (DOSH/Cal-OSHA):
   7575 Metropolitan Drive, Suite 207
   San Diego, California 92108

2. San Diego County Air Pollution Control District (SDCAPCD) Headquarters:
   10124 Old Grove Road
   San Diego, California 92131

All notifications shall contain as a minimum the following information:

1. Name, address and telephone number of the Owner including the contact person.

2. Name, address, EPA numbers, license number and telephone number of the Contractor including the contact person.

3. Name, address and description of the building, including size, age, and prior use of building.

4. The type and quantity of friable Asbestos material involved and the description of the Work.

5. Scheduled starting and completion dates for Abatement Work.

6. Procedures that shall be employed to comply with the regulations.

7. The name, address, EPA number and telephone number of the Transporter.

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

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

M. Provide proof of Contractor's License and Asbestos Certification from the Contractor Licensing Board, and proof of registration with the Division of Occupational Safety and Health in accordance with California Labor Code, Section 6501. Submit proof with Bid copies of State license for asbestos abatement; copy of insurance policy, including exclusion from agent stating in plain language the coverage provided and the fact that asbestos abatement activities are covered by the policy; information on who provides your training, how often; who provides medical surveillance, how often; who performs and how is personal air monitoring of abatement workers conducted.

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

O. Scaffolding: Submit to the Owner's Representative prior to abatement work, certification from a licensed Civil or Structural Engineer that the scaffolding design and installation is safe and adequate for the purpose for which it will be used. Submit copy of scaffolding permit when required by local regulatory agencies

## 1.1.5 ADMINISTRATION OF THE CONTRACT

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

## 1.1.6 SAFETY

A. Prior to the start of work, the contractor shall submit written procedures for the evacuation of injured workers. In the event of serious injury, aid shall not be delayed to comply with standard decontamination procedures. The contractor is responsible for determining whether the severity of the injury warrants bypassing standard decontamination procedures to ensure prompt medical attention.

B. Lock Out-Tag Out, as necessary establish a program consisting of energy control procedures, employee training on the job site to discuss job specific hazards. When the asbestos removal posses a safety risk in relationship to any energized power sources, the power will be isolated and locked out by use of a physical devise that will be unable to be removed by any unknown party. If an energy source is not capable of being locked out, then incorporate a tag-out system. If a tag-out device which is

capable of being locked out, the tag out device shall be attached at the same location that the lock out device would have been attached.

C. Engage a fall protection plan / program for the work associated with roofs, ladders, and high reach equipment which posses a fall safety hazard. The plan shall be enforced by the on-site supervisor in charge of the project. A preconstruction safety meeting will be conducted by the on-site supervisor and all on site employees to review specific job hazards.

## 1.1.7 TRAINING PROGRAM

A. Each employee shall receive AHERA MAP training, which includes the proper handling of asbestos-containing materials, covering all aspects of work procedures and protective measures. This includes the use of protective clothing and respiratory protection, proper use of showers, entry and exit procedures from work areas, and compliance with OSHA and DOSH regulations. Workers scheduled to use the Glovebag Method must be highly trained, experienced, and skilled in this specific method.

Additionally, each employee shall be educated on the health risks and implications associated with asbestos exposure, including illnesses that can result from inhaling airborne asbestos fibers. This education shall emphasize the increased risk of lung cancer from asbestos exposure, particularly for individuals who smoke. Employees must understand the proper use and limitations of respiratory equipment, the purpose of medical surveillance, and the importance of monitoring airborne asbestos levels in relation to health and respiratory protection.

The training program shall comply with all applicable federal, state, and local regulatory requirements.

B. Emergency evacuation procedures to be followed in the event of Worker injury or compressor failure shall be included in Worker Training program.

## 1.1.8 DRESS AND EQUIPMENT

A. Work clothes shall consist of disposable full-body coveralls, head covers, boots, rubber gloves, sneakers or equivalent. Sleeves at wrists and cuffs at ankles shall be secured. Fire retardant full-body coveralls are required in areas of open flame, or where required by local regulations.

B. Eye protection and hard hats shall be available as appropriate or as required by applicable safety regulations.

C. Provide Authorized Visitors with suitable protective clothing, headgear, eye protection, and footwear whenever they are required to enter the Work Area.

### 1.1.9 RESPIRATORS

A. Respiratory protective equipment shall be National Institute of Occupational Safety and Health (NIOSH) approved in accordance with the provisions of 42 CFR 84 unless

superseded by local regulations with more stringent requirements. Respiratory instructions shall be posted in the Clean Room.

B. Half-mask or full-face air-purifying respirators with HEPA filters may be worn during the preparation of the Work Area, performance of repair work, use of glovebag techniques and decontamination work, provided Work Area fiber concentrations are less than 0.1 f/cc.

C. When supplied air respirators are not required, the Contractor shall provide Workers with approved, permanently personally-issued and marked respirators with changeable filters. The Contractor shall provide a sufficient quantity of filters approved for Asbestos so that Workers can change filters during the workday. Filters shall not be used any longer than one (1) workday or whenever an increase in breathing resistance is detected. The respirator filters shall be stored at the job site in the Clean Room and shall be totally protected from exposure to Asbestos before their use.

D. Workers shall always wear a respirator, properly fitted on the face, in the Work Area, from the initiation of preparation work until all areas have been given written clearance by the Owner's Representative.

## Part 2 – PRODUCTS

### 1.2.0 GENERAL

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

### 1.2.1 PROTECTIVE COVERING (PLASTIC)

A. Polyethylene Sheeting: Polyethylene sheeting used will be in compliance with NFPA Standard 701 fire testing, with flame spread ≤ 5 and smoke development rating of ≤ 70 when tested by ASTM E-84. Minimal thickness will be 6-mil.
B. Polyethylene sheeting: Six (6) mil for protection of floors, walls, ceilings, doors, windows, fixed equipment, HVAC supply and return openings, and critical barriers.
C. Spray Poly as a liquid must be non-flammable (no flash point), vapor free, and not noxious; when dry, poly must be Class A rated, with flame spread ≤20, have a fuel contribution of zero, and smoke development of ≤110 by ASTM method E-84.

### 1.2.2 TAPE

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

### 1.2.3 PROTECTIVE PACKAGING

A. Waste Containers (bags, drums, bins, etc.) must be suitable for loading, temporary storage, transit, and unloading of asbestos waste without rupture, or otherwise causing asbestos exposure to persons nor releases to the atmosphere. Use of rigid primary containers (bins, boxes, drums, etc.) is preferred and recommended. Where rigid primary containers are used, they shall be lined with a secondary leak tight barrier of poly sheeting or poly bags of minimal thickness of 6-mil. All containers used for disposal for asbestos-containing waste shall be labeled in accordance with applicable regulations, and in specific with the requirements of 8 CCR Section 1529.
B. Bilingual labels (English and other appropriate language[s]) on containment glove bags, waste packages, contaminated material packages and other containers shall be in accordance with EPA, OSHA and DOSH standards.

## 1.2.4 WARNING LABELS AND SIGNS

A. As required by 29 CFR 1910.1001, 29 CFR 1910.1200, 29 CFR 1926.1101 and other pertinent state and local regulations including 8 CCR 1529, whichever is the most stringent.
B. Signs must be lettered in the language(s) necessary to communicate the specific hazard warnings(s) to workers or visitors reasonably expected to be at the job site.

## 1.2.5 WETTING AGENTS

A. Materials will be sprayed with water containing an additive to enhance penetration. The additive or wetting agent will be polyoxyethylene at a concentration of one (1) ounce per five (5) gallons of water or as otherwise specified by manufacturer. A fine spray of this solution must be applied to prevent fiber disturbance preceding the removal of the materials. The asbestos will be sufficiently saturated to prevent emission of airborne fibers in excess of the exposure limits prescribed in the current OSHA standards referenced in these specifications. DRY REMOVAL WILL NOT BE ALLOWED EXCEPT WITH WRITTEN APPROVAL FROM EPA or BECAUSE OF FREEZING WORK AREA TEMPERATURES.

## 1.2.6 LAGGING ADHESIVE

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

## 1.2.7 GLOVE BAGS

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

## 1.2.8 TOOLS AND EQUIPMENT

A. All tools and equipment shall at least conform to minimum and industry standards and California Code of Regulations (CCR).
B. Equipment:

1. Negative air pressure equipment: HEPA filtration systems shall have filtration equipment in compliance with ANSI Z9.2-2006, local exhaust ventilation. No air movement system or air filtering equipment shall discharge unfiltered air outside the Work Area.
2. Respirators shall be NIOSH approved for use with asbestos, lead, Universal Waste, or other contaminants anticipated in the work activities.
3. Contractor is fully responsible for complying with OSHA, Cal/OSHA rules for other safety equipment, such as hard hats, safety harnesses, eye protection, gloves, footwear, and any other safety devices used on the site.
4. Pressure differential manometer with readable tape shall be provided by the Contractor including calibration documentation.

C. Tools:

1. Shovels and scoops shall be rubber or plastic, suitable for use in plasticized containment.
2. Scrappers, brushes, utility knives and other hand tools shall be of good quality and suitable for the intended uses. The Contractor shall keep an ample supply on hand for the completion of the Work.

D. Manometer:

1. Shall have a built-in alarm. Continuous hard copy readout optional.

E. HEPA Vacuums:

1. Shall comply with ANSI Z9.2-2006.

F. Vacuum Loaders:

1. Shall have HEPA filtration system in compliance with ANSI Z9.2-2006.
2. Meets or exceeds OSHA, DOSH and EPA safety regulations.
3. Fully-enclosed negative pressure system.

## 1.2.9 LUMBER

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

## 1.2.10 SOLVENTS

A. Shall be non-toxic, non-carcinogenic, nonflammable (flash-point in excess of 200° F.), nonreactive with or damaging to materials it will come in contact with and approved for indoor use by regulatory agencies. Provide ventilation of Work Area as required by manufacturer. Vent exhaust to the exterior of the building and in a manner that will not

result in adverse effects to other areas of the facility, adjacent facilities or public areas. Solvents shall not be used in areas which food stuffs are stored.

## PART 3 – EXECUTION

### 1.3.0 WORKER PROTECTION

Provide respiratory protection in accordance with OSHA Regulation 29 CFR 1926.1101 and appendices. ANSI 288.2-1980. Respiratory protection regardless of negative exposure assessments. There shall be NO EXCEPTION to this requirement. As minimum protection, negative pressure air purifying respirators shall be worn. The contractor shall select the appropriate respirator based on an initial exposure assessment or exposure monitoring results. No employee or visitor shall enter any Regulated Work Area without this protection until clearance has been obtained. Ensure proper filters are worn using a HEPA filter as a minimum.

Provide workers with sufficient sets of protective full body clothing. Such clothing shall consist of full body coveralls and headgear. Provide eye protection and hard hats as required by applicable safety regulations. Non-disposable type protective footwear shall be left in the contaminated equipment room/regulated area until the end of the asbestos abatement work, at which time such items shall be disposed of as asbestos waste or shall be thoroughly cleaned of all asbestos containing materials. Disposal type protective clothing, headgear and footwear may be used and shall be disposed of asbestos waste. Bare feet will not be permitted. Provide authorized visitors with suitable protective clothing, headgear, eye protection and footwear whenever they are required to enter work areas.

A. Worker protection procedures – to be posted in clean room:

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

6. Workers removing waste containers from the Equipment Decontamination Enclosure shall enter the Holding Area from outside wearing a respirator and dressed in clean disposable coveralls. No Worker shall use this system as a means to leave or enter the Washroom or the Work Area.

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

8. Workers shall not eat, drink, smoke or chew gum or tobacco, or utilize sanitary (toilet) facilities at the work site except in established locations outside the regulated work areas, and enclosures. Provide and post, the decontamination and work procedures to be followed by workers as described in these specifications.

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

B. Medical Examinations and Histories

- Before exposure to airborne asbestos, the contractor shall provide each employee or professional service provider at the project site with a current comprehensive medical exam, which includes a history of respiratory and gastrointestinal diseases. The exam shall meet the requirements outlined in:
  - **29 CFR 1910.1001**
  - **29 CFR 1910.134**
  - **29 CFR 1926.1101**
  - **Title 8 CCR, Section 5208 and Section 1529**

2. The contractor shall submit a current Medical Examination report for each employee.
3. The medical report shall include a statement from the examining physician indicating whether the employee can or cannot:
   - Function normally while wearing a respirator.
   - Use a respirator without impairing the safety or health of the employee or other employees.

4.No employee will be allowed to enter the Work Area without first providing a copy of their medical examination to the Owner's Representative. The employee's medical exam must be approved by the Project IH Consultant before entry.

C. Employee Identification

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

## 1.3.1 WORK AREA PREPERATION

A. All asbestos related removal work designated by Cal OSHA as Class I or Class II asbestos work shall be completed in accordance with Cal OSHA Construction Safety Orders for Asbestos (8 CCR 1529). Where conflicts between work area preparations as described in the regulations versus specification exist the more stringent interpretation shall apply.

B. Electrical Lock-out: The Contractor, in coordination with the County, is responsible for the shutdown and disconnection of all electrical power within the work area. For the purposes of this Specification section, the work area is defined as including all wall, floor and/or ceiling cavities which will be opened as a result of the removal of wall, floor or ceiling materials. The Contractor will arrange for temporary power and lighting, and will ensure safe installation of temporary power sources and equipment per applicable electrical code requirements. The Contractor should notify the County in writing before disconnecting any power or communication lines that may service the subject buildings or adjacent buildings.

C. HVAC Isolation: The Contractor is required to shut down and isolate mechanical (heating, cooling, and ventilating) air systems to prevent contamination or fiber dispersal to other areas of the building. During the Work, HVAC vents and any other airway openings into and out of the Work Area will be sealed with barriers consisting of a minimum 2 layers of 6-mil poly sheeting and duct tape ("critical barriers"). In the event of any containment breaches, filters in the HVAC system(s) will be removed and disposed of as asbestos-contaminated waste.

D. Work Area Containment: Each regulated Work Area will be regulated and isolated ("contained") from all building areas not a part of the Work. All critical openings including, but not limited to, doorways, windows, tunnels, ducts, grills, diffusers, or openings through which ducting, piping or conduit passes are to be sealed securely with duct tape, spray adhesives, plastic sheeting or by other means, as necessary, to prohibit the passage of air out of the regulated work area. When removal of ACM from the exterior of a building is conducted using manual non-powered tools or equipment, and that which does not generate a Regulated ACM or require containment, the work area isolation may be achieved using barrier tape or other appropriate means to demarcate the perimeter of the regulated work area. Any fixed objects to remain within the proposed work area will be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and completely enclosed with plastic sheeting. The plastic sheeting shall be, at a minimum, 6-mil fire-rated poly. If a containment is utilized as a regulated area then the Contractor will inspect the containment for gaps, breaches, tears, leaks, holes or other deficiencies. The Contractor will conduct a similar inspection not less than once at the start of each work shift, however, the Contractor will be responsible to ensure the integrity of the containment(s) at all times. Containment deficiencies shall be corrected immediately and with utmost priority upon discovery.

E. Decontamination Facilities: At a minimum, a 3-chamber personnel decontamination (decon) unit with functioning shower will be constructed and used whenever Class I work is being conducted (See Section 2.1.4.5 above). Cover the floor under the decontamination units, hoses, and equipment with at least one layer of 6-mil poly. Securely affix the poly sheeting to the floor. A personnel decon unit with shower will be constructed contiguous with each Class I regulated work area. A curtained doorway will be constructed to separate individual chambers within a personal decon unit, as well as at ingress and egress points. The decon units shall be constructed in a manner so as to be free of physical hazards (e.g., jagged metal or exposed wood surfaces). Alternate decontamination facilities may be used for compliance with Class II asbestos work or asbestos roofing removal work. **To the extent feasible, a personnel decon unit must not be used for waste load-out.**

F. Movable and Loose Items: Movable and loose items located within the work area(s) and not removed by the Owner are to be cleaned using HEPA-filtered vacuum equipment and/or wet cleaning methods, as appropriate, and will be removed from the work area to a temporary location designated by the Owner.

G. OSHA Class I Work Area Isolation: For Work Areas within which OSHA Class I asbestos work is to be conducted (removal of thermal system insulation [TSI] or surfacing material), the Contractor will erect a full, diminished air pressure enclosure. In addition to sealing critical openings, a minimum of one layer (additional layers may be required based on the localized conditions) of fire-rated 6-mil plastic sheeting will be installed on the walls, floors, and ceilings (as appropriate for the location and/or type of material[s] being removed). Exceptions to this may apply to the removal of TSI by means of glovebag techniques. In the case of TSI removal using glovebags, full-room ("secondary containment") or partial-room ("mini-enclosure") containment structures may, at the Project IH Consultant's discretion, be additionally required. Floor layers shall be applied making sure that plastic is turned-up at the wall at least 16 inches and sealed to wall layers. Wall layers shall be sealed by overlapping the turned-up floor plastic a minimum of 12 inches. All joints and seams for each layer shall be glued and taped securely in a manner so as to prohibit water or air movement through the attached sheetings.

H. OSHA Class II Work Area Isolation: For Work Areas within which OSHA Class II asbestos work is to be conducted, the Contractor will prepare the Work Area in accordance with the regulatory requirements of Cal-OSHA 8 CCR §1529 et. seq. and SDCAPCD Regulation Rule 1206. In addition to sealing critical openings, a minimum of one layer (additional layers may be required based on the localized conditions) of fire-rated 6-mil plastic sheeting will be installed on the walls, floors, and/or ceilings (as appropriate for the location and/or type of material[s] being removed). Floor layers shall be applied making sure that plastic is turned-up at the wall at least 16 inches and sealed to wall layers. Wall layers shall be sealed by overlapping the turned-up floor plastic a minimum of 12 inches. All joints and seams for each layer shall be glued and taped securely in a manner so as to prohibit water or air movement through the attached sheeting. In addition, a diminished air pressure enclosure, as documented by manometric measurements, is required for all OSHA Class I and II Work. OSHA Class I Work Area isolation controls may be used for Class II work.

I. For Work Areas within which OSHA Class II asbestos work is being conducted on the exterior of the building, and the asbestos work does not require containment under negative pressure, then the contractor may isolate the work area using barrier tape or other appropriate measures to demarcate the regulated work area perimeter and prevent unauthorized entry. Critical openings, such as windows, doorways, louvered grills, HVAC intakes or other openings to the building located within the work area must be sealed and prevented from opening while the abatement work is being carried out. Plastic sheeting shall cover all horizontal surfaces within the work area to sufficiently capture all falling debris and prevent surfaces from being contaminated during removal.

J. Work Area Obscurity: The Contractor will endeavor to block or obscure the view of the public into the asbestos abatement work areas but retain appropriate view portals.

K. Adjacent Areas: Building areas immediately adjacent to regulated asbestos removal areas, such as corridors or hallways which are not themselves subject to asbestos material removal, but are necessary routes to and from regulated work areas, must be protected by the Contractor to prevent damage and/or contamination. Openings from these areas into areas where asbestos material removal activities will be conducted will have curtained doorways to further minimize air passage into non-regulated areas. The Contractor will also be responsible to make all required notifications to trades or other building occupants in areas adjacent to regulated abatement work areas.

L. Emergency Exits: The Contractor shall establish emergency and fire exits from the Work Areas, or establish alternative exits satisfactory to the County and to local emergency authorities or other applicable agencies.

M. **All exits leading out of regulated work areas shall be marked in bold lettering "EXIT" or "Emergency Exit." Exit markings shall be in the primary language(s) appropriate to communicate with the workers present in the work area.**

N. Work Area Viewing Windows: If a containment is utilized as a regulated area then the Contractor will provide and construct observation windows into all regulated work area containments. The viewing windows will be of a visually transparent material of approximately l 8"(H) x 24"(W) in size and/or will be constructed and maintained so as to allow unobstructed observation of the entire work area from outside the containment.

0. Work Area Communications: The Contractor will be responsible for establishing and maintaining clear communications between the personnel in the work area(s) and those stationed outside, such that those communications can be maintained without need for workers to perform an exit from the work area that would require decontamination.

P. Differential Air Pressure: Prior to the start of asbestos removal work, the Contractor will install HEPA-filtered differential air pressure equipment (also known as "exhaust fan units" or "negative air machines"), as specified herein, to maintain a diminished air pressure differential within the Work Area. The system shall not exhibit any visible emissions to the outside air and shall be designed and operated in accordance with the requirements in 40 CFR, Part 61, Section 61.152. These exhaust fan units will remain in place within a regulated Work Area throughout the abatement and decontamination phases of the Work until the required visual and/or clearance air testing has been satisfactorily achieved. A minimum pressure differential of -0.02 inches of water column (-0.02" w.c.), with respect to the air pressure of the area outside a Work Area, will be established and must be maintained at all times within all regulated Work Areas. Sufficient number of exhaust fan units shall be utilized to achieve a minimum of four (4) air changes per hour, per containment. The Contractor shall have sufficient auxiliary units on-site and/or in place to maintain this requirement throughout the Work, including backup or replacement units in the event of equipment failure. Air exhausted from this equipment shall be exhausted to the outdoors and, to the extent feasible, away from occupied areas around the building. Documentation of satisfactory differential air pressure shall require the use of a manometer, as specified herein. If, in the opinion of the Project IH Consultant, the differential air pressure units are judged to be in need of maintenance or in any other way fail to meet typical industry standards, the units shall not be placed into operation on this project.

Q. Pre-Abatement Work Area Inspections: Prior to the start of asbestos removal work, the Contractor, accompanied by the Project IH Consultant, will conduct a detailed inspection of all equipment and Work Area isolation preparations to assure that appropriate engineering controls are in place and are functioning sufficiently to contain asbestos fibers to within the Work Area. The concurrence of the Project IH Consultant will be required to determine that a Work Area has undergone adequate preparation to proceed with asbestos removal work. A Pre-Abatement Work Area inspection will be conducted for each regulated Work Area and each individual inspection must be documented in writing. Such documentation will be signed by the individual(s) conducting the inspection. A copy of each such documentation will be obtained by the Project IH Consultant for conveyance to the Owner.

## 1.3.2 ASBESTOS REMOVAL

The Contractor is to follow all EPA NESHAPS, DOSH, Cal/OSHA, SDAPCD Rule 1206 guidelines as it relates to this material including but not limited to the California Code of Regulations, Title 8, Section 1529.

OSHA Class I Asbestos Work: Materials designated for removal as OSHA Class I Asbestos Work will be removed in full compliance with the Class I work practices (i.e., Methods of Compliance) prescribed in Cal OSHA's Construction Safety Orders for Asbestos (8 CCR §1529, et. seq.). All ACM or ACCM designated for removal as Class I Asbestos Work will likewise be removed in full compliance with the SDCAPCD, Rule 1206. Class I Asbestos Work may not commence until the work area(s) is/are prepared in accordance with section 1.3.1 of this Specification.

OSHA Class II Asbestos Work: Floor tiles, mastics, and other materials designated for removal as OSHA Class II Asbestos Work will, at a minimum, be removed in full compliance with the Class II work practices (i.e., Methods of Compliance) prescribed in Cal-OSHA's Construction Safety Orders for Asbestos (8 CCR §1529, et. seq.). All ACM or ACCM designated for removal as Class II Asbestos Work will likewise be removed in full compliance with Federal, State, and local air pollution control board regulations. Class II materials should, to the extent feasible, be removed with hand tools, so that they remain substantially intact. Class II Asbestos Work may not commence until the work area(s) is/are prepared in accordance with section 1.3.1. **Floor tile and/or floor tile mastic removal operations involving the use of mechanized work methods, including motorized floor buffers, must be conducted utilizing OSHA Class I Work Area Isolation methods and engineering controls as described in section 1.3.1 of this Specification section. This includes preparing the Work Area(s) in accordance with requirements for the removal of RACM.** ACM shall be wetted prior to and during its removal, handling, and waste disposal.

Work Area Regulation: All asbestos removal Work Areas shall be regulated to prevent unauthorized entry. Isolation methods shall include, but not necessarily be limited to: the use of barrier tape (yellow "Caution" and/or OSHA's "Danger Asbestos") and OSHA's "Danger Asbestos" sign(s). The Contractor shall maintain a daily Work Area entry/exit log and require all persons entering the Work Area to sign in and out. The Contractor will bear responsibility for controlling entry into the Work Area(s).

<u>Exterior Work Area(s)</u>

- Establish a Regulated Work Area (RWA) delineated by barricade tape;
- Open air abatement with wet methods shall be utilized during the abatement.
- All non-porous items shall be decontaminated utilizing proper wet wiping and HEPA-vacuuming practices.
- Place 6-mil polyethylene drop sheets in the RWA.
- Establish a decontamination area at the entry point to the RWA.
    - Install a 3-stage decontamination unit consisting of a clean, shower, and equipment room.
- Establish a proper waste load-out area attached to the RWA; and
- Post asbestos warning signs on all entry and exits into the RWA.

- The perimeter of the RWA shall be lined with 6-mil polyethylene and sandbags to prevent the potential of wastewater traveling off site. The wastewater should be properly filtered prior to disposal.

Once RWA is established and asbestos activities begin, no access should be permitted without the required personal protective equipment:

- All asbestos activities shall be performed by workers wearing proper personal protection equipment (PPE), including HEPA filtered respiratory protection, as prescribed in 8 CCR 1529 and 8 CCR 5144;
- All asbestos activities shall be performed by workers wearing proper personal protection equipment (PPE), including HEPA filtered respiratory protection, as prescribed in 8 CCR 1529 and 8 CCR 5144;
- Once abatement work begins, only authorized personnel with proper personal protective equipment shall be permitted to enter the RWA;
- All asbestos activities shall be performed using wet methods (use of amended water, water with a chemical wetting agent or surfactant, to adequately wet ACMs) and HEPA filtered vacuums;
- Removal/disturbance of ACM shall be conducted in a manner that leaves the materials substantially intact, to the extent feasible;
- Small pieces of ACM or comingled debris should be properly wetted and manually (using hand tools) placed in transparent, leak-tight containers or wrapping;
- At the end of each work shift, any ACM containing debris shall be covered with 6-mil fire retardant, reinforced polyethylene topped with sandbags transparent containers, sealed, labeled and disposed of as asbestos waste;
- After asbestos abatement activities are complete, the Consultant shall perform a post asbestos abatement visual inspection to determine if all asbestos containing materials and visible contamination have been successfully removed;
- If any asbestos containing materials or visible contamination are observed, additional abatement will be required until all asbestos containing materials and visible contamination are removed;
- All equipment used in the RWA (e.g. excavators, Bobcats, portable toilets, etc.) shall be properly decontaminated by HEPA vacuum, wet wiped, HEPA vacuum prior to being transported offsite;
- Any porous items used in the RWA (e.g. sandbags, straw waddles, etc.) shall be disposed as asbestos-containing waste;
- The exteriors of the 40-yard containers shall be properly decontaminated by HEPA vacuum, wet wiped, HEPA vacuum and visually cleared of ACM prior to being transported offsite;
- Prior to exiting/leaving the RWA, all personnel, materials, equipment, containerized waste and anything else leaving the RWA shall be thoroughly decontaminated via HEPA vacuuming, wet-wiping and HEPA vacuuming again and sealed as necessary.

A. Before removal, Asbestos materials shall be sprayed with Amended Water. The Asbestos materials shall be sufficiently saturated without causing excessive dripping and prevent emission of airborne fibers, at any time, in excess of Maximum Acceptable Level. Spray materials repeatedly during the work process to maintain a wet condition. If the materials are not easily saturated, then the Work Area shall be constantly misted to keep fiber emissions minimal. Material

abatement will be removed wet following the NESHAP Adequately Wet Guidance Manual.

B. Asbestos material shall be removed in manageable sections by a multi-person team, some of whom are wetting and the remainder removing and cleaning. Any material which falls to the floor shall be wetted and picked up immediately. Material shall not be allowed to dry out. Material drop shall not exceed 15 feet. For heights exceeding 50 feet above ground level, provide leak-tight chutes to transport waste to the ground. The waste material must be transported to the ground in clear leak-tight wrapping. Before a second area can be started, removed material shall be packed into approved and labeled packaging while it is still wet. The outside of all containers shall be clean before leaving the Work Area. Move containers to the Washroom (Shower Room when Equipment Decontamination System is not required), wet-clean each container thoroughly, and move to Holding Area pending removal to uncontaminated areas.

C. Asbestos material applied to concrete, steel decks, beams, columns, pipes, tanks, and other nonporous surfaces shall be wet-cleaned to a degree that no traces of debris or residue are visible.

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

E. The Work Area shall be kept orderly, clean and clear of work materials, polyethylene sheeting, tape, cleaning material, and clothing, and all other disposable material or items used in the Work Area. These materials shall be packed into properly labeled protective packaging and removed from the Work Area.

F. Protective packages and drums containing Asbestos materials shall be cleaned and stored in the isolated Holding Area until that time when the materials are to be loaded and hauled to the Hazardous Waste Disposal Facility for burial. The packages and drums shall be stored in piles no higher than four (4) feet, and in a manner that will not result in damage to the packages or drums. Transport bags in covered drums or carts from the Holding Area to the transport.

G. Equipment removal procedures: Clean surfaces of contaminated equipment thoroughly by wet-sponging or wiping before moving such items into the Washroom (Shower Room when Equipment Decontamination System is not required) for final cleaning and removal to uncontaminated areas. Ensure that personnel do not leave Work Area through the Equipment Decontamination Enclosure.

H. Do not bag water used during abatement activities. Properly filter and drain water into building sanitary drain unless prohibited by local regulations. Filter shall have a maximum pore size of 1.0 micron.

I. Non-friable materials:

1. Remove materials with wet methods and in a manner that will not create visual emissions or exposures above the PEL. Adequately wet the materials before, during and after removal.

2. Do not use saws, grinders, chippers, bead blasters, buffers or other such mechanical equipment without HEPA filtered local exhaust ventilation.

3. The Work Area shall be kept orderly, clean and clear of work materials, debris, etc.

4. Package non-friable materials in two layers of leak-tight containers consisting of 6-mil poly bags or lined containers labeled as Non-Hazardous Waste – Non-Friable Asbestos, or in accordance with the disposal facility's requirements.

J. Roofing Materials:

1. Use removal methods that will keep the tearing and fraying of the roof membrane to a minimum. If sawing tools are used, they must be factory equipped with HEPA filtering devices, or perform in a manner that will not release visible dust emissions. Roofing debris made friable shall be misted with amended water before transportation to dumpsters. Do not use excessive amounts of amended water that may result in leakage into the building. Apply additional amended water, if necessary when the roofing debris is in the dumpster. Install, when possible, a protective tarp under the Work Area or dumpster where amended water leakage may result in property damage.

a. ACM/ACCMs shall be bagged or containerized as it is removed. Wastes shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered via covered, dust-tight chute, crane, hoist, or other means that prevent the waste from being dropped or thrown.

b. Roofing shall be removed so that no felts are visible. Asphalt bitumen residue need not be removed from the substrate unless directed otherwise in the Contract Documents.

c. Have adequate material on hand and available labor to protect exposed roof areas from water intrusion during inclement weather.

d. Do not commence with removal work if inclement weather is probable. NOTE: Contractor shall be responsible for water damage as the result of the Contractor's work or failure to perform work. **[**Contractor shall be responsible for maintaining the abated portions of the roof free from moisture intrusion for seven (7) calendar days following the written notice of completion, or until the roofing contractor have been given Notice to Proceed by the Owner, whichever comes first**].**

e. The Work Area shall be kept orderly, clean and clear of work materials.

f. Package roofing materials in labeled double six (6) mil lined containers or bags, or in with the disposal facilities requirements.

## 1.3.3 DECONTAMINATION OF WORK AREA

A. Decontamination procedure for “Regulated” Work Areas:

1. Visible accumulations of loose asbestos containing waste material shall be cleaned up using rubber or plastic dustpans and rubber squeegees or

HEPA-filtered vacuums. Metal shovels may also be used except in the vicinity of plastic sheeting, critical barriers and isolation barriers, which could be perforated by these tools. To pick up excess water and gross wet debris, a wet-dry shop HEPA vacuum dedicated to asbestos abatement may be used. This cleaning shall be done whenever there is sufficient asbestos waste material to fill a single leak- tight bag/container, or this cleaning shall be done at the end of each work shift whichever shall occur first. Visible debris shall be maintained adequately wet.

2. All visible accumulations of ACM, ACCM, debris tools, and unnecessary equipment shall be removed from the Work area.

3. Prior to removal from a Work Area, the Contractor will decontaminate all tools, equipment, mechanical equipment. Decontamination will include, but not be limited to: wet-wiping with amended water, HEPA-vacuuming, and containerizing tools into subsequently decontaminated containers. Prior to removal from the Work Area, HEPA-filtered vacuum cleaners will be wet-wiped and wrapped, bagged, or otherwise containerized for transport from the Work Area. Additionally, differential air pressure equipment is to be sealed with poly sheeting and tape, and externally decontaminated before removal from the Work Area. All equipment will be subject to inspection by the Project IH Consultant prior to demobilization from a regulated Work Area.

4. Cleaning may be discontinued when there is no visible debris. The Contractor shall perform a complete visual inspection of the Work Area.

5. Post-Abatement Work Area Inspections: Subsequent to the completion of the cleaning, decontamination phases, the Contractor's Supervisor, accompanied by the Project IH Consultant, will conduct a detailed visual inspection of the Work Area to ensure that the identified asbestos has been removed and that the Work Area has been adequately cleaned. The concurrence of the Project IH Consultant will be required to determine that a Work Area has undergone adequate cleaning. This Post-Abatement Work Area Inspection will be conducted for each regulated Work Area and each individual inspection must be documented in writing. Prior to conducting a Post-Abatement Work Area inspection, the Contractor will removed and replace the primary filter ("pre-filter") on each differential air pressure unit ("negative air machine"). All non-essential equipment is to be decontaminated, as described herein, and removed from the Work Area prior to commencing the Post-Abatement Work Area inspection.

6. Upon successful compliance with the requirements for Post-Abatement Work Area Inspection, and unless otherwise specified, the Contractor shall apply a "lock-down" encapsulant to all horizontal and vertical surfaces within the Work Area. The encapsulant must be compatible with the existing surfaces. Following application of the encapsulant, a sufficient amount of time must pass to allow for the encapsulant to dry. The Contractor should plan, at a minimum, to allow for an extended (preferably overnight) drying period. In all instances, the decision as to whether an adequate drying period has elapsed will be at the discretion of the Project IH Consultant. Upon completion of the asbestos-related work the Contractor shall apply an encapsulant to all surface edges of the disturbed

asbestos-containing materials within the Work Area to prohibit fibers becoming airborne.

7. Once satisfactory Post-Abatement Work Area Inspections have been documented in writing and after any applied encapsulant has been allowed to dry the Contractor will remove the top layer of plastic on the walls, floors, and/or ceilings as appropriate. The inner plastic layer (if present) and primary isolation barriers (i.e. “critical barriers”) on vents, grilles, diffusers, etc., are to remain in place for the clearance air sampling. Care should be taken to avoid pulling down any remaining layer(s) of plastic sheeting. In Work Areas where a single layer of plastic has been used on the walls, floors, and ceilings (where applicable), that plastic layer shall be removed, and critical barriers are to remain in place until air clearance sampling is completed and satisfactory air clearance criteria have been achieved. **Removal of plastic layers and isolation engineering controls (“teardown”) may not occur without the knowledge and authorization of the Project IH Consultant.**

8. Upon written notification from the Owner's Representative that the Work Area has passed the standard for Clearance Testing, the Contractor shall apply the asbestos-free replacement materials, when included in the contract, and re-establish objects and systems as specified in these Specifications.

Daily site view and clean-up procedures- Asbestos Abatement Activities

Each day, at the conclusion of each work shift throughout the duration of the abatement project, the asbestos abatement Contractor shall conduct a site review and cleanup of all interior and exterior work areas of the project site. This will include work area for all of the on-site trades providing on-site services near or around the asbestos containing materials as listed within the applicable survey reports and this specification. Any asbestos building material debris that is encountered during the end of shift walkthrough will be promptly cleaned using wet methods and thoroughly HEPA vacuumed.

## 1.3.4 ASBESTOS DISPOSAL

A. All Asbestos-Containing Waste Material (ACWM) shall be kept adequately wet until sealed in leak-tight containers or clear leak-tight wrapping.
B. Asbestos waste from control devices shall be mixed thoroughly with water to form a slurry.
C. No visible emission shall be discharged to the outside air from collection, mixing, wetting, and handling of ACWM.
D. After wetting, all ACWM shall be sealed in leak-tight containers or clear leak-tight wrapping and must remain adequately wet. Materials that will not fit into containers without additional breaking shall be placed into clear leak-tight wrapping.
E. The containers or wrapping specified above shall be labeled using warning labels specified by federal OSHA or Cal/OSHA under 29 CFR 1926.1101(k)(8)(iii) or 8 CCR 1529(k)(8)(C). Printed in letters of sufficient size and contrast so as to be readily visible and legible.

F. Asbestos-Containing Wastes, including removed ACM and debris, poly, critical barrier materials, suits, respirator filters, vacuum HEPA filters, water filters, and other asbestos-containing items shall be properly packaged for disposal.
G. Use 6 mil plastic bags with a gooseneck seal, drums, or other type of sealed container approved for asbestos -containing materials.
H. Containers removed from the Holding Area must be removed by Workers who have entered from uncontaminated areas dressed in clean coveralls. Workers must not enter from uncontaminated areas into the Washroom or the Work Area; contaminated Workers must not exit the Work Area through the Equipment Decontamination Enclosure System.
I. Contractor shall deliver Asbestos-Containing Waste Materials to the CWRCB permitted and designated Hazardous Waste Disposal Facility in accordance with the guidelines of the EPA.
J. At the conclusion of Work, the Contractor shall provide evidence (such as a "Bill of Lading" or "Hazardous Waste Manifest") that the Asbestos-Containing Waste Material was disposed of at the CWRCB permitted and approved Hazardous Waste Disposal Facility. The evidence shall be submitted with the final request for payment. The Contractor shall indicate on the "Bill of Lading" or "Hazardous Waste Manifest" the weight, in tons, of the Asbestos-Containing Waste Material generated from the Project. This weight amount must be confirmed by a party independent from the Contractor.
K. The Contractor shall be responsible for the safe handling and transportation of all Non-Hazardous and/or Hazardous Waste, generated by the Project of this Contract, to the designated Non- Hazardous and/or Hazardous Waste Disposal Facility. The Contractor shall bear all costs for all claims, damages, losses, and clean up expenses against the Owner or the Owner's Representative, including but not limited to attorney's fees rising out of, or resulting from, Asbestos spills on the site or spills in route to the Hazardous Waste Disposal Facility.
L. Non-friable Debris Disposal: Roofing, Transite, resilient floor tiles, mastic and other Non-Friable Asbestos-Containing Materials shall be disposed of as non-friable asbestos waste.

## 1.3.5 AIR MONITORING AND TESTING

A. Area Air Monitoring:

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

| Areas to be sampled | Minimum Number of Samples | Minimum Volume |
|---|---|---|
| Adjacent to work area | 1/Work Shift | 1200 L |

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

B. Personal Air Monitoring:

1. Throughout the abatement activities and subsequent cleaning operation, personal air monitoring shall be conducted by the Contractor, Personal breathing zone samples shall be collected on a representative number of abatement employees daily to determine their 8-hour time weighted average (TWA) exposure to asbestos fibers in addition to one thirty (30) minute sample each work shift to determine if the excursion limit (EL) of 1.0 f/cc and Permissible Exposure Limit (PEL) is exceeded in accordance with OSHA (CFR 1926.1101) and DOSH (CCR Title 8 Section 1529) requirements. Analysis shall be conducted according to 29 CFR 1910.1101, Appendices A and B which describe the OSHA Reference Method.

2. Once OSHA and DOSH sampling requirements are satisfied the Contractor shall conduct, as a requirement of this Contract, not less than one (1) personal air sample, twice per calendar week, to determine 8-hours TWA exposures and thirty (30) minute Excursion Limit exposures of workers operating in each Work Area. Samples shall be collected within the Workers' breathing zones. Samples shall be taken for each ten (10) workers from the time preparation work is started until the Work Area has passed Clearance Testing. NOTE**:** Contract required personal sampling of each worker is not necessary while the Contractor is conducting representative OSHA and/or DOSH required sampling or when Supplied-Air Respirators in pressure demand mode are in use.

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

3. The minimum amount of air samples collected per work area by the Contractor will be 1 30-minute STEL sample per day / 1 personal sample per 4 employees per day (per activity).

C. Clearance Testing:

1. The Contractor should not be released until final visual inspection and EPA PCM NIOSH 7400 final air clearance has been achieved in the regulated area(s).

## 1.3.6 STOPPING THE WORK

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

**END OF SECTION I**

# SECTION II

# LEAD-BASED PAINT

# LEAD-BASED PAINT ABATEMENT AND

# LEAD-RELATED CONSTRUCTION WORK

# SPECIFICATION

**10-24-2024**

## DESCRIPTION

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

**Table 2-1: Identified LCMs**
**Titan Environmental Solutions**
**November 7, 2023**

| Sample No. | Sample Locations | Component / Substrate | Color | Paint Condition | Lead Concentration (PPM) | Category |
|---|---|---|---|---|---|---|
| 1107-01 | N End Exterior | Wall/Stucco | Tan | D | 720 | **LCM** |
| 1107-02 | E End N Wall Exterior | Wall/Stucco | Blue | I | 240 | **LCM** |
| 1107-03 | W End | Wall/Stucco (Mural) | Multi-Color | D | 63 | **LCP** |
| 1107-04 | E End | Wall/Cinder Block | Tan | D | 96 | **LCM** |

Legend:

N = North, E = East, W = West, S = South
Classification:
- BRL = Below Method Reporting Limit of 38 - 40 ppm total lead
- **LCP** = Lead Containing Materials with lead concentrations ≥ Method Reporting Limit and ≥ 90 ppm
- **LCM** = Lead Containing Materials with lead concentrations ≥ Method Reporting Limit – <5,000 ppm
- **LBP** = Lead-Based Paints with lead concentration ≥5,000 ppm

*Locations are estimates based on accessible materials located in the survey area only. Additional locations may be present at the Subject Property.

| Table 2-2: Identified LCMs / LBP<br>Environmental Safety Health and Operations Program (ESHOP) Memorandum Report<br>Conducted October 11, 2007 | | |
|---|---|---|
| **Material #** | **Material Type** | **Result** |
| **L001** | Exterior Paint | 480 ppm Lead Detected |
| **L003** | Interior Paint | 4900 ppm Lead Detected |

The Environmental Safety Health and Operations Program (ESHOP), Hazardous Materials Investigation Memorandum report, identified the following:

- **Lead-Containing Paint – Throughout Interior & Exterior of Building**

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

C. Applicable Publications: The work conducted shall comply with all applicable federal, state and local regulations. Applicable guidelines and standards listed in this Scope of Work include, but are not necessarily limited to:

1. Department of Housing & Urban Development (HUD) "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" dated June, 1995.
2. Code of Federal Regulations (CFR) Publications:

| | |
|---|---|
| 29 CFR 1910.134 | Respiratory Protection |
| 29 CFR 1910.145 | Specifications for Accident Prevention Signs & Tags |
| 29 CFR 1910.147 | Lockout/Tagout |
| 29 CFR 1910.1020 | Access to Employee Exposure & Medical Records |
| 29 CFR 1910.1025 | Lead General Industry Standard |
| 29 CFR 1910.1200 | Hazard Communications |
| 29 CFR 1926.55 | Gases, Vapors, Fumes, Dusts & Mists |
| 29 CFR 1926.62 | Lead Construction Standard |
| 29 CFR 1926.200 | Signs, Signals & Barricades |
| 40 CFR 61 | National Emission Standards for Hazardous Air Pollutants |
| 40 CFR 257 | Criteria for Classification of Solid Waste |
| 40 CFR 261 | Identification and Listing of Hazardous Waste Disposal Facilities and Practices |

| | |
|---|---|
| 40 CFR 262 | Standards Applicable to Generators of Solid Waste |
| 40 CFR 745 | Lead-Based Paint Poisoning Prevention in Certain Residential Structures |

3. California Code of Regulations (CCR) Publications:

| | |
|---|---|
| 8 CCR 1532.1 | Construction Safety Orders - Lead |
| 8 CCR 5198 | General Industry Safety Orders - Lead |
| 8 CCR 5144 | Respiratory Protective Equipment |
| 17 CCR Div. 1, Chap. 8 | Lead Based Paint and Lead Hazards |

4. American National Standards Institute (ANSI) Publications:

| | |
|---|---|
| Z88.2-2015 | Practices for Respiratory Protection |
| Z87.1-2010 | Eye Protection |

5. National Institute of Occupational Safety & Health (NIOSH) Publications:
   Manual of Analytical Methods, 2nd Edition, Volume 1, Physical & Chemical Analysis Method (P&CAM)
   Method 7082
   Method 7300
6. Other Local or Regional Regulations that apply to Lead-Related Work.

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

This project is not a lead abatement project. The lead activities on this project are being conducted due to the demolition of buildings listed. The areas identified and any estimated quantities mentioned in the lead sampling report or this specification are approximate and should be confirmed by the Contractor through on-site verification.

The lead removal specification in place for this project is to work in conjunction with all local state, and federal regulations / requirements concerning lead in construction. Contactor is required to follow all local, state, and federal regulations / requirements concerning all aspects of working around lead materials whether stated in the removal specification or not. For any conflict that arises between the lead removal specification and any regulations / requirements, the most current and most stringent will apply.

Since the building listed above is undergoing renovation / demolition, **all construction personnel** performing the construction work should be properly trained in lead-related construction. California regulations define lead-related construction work as, “Construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential, public or commercial building, including preparation and cleanup, which, by using or disturbing lead containing material or soil, may result in significant exposure of individuals to lead.”

**CAL-OSHA Regulations (Title 8 CCR Section 1532.1 and 29 CFR 1926.62) apply to all construction work where an employee may be occupationally exposed to lead, and therefore may be applicable to renovation or demolition projects involving paints with any concentration of lead. When conducting construction activities, which disturb lead in any amount or that may create an exposure to workers, the employer is required to provide worker protection and conduct exposure assessments. All California employers should consult Cal- OSHA Regulations at Title 8, 1532.1, “Lead in Construction” standards for complete requirements.**

## DEFINITIONS

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

A. Owner: State of California

B. Abate or Abatement: Means any set of measures designed to reduce or eliminate lead hazards or lead-based paint.

C. Accredited or Accreditation: A person or laboratory accredited in accordance with Section 206 of Title II of the Toxic Substances Control Act (TSCA) and/or accredited by the American Industrial Hygiene Association (AIHA).

D. Aerosol: A system consisting of particles, solid or liquid, suspended in air.

E. Air Monitoring: The process of measuring the lead content of a specific volume of air.

F. Authorized Visitor: The Owner, the Owner's Representative, testing lab 2F, the Consultant/Engineer, emergency personnel or a representative of any federal, state and local regulatory or other agency having authority over the project.

G. Barrier: Any surface that seals off the work area to inhibit the movement of particles.

H. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

I. Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded.

J. Certified Industrial Hygienist (C.I.H.): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

K. California Certified Lead Professional: means an individual who has a current Lead-Related Construction Certificate with the California Department of Public Health (CDPH). This includes Certified Inspector/Assessors, Project Monitors, Contactor Supervisors and Sampling Technicians.

L. Contractor: Means any business entity, public unit, or person performing the actual abatement for a lead abatement project.

M. Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.

N. Disposal Bag: A properly labeled 6 mil thick leak-tight plastic bags used for transporting lead waste from work and to disposal site.

O. Encapsulation: Means to resurface or cover surfaces and to seal or caulk seams with a durable material, so as to prevent or control chalking, flaking lead-containing substances from becoming part of construction dust.

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

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

R. HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air filtered vacuum collection equipment with a filter system capable of collecting and retaining lead particles. Filters should be of 99.97% efficiency for retaining particles of 0.3 microns or larger.

S. High-efficiency particulate air filter: HEPA refers to a filtering system capable of trapping and retaining 99.97 percent of all monodispersed particles 0.3 um in diameter or larger.

T. Interior Work Area: A hallway, room or group of rooms in which abatement takes place on the inside of a property.

U. Lead-Based Paint (LBP): Paint or other surface coatings that contain lead equal to or greater than one milligram per square centimeter (1.0 $mg/cm^2$) or more than half of one percent (0.5%) by weight or more than five-thousand parts per million (5,000 ppm) by weight.

V. Lead-Containing Paint (LCP): Paint or other surface coatings that contain lead equal to or greater than 0.1 $mg/cm^2$ as measured by XRF RMD or any detectable concentration by AAS or ICP analyses.

W. Lead-Related Construction Work: means any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance activity, including preparation and cleanup, that, by using or disturbing lead-containing material or soil, may result in significant exposure of adults or children to lead.

X. Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

Y. Negative Pressure Ventilation System: A pressure differential and ventilation system in containments.

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

AA. Pressure Differential and Ventilation System: A local exhaust system, utilizing HEPA filtration capable of maintaining a pressure differential with the inside of the Work Area at a lower pressure than any adjacent area, and which cleans recirculated air or generates a constant air flow from adjacent areas into the Work Area.

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

AC. Repair: Returning damaged lead-based paint to an undamaged condition or to an intact state so as to prevent particle release.

AD. Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period usually 8-hours.

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

AF. Wet Cleaning: The process of eliminating lead contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with water containing 5% trisodium phosphate (TSP) or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as lead-contaminated waste.

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

## PART II – GENERAL

### 2.1.1 RELATED DOCUMENTS

Drawings, Contract Documents, and other Technical Specification sections apply to work of this section.

### 2.1.2 Known and Assumed Lead Painted Areas associated with the demolition project.

All paint found within the exterior and interior of this project will be treated as lead-based paint until released by the Owner's Representative. This will include a review of all historical data, current sample results, and negative exposure assessments (NEA).

### 2.1.3 SUMMARY OF WORK

A. Perform all planning, administration, execution, and cleaning necessary to safely remove and/or work around lead paint, as required as part of this contract in association with the activities scheduled to take place as indicated in the Contract Documents, exercising due care and utilizing proper protective

measures as necessary to prevent personnel exposures and environmental contamination.

B. Identify location of all lead paint to be removed as indicated within the bid specifications and as identified during the pre-construction job walk and outlined in this section.

## 2.1.4 SCOPE OF WORK

A. Reference any demolition key notes listed on any of the demolition floor plans if provided by the Owner and the lead removal specification for this building. If any demolition activities within this building come within a direct path with any of the lead materials, the Contractor will take necessary actions in working in and around the lead materials as listed, following the lead removal specification that is place. All painted materials will be treated as lead containing whether stated or not within the lead removal specification. Several areas that contain asbestos and have been listed within the asbestos removal specification that has been prepared for this modernization are also painted. Cross reference the asbestos removal specification and the lead paint removal specification for details.

Damage to the paint containing lead is anticipated - reference both the lead specification and the asbestos specification during this project.

1. Remove and properly dispose of all flaking and blistered paint containing any amount of lead from all work areas identified as required. Remove and properly dispose of any Restroom sinks, Restroom Toilets, Porcelain Sinks, Porcelain Drinking Fountains as lead Containing.

2. Remove paint which contains any amount of lead (which is in good condition) from lead painted materials only as necessary to provide a clean surface for cutting, welding, or torching.

3. Properly package, characterize, transport and dispose of lead painted materials, paint
"chips" and associated debris, cleaning materials and used personal protective equipment.

**4. All building materials with paint attached, construction debris with lead painted building components, lead removal components, all associated removal debris, and restroom fixtures from the abatement shall be tested using the WET METHOD (TTLC and then TCLP, and/or STLC) as required for hazardous waste disposal. The collected small debris and paint chips that are to be disposed of by the Contractor will most probably be classified as a hazardous waste. Characterize packaged waste prior to removal of waste from the site. All waste stream sampling for lead waste generated by the lead abatement Contractor as listed will to be completed by the removal Contractor – removal waste stream sampling and reporting.**

5. Transport the packaged lead painted waste to an approved landfill and dispose of following disposal requirements based upon profile sampling. (Notify the Owner how the waste will be disposed of prior to the waste leaving the site)

6. Perform personnel lead exposure monitoring and biological monitoring as required for the safety of the Contractor's workers.

7. The general contractor / demolition contractor shall conduct all debris waste pile sampling prior to disposal of demolition debris created during the project. (Debris sampling following the State of California waste stream sampling criteria) – construction demolition waste stream sampling and reporting.

8. The general contractor shall notify all employees and sub-contractors of the presence of lead materials that may be in a direct path of their construction / demolition activities. General lead awareness shall be completed for all personal that may come in contact with lead materials as part of this construction project.

B. Work Not Included.

1. Environmental air monitoring (and clearance sampling - if needed) for the Owner.

## 2.1.5 SUBMITTALS

A. Provide submittals to the Owner's Representative at appropriate times in the execution of the Work to allow for sufficient and prompt review by Owner's Representative. Revise and resubmit as necessary to establish compliance with the specified requirements.

## 2.1.6 WORKSITE CONDITIONS

Worker and Visitor Procedures: The Contractor is hereby advised that the U.S. Government has determined lead to be a POISON. Contractor shall provide workers and visitors with respirators which, as a minimum, shall meet the requirements of OSHA and protective clothing during preparation of system of enclosures, prior to commencing, during actual lead removal, and until final clearance tests are accepted.

## 2.1.7 WORKER PROTECTION

It is the responsibility of the Contractor to maintain adequate protective equipment and procedures for all his employees and those of subcontractors and suppliers at all times, and to instill in them a high level of safety-consciousness for the duration of the Project as they relate to all lead requirements for work being completed in the State of California.

## 2.1.8 QUALITY ASSURANCE MEDICAL EXAMINATIONS

Before exposure to lead-contaminated dust, provide workers with a comprehensive medical examination as required by 29 CFR 1926.62 and 29 CFR 1926.103. The examination will not be required if adequate records show that employee has been examined as required by 29 CFR 1926.62 within the last year. Also required is baseline biological monitoring consisting of blood lead level and Zinc Protoporhyrin (ZZP) with 2 weeks prior to job assignment. Other requirements as defined in title 8 CCR 1532.1 also apply. All persons who may be exposed to lead shall be given a comprehensive physical as required in the lead standard. This physical shall include a base line lead in blood test to prove that blood lead levels are less than 25 ug of lead per 100 grams of whole blood.

**Medical Records**
Maintain complete and accurate medical records of employees for a period of at least 40 years or for the duration of employment plus 20 years, whichever is longer.

**Training**
The on-site consultant shall verify that each employee performing paint removal, disposal, and air-sampling operations has received training prior to the time of initial job assignment, in accordance with local, state, and federal standards. (Lead in construction Training in accordance with title 8 CCR 1532.1 as a minimum) Only properly trained and certified lead workers shall be allowed inside the exclusion areas during removal or cleaning. All on-site sub-trades that may be exposed to any amount of lead or come in contact with lead, shall receive Lead in construction Training in accordance with title 8 CCR 1532.1 as a minimum.

**Training Certification**
Contractor will submit certificates signed and dated by the training facility and by each employee stating that the employee has received training all required lead training. A pre-start raining/meeting will take place with all employees cover specific hazards associated with this project.

**Personal Protective Equipment (PPE)**:
All personnel who will be authorized to enter the areas of potential contamination will be fully qualified to wear respiratory protection as defined in 29 CFR 1910.134, 29 CFR 1926.62, Title 8 CCR 1532.1 and Title 8 CCR 5144. The abatement Contractor will assure that such personnel have received medical approval to wear respiratory protective equipment, and have successfully been fit tested with the brand, model and size of respirator that will be worn. Documentation of medical fitness and fit testing will be provided. These requirements will remain in effect for all personnel who enter the work area until air-monitoring results demonstrate that airborne levels of lead dust are below 30 micrograms per cubic meter of air, and wipe- testing protocol proves that the areas are safe for unprotected habitation.

Except to the extent that more stringent requirements are written directly into the Contract Documents, the following regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet the more stringent requirement.

OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910.1025 and 134, 29 CFR 1926.62.

Cal/OSHA – California Division of Occupational Safety and Health, Safety and Health Standards 8 CFR 5208, 5144, and 1532.1.

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

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

CDPH – California Department of Public Health Title 17 Lead Regulations

The level of respiratory protection assigned will be based on the results of monitoring for airborne lead fumes and dust in the work area. The results of the air monitoring will be submitted to the Owner.

Permissible Exposure Limit (PEL):

1. 8-Hours' Time Weighted Average: TWA concentration of lead to which any worker may be exposed to shall not exceed 50 µg/$m^3$.

Respiratory Protection Factor:

From 8 CCR 5144 Table 1 – Assigned Protection Factors

| Respirator Type | Protection Factor |
|---|---|
| Air purifying respirator:<br>Negative pressure respirator<br>P-100 filter<br>Half facepiece | 10 |
| Air purifying respirator:<br>Negative pressure respirator<br>P-100 filter<br>Full facepiece | 50 |
| Powered Air Purifying Respirator (PAPR):<br>Positive pressure respirator<br>P-100 filter<br>Full facepiece | 1,000 |
| Supplied Air Respirator:<br>Positive pressure respirator<br>Continuous flow or Pressure demand or | 1,000 |

other positive pressure mode
Full facepiece

Self-contained breathing apparatus (SCBA): 10,000
Pressure Demand mode

Air Purifying Respirators

Respirator Face-Piece: Provide half face or full-face type respirators. Equip full face respirators with a nose cup or other anti-fogging device.

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

All respirators and cartridges shall be NIOSH approved for lead dust and fumes. All personnel shall initially wear at least a half faced negative pressure respirator with approved cartridges for lead dust, mists, and fumes for paint scraping. (**Contractor to submit a respirator protection program).**

Fit Testing:

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

In addition to the initial fit test for the brand, model and size of respirator to be worn by each assigned worker, a field fit test to determine that the face piece properly seals will be performed each time the respirator is put on.

The following steps will be taken:

a) Adjust the respirator to the face according to the manufacturer’s instructions.
b) Cover the air inlets with the palms of the hands.
c) Gently inhale so that the face piece collapses slightly.
d) Hold your breath for ten (10) seconds.

e) The respirator shall remain slightly collapsed with no inward leads detected.
f) Close off the exhalation valve with the palms of the hands.
g) Exhale gently.
h) A small buildup of positive pressure, with no outward leaks,
i) Indicates a good fit.

All workers assigned to lead abatement related work will be provided sufficient sets of protective full-body disposable clothing. The suits will be taped at the wrist and ankles prior to entering the work area. Additional protective clothing will consist of disposable gloves, foot coverings and headgear. Eye protection and hard hats will be provided and shall be worn by all personnel in the exclusion or abatement areas.
Furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least every 6 months thereafter as required by 29 CFR 1926.62. Establish and implement a respiratory protection program as required by ANSI Z88.2, 29 CFR 1926.103, 29 CFR 1926.62, 29 CFR 1926.55.

**Hazard Communication Program**
Establish and implement a Hazard Communication Program as required by 29 CFR 1926.59.

**Employee Information, Training and Certification**
The employer shall provide information about lead hazards, according to the hazard communication standard (section 5194 Cal/OSHA Lead in Construction Standard) to all employees exposed to lead.
For all employees exposed to lead at or above the action level (AL) on any day, exposed to lead compounds that cause eye or skin irritation, or who perform any of the specified trigger tasks, the employer shall provide initial (pre-placement) training that includes all of the required content from the OSHA standard and its appendices.

**Hazardous Waste Management**
Contractor will submit a Hazardous waste management plan to the Owner prior to beginning any lead paint work. Federal, State, and Local hazardous waste regulations will be followed as well as these items that are to be addressed in the Contractor submitted plan:

a. Proper notification and site posting prior to any lead paint activities or disturbance. This may include but is not limited to reporting to CDPH (form 8551- at least 5 days before conducting lead-related construction work), Cal OSHA notifications (at least 24 hours before conducting lead-related construction work involving any of the trigger tasks listed in the OSHA standard) and required site/tenant postings.

b. Identification of hazardous wastes associated with the work.
c. Estimated quantities of wastes to be generated and disposed of.

d. The names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact.

e. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.

f. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
g. Spill prevention, containment, and clean-up contingency measures to be implemented.
h. Work plan and schedule for waste containment, removal and disposal. Waste shall be cleaned up and containerized daily.

**Safety and Health Compliance**
In addition to the detailed requirements of this specification, Contractor shall comply with laws, ordinances, rules, and regulations of Federal, State, and Local authorities regarding removing, handling, storing, transporting, and disposing of lead waste materials. Comply with the applicable requirements of the current issue of 29 CFR 1926.62.

**Competent Person**
The Contractor shall have a competent person on site all times during the lead paint activities performing duties in accordance with 1926.62. They will be performing the following:

A. Certify that training has meet all federal, state, and local requirements.

B. Review and approve lead-based paint removal plan for the conformance to the applicable reference standards.

C. Continuously inspect lead based paint removal work for conformance with the approved plan.

D. Perform air and wipe sampling as required.

E. Ensure that work is performed in strict accordance with the specs at all times.

F. Control work to prevent hazardous exposure to human beings and to the environment at all times.

G. Certify the conditions of the work as called for in the specifications.

## PART 2 – PRODUCTS

### 2.2.1 PRODUCT HANDLING

A. Deliver all materials as described in this Section in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.

B. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.

C. Remove from the premises all damaged or deteriorating materials. Dispose of materials that become contaminated in accordance with applicable regulatory standards.

### 2.2.2 LEAD PAINT OPERATIONS MATERIALS

A. Industry standard lead paint operations removal materials. (To be listed in Contractor's submittal package)

B. Provide 30-gallon heavy duty type "17E" closed head, leak tight steel drums with tight sealing locking metal tops.

C. Provide paint sealant to be applied after loose and peeling paint has been removed from newly scarped painted surfaces. The paint sealant material is to be applied by the lead removal Contractor. The paint stripper product is to be pre-approved by the Owner prior to commencement of work.

### 2.2.3 EQUIVALENT PRODUCTS

A. The Owner will consider equivalent products or materials by other manufacturers for approval if the scheduled time for the material to be used. Minimum information shall include Safety Data Sheet (SDS) and application recommendations for use on specific materials identified on this project.

### 2.2.4 TOOLS AND EQUIPMENT

A. Tools and equipment as specified in this specification and as industry standard for lead paint removal.

## PART 3 – EXECUTION

The following general sequences of work are intended to provide guidance for performing the Work. Contractor shall address its specific sequencing in its work plan. Contractor to have a CDPH certified lead supervisor on site at all times during lead related activities.

### 2.3.1 GENERAL

Prior to entry, personnel will remove street clothing and put on respiratory protection, clean coveralls, head coverings and foot coverings. Hard hats will be worn at all times. At least two sets of disposable coveralls shall be worn when inside the restricted work area.

Clean respirators and protective clothing will be provided and utilized by every person entering the work area. Personnel in designated personal protective clothing will then proceed to the work area.

Before leaving the work area, personnel will remove any gross contamination from the outside of the respirators, their boots, and other protective clothing by vacuuming themselves off with the HEPA vacuum. Personnel will proceed to peel off at least the outer protective disposable suit and place it into a properly labeled disposal barrel located near

the designated exit site. The Contractor may provide a shower, but it is not required for the paint scraping. If a shower is not supplied by the Contractor, then an area for washing the hands and face of the workers in an area segregated from the work area is required. Personnel will only be HEPA vacuuming themselves off prior to leaving the lead restricted zones for scraping. They will first vacuum themselves off, and then go into the clean room to dress out in clean clothes. All protective equipment, and other contaminated equipment will be placed into labeled containers or plastic bags while still inside the restricted zones or containments. Equipment that is to be removed from the hazard zone shall be contained or bagged as described, or it shall at a minimum be wet wiped down or HEPA vacuumed prior to exiting the contained lead work areas.

All wastewater from showering (if there is showering), and other waters used for cleaning must be tested for disposal. It is, therefore, required that all water from cleaning or decon operations be stored in an onsite container(s).

Water for emergency eyewash and drinking shall, also, be provided at the decontamination site.

Place all tools, staging, etc. necessary for the work in the area to be isolated prior to erection of plastic sheeting drop cloths and boundary work enclosures.

Contractor shall shut down and lock out all electrical power to the area. Contractor shall wire in temporary power as specified from outside the work area for abatement activities. This includes lighting inside enclosure unless it is rated for a wet location.

**Constructing Temporary Facilities**

1) Owner may designate an area on-site for Contractor's use as a temporary hazardous waste storage site. Contractor is responsible for security of hazardous waste from the time it is generated until its ultimate disposal at the landfill.

2) Construct decontamination units for lead paint work as specified.

3) Inspect containers for leaks or corrosion weekly and keep written records of inspections on site.

## 2.3.2 CONTROL ACCESS

A. Permit access to the lead-contaminated work areas only through the decontamination unit. All other means of access shall be closed off and sealed and warning signs displayed on the clean side of the sealed access.

Warning signs printed in English will be posted at the perimeter of the restricted area to provide notice of potential airborne lead. The signs will be located at regular intervals and at such a distance that personnel may read the signs and take necessary precautions required prior to entering the area. Signs shall conform to 29 CFR 1926.62 (m). The sign shall be at least 20" by 14" displaying the following legend in the lower panel:

**WARNING**
**LEAD WORK**
**AREA POISON**
**NO EATING,**
**DRINKING, OR**
**SMOKING**

Entry and exit routes will be established and clearly marked. Control of site entry and exit will be established before the project begins.

Employee and authorized personnel will enter the containment areas through a worker site egress and exit site which must be at the decontamination site located at a convenient entry and exit point to building areas. Anyone who enters a work area must read this plan and sign an entry log upon entry and exit. All pertinent information, like the abatement plan, will be posted at this entrance and exit site.

Prior to entering the work area, personnel will read and become familiar with all posted regulations, personal protection requirements and emergency procedures. A sign-off sheet will be used to acknowledge that these procedures and regulations have been received and understood by all personnel.
Engineering controls will be established and maintained to control lead dust: including the establishment and maintenance of the lead control area, decontamination system and continuous misting and HEPA vacuuming by experienced, trained, certified abatement personnel from the abatement Contractor.

## 2.3.3 PREPARATION / EXECUTION

### A. General Set up Operations – Paint Stabilization prior to demolition of lead painted building materials

Because of the low risk associated with this type of lead abatement, a full containment for lead abatement is not required. Lead safe work practices will be followed per title 17. There will be at least a lead restricted zone around all sites of paint scrape, and preparation for the scraping will be in accordance with the 1995 HUD Guidelines, Chapter 8, Tables 8.1 through 8.3.

1. Provide warning signs and barrier tape to demark the lead paint work area.

2. Contractor shall ensure that the lead contamination is confined within the work area and that all surfaces located in the work area are free from any lead accumulation when the work is completed. This shall be accomplished by creation of an impermeable containment.

3. Provide drop cloths of six mil polyethylene sheeting at the base of materials to be addressed. Extend drop cloths a minimum of six feet beyond the area(s) where lead painted materials will be scraped.

4. Install critical barriers consisting of one layer of 6-mil reinforced polyethylene sheeting.

Ensure that all barriers remain effectively sealed and taped for duration of abatement and subsequent cleaning. Visually inspect enclosure at the beginning of each work period. Repair damaged barriers and remedy defects immediately upon discovery. Contractor shall be responsible for environmental cleanup of areas contaminated due to failure of critical barrier system.

5. Construct separate worker decontamination units in compliance with OSHA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit shall open into airlock on both contaminated and uncontaminated sides. Construct decontamination units of appropriate materials (including plywood and plastic sheeting). Shower in personnel decontamination unit shall contain both hot and cold running water. Supply sufficient shower units to comply with OSHA regulations. Post OSHA decontamination procedures in change room and equipment room for duration of Project. Decontamination units shall be constructed weather tight and shall have a lockable door. Provide keys for decontamination door to Owner and Engineer.

6. Install wastewater collection system. Collect shower and wash water for characterization and disposal. Shower and wash water shall be segregated from other waste, filtered through filters having not more than 5-micron pore size, and characterized for disposal as a separate waste stream. Dispose of used filters with solid waste. Install a sump pump of sufficient capacity to collect twice the amount of waste liquid and sludge expected to be produced.

7. Notify Abatement Consultant for observation and acceptance of all critical barriers, HEPA filtration systems, and decontamination units before proceeding.

**B. Paint Stabilization (addressing loose and flaking paint)**

For Painted Substrates with Paint in Poor Condition (flaking, blistered, cracking)

1. Prepare work area as previously specified in Paragraph 3.03 of this section. For Exterior loose and flaking paint stabilization prepare the work area as stated 3.03 of this specification and follow exterior work practices. Work area shall consist of those areas where paint is in poor condition or cutting may occur. (The intent is not total removal of paint but the stabilization of paint which may delaminate from the substrate during re-painting operations).

2. Remove lead paint which is in poor condition. Acceptable methods include wire brushing, or scraping. Do not use chemical strippers for removal of paint in poor condition. There shall be no visible emissions from any lead remediation work. All lead abatement work shall be done under wet conditions. Hand methods shall be used to remove the loose and flaking paint chips. All paint chipping and scraping must be done in such a manner as to preclude any emissions of lead dust. The Contractor shall keep the dust down to bare minimum levels. Once removed, the immediate areas inside the containment shall be cleaned up by HEPA vacuuming and wet wiping and HEPA vacuuming again. The abatement Contractor must spray water mist to keep dust levels down, and HEPA vacuum up dust and any loose debris from the poly that shall be placed on the floor / soils/ pavements during scraping to catch debris. The abatement Contractor will

HEPA vacuum, wet wipe, and HEPA vacuum again and the conclusion of scraping. The abatement Contractor shall not use dry sweeping to clean up any loose leaded debris.

3. Only approved ladders or scissors lift shall be used to elevate workers, if necessary. All workers who are required to work at heights above four feet shall be equipped with lifelines and harnesses.

4. All paint flakes, and other debris that is generated from this operation shall be lightly wet wiped up by hand or HEPA vacuumed and placed into a clearly labeled hazardous waste container. All lead paint chips, dust and debris shall be waste profiled prior to disposal per Federal, State, and local requirements.

5. The debris from the abatement shall be tested using the WET METHOD (TTLC and then TCLP, and/or STLC) as required for hazardous waste disposal. The collected small debris and paint chips that are to be disposed of by the Contractor will most probably be classified as a hazardous waste.

6. The abatement Contractor shall ensure that all areas of lead scrape are thoroughly clean and free of dust and paint chips.

7. Package lead painted debris for waste characterization and transportation to disposal site following the disposal plan in this work plan.

If building material / substrate cutting is required where lead paint is present, remove lead paint from areas where cutting will occur. Remove paint from a strip no less than 12 inches wide. Acceptable methods include chemical strippers and full scraping.

a) Conduct area set up as listed above. (Section 3.03)
b) Perform paint stripping operations in accordance with manufacturer's directions (including the recommended personal protective equipment).
c) Perform the operation over a drop cloth to catch any paint chips which may be generated.
d) Clean surface in accordance with manufacturer's recommendations. Use minimal amount of liquids necessary to remove stripper and lead paint materials.
e) Segregate waste from chemical stripping operations for disposal as a separate waste stream.
f) If painted materials must be cut into manageable pieces, use methods that will minimize dust. If open flame cutting methods are used in conjunction with chemical strippers, Contractor shall take adequate precautions to ensure against fire and explosion.

**Air & Environmental Monitoring**

Sampling of airborne concentrations of lead dust will be performed in accordance with 29 CFR 1926.62 and Title 8 CCR 1532.1. Air monitoring will be conducted by the Project IH Consultant. Wipe sampling may also be utilized during the project to ensure lead control areas are adequate and are not being breached.

Area monitoring will be conducted each shift during the abatement process at the designated limits of the control areas.

The Contractor shall collect personal samples, at their expense, for those workers who are anticipated to be at the greatest risk of exposure as determined by the onsite supervisor. Air samples will be taken on at least 25% of the work crew or a minimum of 2 persons; whichever is greater, during a work shift. If the quantity of airborne lead dust monitored at the designated limits at any time exceeds 30 ug/$M^3$ all work will be stopped and the Project IH Consultant shall be immediately called to direct correction of the conditions causing the increased levels and notify the abatement Contractor. The Project IH Consultant shall review the sampling data taken during that day to determine if conditions require any further change in work methods. Work shall resume when approval is given by the Project IH Consultant. If adjacent areas are contaminated, the areas will be cleaned, monitored and visually inspected.

## 2.3.4 BUILDING CONTAMINATION

A. If it is determined by visual identification or air samples that building contamination has occurred as a result of the negligence and/or poor work practices of the Contractor, the Contractor agrees to clean the affected premises at no charge to the Owner. The Contractor also agrees to accept all liability for damages claimed or lawsuits brought by person(s) exposed to such contamination.
B. The Contractor shall be responsible for all costs incurred by the Consultant should other portions of the building become contaminated with lead dust as a result of the Contractors poor work practices or other activities.

**Cleanup and Final Clearance Testing**

A. Provide general clean-up of work area concurrent with the scrapping of lead paint. Do not permit accumulation of debris on workspace floor.
B. At the Owner’s option, wipe samples will be collected around the various lead operation work areas and in "clean rooms" of decontamination units to document effectiveness of Contractor's isolation practices (keeping lead contamination localized). If samples indicate levels higher than background levels, Contractor will be required to perform cleanup of contaminated areas at its own expense.
C. The Owner’s Representative shall conduct containment/control area effectiveness air monitoring prior to, and throughout, stabilization and cleaning operations. If environmental sampling indicates lead levels higher than background levels, Contractor will be required to perform cleanup of contaminated areas at its own expense.
D. Lead Operations / Clean Up and Clearance testing.
    1. HEPA-vacuum all surfaces to remove loose debris. Wipe all surfaces with a solution of trisodium phosphate (TSP) and water to remove dust and film. Dispose of wipers frequently to avoid spreading contamination. Re-HEPA vacuum all surfaces that have been wiped down.
    2. Notify the Owner’s Representative for observation to determine completeness of cleaning.
    3. The competent person will conduct a thorough visual inspection before there is any final clearing of the hazard or restricted zone. After the final clean-up, a preliminary visual inspection will be conducted by the Owner’s Representative to ensure that all visible dust and debris has been removed. The Contractor shall provide the Owner’s Representative at least 24 hours’ notice prior to

scheduling inspections. If the Work Area is not visibly clean, as determined by the preliminary visual inspection by the Owner's Representative, the Contractor shall re-clean and decontaminate, until the Work Area passes inspection. Once the criteria for visual inspection has been satisfied, final clearance wipe samples will be taken and analyzed. Upon notification from the Owner's Representative that work area is visibly clean, the owner's representative will oversee Final Clearance testing.

All clearance wipe samples shall be collected in accordance with Regulatory Guidelines at the discretion of the Owner's Representative, a minimum of three samples per 1,000 SF, one each from the floor, window sill and exterior horizontal surface.

a. Clearance Guidelines:
   10 $\mu g/ft^2$ (Interior floors)
   100 $\mu g/ft^2$ (window sills)
   400 $\mu g/ft^2$ (exterior horizontal surfaces)

The results from the air monitoring and wipe testing will be submitted to the Owner and the abatement Contractor. Cleaning will continue, if necessary, until these clearance criteria are met. The barriers and signs establishing the containment will not be removed until these final visual clearance criteria have been met.

4. Upon notification from the Owner's Representative that lead final clearance samples indicate acceptable clearance levels, dismantle decontamination enclosure systems, remove critical barriers, and thoroughly HEPA-vacuum and wipe area with trisodium phosphate solution.

5. Lead sample results will be reported in terms of micrograms of lead per cubic meter of air (air samples) or micrograms of lead per square foot of surface (wipe samples). Samples will be collected in accordance with EPA, OSHA, or HUD recommended procedures for the type of sample being collected.

6. If any sample indicates contaminant levels higher than the specified clearance levels, full decontamination and clearance procedures (including re-sampling) shall be performed at Contractor's expense.

7. All other trades personnel will be excluded from the work area until the owner gives approval for the area to be reoccupied without respiratory protection and the engineering controls have been demobilized.

**Fire and Medical Emergency Response**

Each day a tailgate safety meeting shall be held outside of the containment areas for all assigned personnel prior to the start of work. All personnel will be made aware of the site address and the location of any existing on-site fire alarms and the location of the nearest telephone. This information will also be posted at the on-site notice posting board located at the entrance to any lead control area along with the phone numbers for police, fire, ambulance, and the name and location of the nearest emergency medical facility. The abatement Contractor in his submittal package prior to any work must provide this information to the Owner.

In the event of a medical emergency within the control area, the sick or injured person will be decontaminated before removal if the nature of the illness or injury is not life threatening or will not be exacerbated by the decontamination process. If the illness or injury is life threatening, or is likely to be made worse by the decontamination process, then the ill or injured person will be removed immediately without regard to decontamination and medical attention summoned. Illness and/or injuries occurring on the job will be promptly and thoroughly investigated.

In the event of fire, the first person to notice the fire shall alert others within the control area and immediately evacuate. The fire alarm, if present, will be activated and the fire department will be called from the nearest safe phone.

A complete first aid kit will be kept on-site for minor injuries.

**Disposal of Lead Waste**

Suspect lead containing paint residues will be tested to determine whether it is hazardous waste. All suspect hazardous paint chips, dust and other generated waste shall be tested first for total lead or TTLC, and then by the STLC / TCLP leaching test procedures for lead content prior to disposal. All waste characterization will be performed by the Contractor, at the Contractors expense, and submitted to the consultant for approval.

All waste generated from this work shall be treated as hazardous waste until S.T.L.C., T.C.L.P. or T.T.L.C. results indicate otherwise. The Contractor is responsible for any disposal of all waste, whether common construction debris or RCRA hazardous waste (the paint chips and dust from the abatement process).

Small lead contaminated hazardous waste including: water, scrap, debris, bags, containers, equipment, and clothing which may produce airborne concentrations of lead dust will be collected and placed into USDOT approved drums for disposal. Each drum will be properly labeled to identify the type of waste and the date the drum was filled.

A Uniform Hazardous Waste Manifest for the small debris from paint chip scraping / abatement work will be obtained and properly filled out, by adhering to the following procedures: At the start of the project, the empty container must be in good condition, empty, lockable and have a valid state certification. If the container fails the inspection, the deficiency must be corrected or another container obtained.

When the container is approved, the Contractor will begin a manifest and hold it for up to 90 days. The abatement Contractor will provide information such as job site, contract number and the ultimate disposal site. The container will be marked with the current date as the accumulation start date. Waste may not be stored in an accumulation area for more than 90 days. Other container markings must be in place as required by law.

Lead waste (paint dust and chips, restroom fixtures) will be properly packaged and loaded into the container, which will be locked at all times except during loading or inspection. RCRA lead waste shall go in DOT approve barrels to be transported by an approved hazardous waste hauler.

Containerized waste will be loaded into an enclosed truck for transport. The enclosed cargo area of the truck will be lined with 6-mil poly sheeting to prevent contamination from leaking or spilled containers.

The personnel loading the lead containing waste will wear protective equipment including overalls, head and foot, coverings, gloves and a respirator.

Characterize packaged waste prior to removal of waste from the site. All waste stream sampling for lead waste generated by the lead abatement Contractor as listed will to be completed by the removal Contractor – removal waste stream sampling and reporting.

The general contractor / demolition contractor shall conduct all debris waste pile sampling prior to disposal of demolition debris created during the project. (Debris sampling following the State of California waste stream sampling criteria) – construction demolition waste stream sampling and reporting.

All building materials with paint attached, construction debris with lead painted building components, lead removal components, all associated removal debris, ceramic tiles, and restroom fixtures from the abatement shall be tested using the WET METHOD (TTLC and then TCLP, and/or STLC) as required for hazardous waste disposal. The collected small debris and paint chips that are to be disposed of by the Contractor will most probably be classified as a hazardous waste. Characterize packaged waste prior to removal of waste from the site.

## 2.3.5 COST FOR DISPOSAL OF HAZARDOUS WASTE

A. The cost for the correct disposal of all waste of this project shall be included in the Total Base Bid, including the lead abatement waste to be disposed of as hazardous waste based upon TTLC, STLC, and TCLP testing as outlined in this section, and according to 40 CFR 241, 261, and 262. The cost for the disposal as hazardous waste shall include all fees, permits, labor, materials, profit, overhead, waste transfer costs, and all other costs incidental of hazardous disposal.

B. The Contractor shall submit to its approved laboratory for testing, samples of each type of component removed as part of the work of this project. The Contractor's total base bid shall include minimum requirements of the testing of materials referred to in this Section. In addition to these materials, the Contractor's base bid shall include the cost of two samples of each type component that was not removed in the sample dwelling units but will be removed during the project.

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

**END OF SECTION II**

## SECTION III

# PCB's / Mercury Containing Light Tubes / Universal Waste Handling, Removing, and Disposal Specification

**Scope of Work**

This work plan addresses the handling, removing and disposing of the following materials including but limited to:

1. Polychlorinated Biphenyls (PCBs) containing materials in electrical ballasts
2. Mercury containing light tubes
3. General universal waste
4. Other Regulated Materials

This work plan will be put in place if any construction activities takes place around the existing lighting structures that will cause disturbance in association with the lighting. The removal, hauling, and disposal of the referenced materials and all associated activities to complete the project as listed will be conducted at the contractor's expense. All remaining hazardous/Other Regulated Materials (ORM) are to be properly removed, transported, recycled, and/or disposed in accordance with all applicable regulations (local, state, and federal) and these specifications.

The findings from the survey on Universal Wastes are detailed in Table 3-1. This table provides a comprehensive summary of the Universal Wastes inventory identified within the survey area:

**Table: 3-1**
**Universal Waste Checklist**
**Project Number: DGS San Diego Haz Mat Survey**
**Project Name: 1301 State Street, San Diego, California 92101**

| Material | 1301 State Street |
|---|---|
| Thermostats containing liquid mercury | Assumed |
| Lead sulfate-sulfuric acid batteries | Assumed |
| Mercury switches and devices | Assumed |
| Oil/fluid filled gauges, devices, valves and parts | Assumed |
| Oil/fluid filter units | Assumed |
| Oil/fluid door closer reservoir | Assumed |
| Paints & Solvents | Assumed |
| Water Heater | Assumed |
| Electric light ballasts | Assumed |
| LED light lamps and bulbs | Assumed |
| Florescent light lamps and bulbs | Assumed |
| Mercury Light bulbs | Assumed |
| Halogen Light bulbs | Assumed |
| Red Kidde fire/smoke detectors (Fire Detector Horn Strobe | Assumed |
| High intensity discharge lamps | Assumed |
| Oil filled gauges | Assumed |
| PCBs containing ballasts | Assumed |
| Radioactive detector ballasts | Assumed |
| Radioactive compact florescent tubes | Assumed |
| Analog electrical meters | Assumed |
| Fire extinguishers | Assumed |
| LED Exit signs | Assumed |
| Compressed hydrocarbons and other gases cylinders | Assumed |
| Freon from air conditioning units | Assumed |
| Expansion dampers with PCBs oil | Assumed |
| Interchangeable ignition transformers | Assumed |

| | |
|---|---|
| Electronic Transformers | Assumed |
| Regrigerator | Assumed |
| Generator | Assumed |
| Electric Thermostats | Assumed |
| EV Parking Stations | Assumed |

Additionally, the ESHOP Hazardous Materials Investigation Memorandum report identified the presence of the following:

- Polychlorinated Biphenyls (PCB) Light Ballasts – Throughout Interior of Building
- Elevator Hydraulic Fluid – Elevator Control Room
- Freon – HVAC Unit(s) on Roof
- Mercury Thermostats – Throughout Interior of Building
- Fluorescent Light Tubes – Throughout Interior of Building

**Definitions**

Definitions are those contained in 40 CFR 761

**Notifications**

The project owner and the on-site inspector shall be given a courtesy notification ten (10) days prior to start of any related work outlined within this specification / work plan.

**References**

Code of Federal Regulations (CFR)

| | |
|---|---|
| 29 CFR 1910.134 | Respiratory Protection |
| 29 CFR 1910.145 | Accident Prevention Signs and Tags |
| 29 CFR 1910.1000 | Air Contaminants |
| 29 CFR 1926.59 | Hazard Communication |
| 40 CFR 761 | Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in commerce, and Use Prohibitions |
| 40 CFR 171 | General Information, Regulations, and Definitions |
| 40 CFR 172 | Hazardous Materials Tables and Hazardous Materials Communications Regulations |
| 40 CFR 173 | Shipments and Packing |
| 40 CFR 174 | Carriage by Rail |
| 40 CFR 175 | Carriage by Aircraft |
| 40 CFR 176 | Carriage by Vessel |
| 40 CFR 177 | Carriage by Public Highway |
| 40 CFR 178 | Shipping Container Specification |
| 40 CFR 179 | Tank Cars |

**Submittals**
The Consultant's review of submittals shall not relieve the Contractor from the responsibility for complying with contract drawings or specifications unless the Contractor has secured the written approval of the Consultant for all deviations. Consultant's review of submittals shall not relieve the Contractor from responsibility for errors and omissions in the submittals.

Submittals shall contain only those items specified and shall not include items which are not provided for under this contract unless they are clearly marked and/or voided as not being part of this contract. The submittals that are required are as follows:

**Prior to Start of Work Activities:**
As required, notification in writing of proposed work, with copy to the Owner, the EPA Regional Office, OSHA or OSHA Regional Office, local air pollution agency, and local authority with responsibility for enforcement of occupational health and safety regulations and enforcement of any environmental regulations with jurisdiction in the state in which this project is located.

Submit proof satisfactory to the Owner that all required permits, site locations and arrangements for transport and disposal of PCB containing materials, mercury filled light tubes, Universal Waste (UW), Other Regulated Materials (ORM) and general waste and debris have been obtained.

Submit to the Owner for information and approval, a description of the plans for construction of decontamination enclosure systems and for isolation of the work areas in compliance with this specification and applicable regulations.

Submit documentation to the Owner indicating that all employees have had medical examinations and instruction on the hazards of PCB exposure, use of protective clothing, respirator fit tests, entry and exit from work areas, on work procedures and protective measures.

All training, medical examinations, and respirator fit-testing shall conform to Title 8 California CODE OF REGULATIONS (CCR) 5208 as well as 40 CFR, Part 763, Appendix C to Subpart E as applicable.

The Contractor shall submit to the Owner, including but not limited to the following:

a. Weekly work schedule.
b. Various manufacturers information, including Safety Data Sheets (SDS).
c. Type and brands of materials for worker protection.
d. Method of application and materials to be used.
e. Medical exam results of all employees (OSHA 1910.1001), including chest roentgenogram, pulmonary function and forced expiratory volume at second (Contractor is responsible for the appropriate medical releases).
f. Test results (both personal air monitoring data and air pressure differential between work areas and external air).

g. Copies of all daily manpower and work logs indications area(s) and type of work performed.
h. Copies of all certifications of disposal.
i. Copies of permits.
j. Copies of all OSHA Form 101 or equivalent accident/injury/incident reports.

**Fall Protection**

Scaffolds and man lifts shall be equipped with guardrails and workers provided with the proper fall protection equipment.

Freestanding scaffolds shall not extend higher than four (4) times the minimum base dimension. Guardrails, toe boards, and outriggers shall be installed on scaffolds more than six feet in height. Planks shall extend to no more than 12 inches past the end support. Use of ladders and scaffolding shall be in accordance with established standards.

Only approved ladders shall be used inside the regulated areas. No ladder shall be placed directly on areas lined with polyethylene.

The contractor shall supply for approval a written fall protection safety plan.

**Hazard Communications**

The contractor shall supply for approval a written ongoing hazard communication program. There will be a file of SDS on site at all times for items used on this job site.

**Respirator Protection Program**

The Contractor shall supply for approval a written respiratory Protection Program.

**Submittal Procedures**

Deliver to the Owner point of contact two (2) copies of the submittal.

All submittals shall be submitted in hard-cover, three-ring, loose leaf binders, properly indexed with tabs separating each section.

Comply with progress schedule for a timely submission of submittals as they relate to work progress. Coordinate submittal of related items.

**Emergency Procedures**

All personnel should be briefed that the single emergency telephone number is 911.

**Fire:**

In the event of a fire, all personnel shall evacuate the area and call the fire department. Personnel shall be briefed to assemble at on-site designated area. The onsite Competent person shall be responsible for accounting for all employees. There shall be a minimum of two exits designated from the work area.

**Medical:**

There shall be a minimum of two employees on site with first aid and CPR training to handle: Life Threatening Injury: In the event of a life-threatening injury, the injured party shall be removed from the work areas as expeditiously as possible. 911 shall be called to

request medical assistance. The injured party removed and decontaminated as much as possible outside. Responding medical personnel shall be advised that the injured may be contaminated with PCB material as appropriate.

**Non-Life Threatening Injury:**
In the event of a minor non-life-threatening injury, the injured party shall exit through the decontamination unit following the proper exit decontamination procedures and proceed to medical assistance.

**Heat Stress/Heat Stroke:**
Heat stress and heat stroke are not expected to be a problem on this job. Cold potable water shall be always available on site.

**Hurricane/Earthquake etc.:**
In the event of hurricane warnings or earthquakes, personnel shall secure any loose items outside the building and proceed to a designated evacuation area. Competent person shall account for all employees.

**Coordination with Other Trades**
Other trades shall be notified that the regulated area is off limits except for emergency situations coordinated with the onsite Competent Person.

**Pre-Modernization / Demolition Inspection**
Prior to modernization / demolition, the contractors' competent person and industrial hygienist shall inspect all entities suspected of containing and/or contaminated with PCBs. A review of all light tubes will be conducted concurrently. The inspection will involve:

- Ensuring that all electrical current has been cut to electrical fixtures and transformers.
- Identifying and marking number and location of PCB containing electrical ballasts.
- Identifying and marking number and location of light tubes to be removed
- Identifying the location of all work areas and equipment storage areas
- Identify the location of waste storage prior to transport from the site

PCBs/ Universal Wastes / Other Regulated Materials (ORM)

- Identified Universal Wastes shall be appropriately removed, or recycled, or disposed of in accordance with the Department of Toxic Substances Control (DTSC), following strict adherence to the Title 22 of the California Code of Regulations.
- Assumed PCB containing equipment should be removed prior to renovation/demolition. The equipment should be inspected for “No-PCB’s” or “PCB Free” labelling during removal. Any unlabeled equipment should be handled and disposed of as PCB containing waste.
- PCB-containing devices should be properly removed or have the oils removed, transported and recycled or disposed of at an approved recycling or waste disposal facility.

- PCB use, storage and disposal are regulated by the United State Environmental Protection Agency (U.S. EPA) under the Toxic Substances Control Act (TSCA), and by Part 761, Title 40 of the Code of Federal Regulations (40 CFR Part 761). All materials or wastes that contain PCBs at concentrations of 50 ppm are regulated by TSCA.
- Assumed mercury containing equipment should be removed intact and disposed of by proper recycling prior to renovation/demolition.
- Electronic equipment should be removed intact and properly disposed of prior to renovation/demolition.
- Refrigerant containing equipment should have Chlorofluorocarbons (CFCs) extracted and properly disposed of prior to renovation/demolition.
- All hazardous materials activities must be performed in accordance with all applicable federal, state and local regulations.

**DEVICES WITH POTENTIAL HAZARDOUS MATERIALS/OTHER REGULATED MATERIAL (ORM)**

All associated devices, oils, liquids, refrigerants, and ORM materials must be handled, transported, and disposed/recycled in an EPA approved facility by persons with proper training in the handling of Universal Wastes and Hazardous Materials as defined by DTSC, OSHA and the US EPA

**Special Hazard Precautions**

When working with PCB containing materials, the following precautions shall always be adhered to:

- PCBs shall not be exposed to open flames or other sources of high temperature since toxic decomposition by-products may be produced.
- PCBs shall not be heated to temperatures of 55.0C (135.0F) or higher without approval. Smoking, eating and drinking are not permitted within 50 feet of the PCB control area.

**Removal and Disposal of Electrical Ballasts (Only if needed)**

If the existing light fixtures will be disturbed or removed, all fluorescent-ceiling fixtures will be checked from all construction areas prior to the first disturbance. The Contractor is required to inspect every ballast in each fixture and visually verify that each ballast is labeled “No PCBs” or is unlabeled and presumed to contain PCBs. Any ballast found during this process containing PCBs will be properly removed and disposed of as outlined in this specification. Prior to removal of the electrical ballasts, trained personnel shall dismantle the electrical fixtures, with care being taken so as not to cause any spills of PCB containing materials.

PCB Containing Electrical Ballasts: PCB containing electrical ballasts shall be carefully removed and packaged separately by placing in DOT approved containers. The use of open top 55-gallon drums with lid and lock band is recommended. A start date must be annotated on a label at the time the first ballast is placed in a drum. When the drums have

been filled, the removers will contact the owner point of contact and schedule a time to have a manifest signed and have the drums removed from the site. The containers shall be clearly labeled as containing PCB materials, manifested and transported to disposal at a permitted facility.

Examine each ballast to determine if oil has leaked, as identified by the presence of yellow oil or black tar like material on the outside of the ballasts. Any leaking PCB-containing ballasts or transformers shall be wrapped and sealed in 6-mil plastic disposal bags and placed in a separate steel drum or other approved container. Each disposal drum or container will have a sufficient amount of oil-absorbent material placed in the bottom to absorb any oil from ballasts that are leaking or may leak during transport. Clip off connecting wires as close as possible to the ballasts. Do not bend back ends of ballasts. All personal protective clothing contaminated with PCB shall be disposed of accordingly.

**Mercury Recommendations:**

**Fluorescent Bulbs and High-Intensity Flood Lights:**

- All mercury-containing fluorescent bulbs and high-intensity discharge (HID) lamps, including flood lights, should be carefully removed to prevent breakage. These lamps can release mercury vapor if they are broken, posing a risk to both human health and the environment. It is crucial to wear appropriate personal protective equipment (PPE), such as gloves and eye protection, when handling these items. Additionally, facilities should provide employees with training on the safe removal and handling of mercury-containing lamps.
- Packaging: Use containers designed specifically for fragile bulbs, such as fiberboard or cardboard boxes with dividers to prevent movement during transport. Each container should be properly sealed, labeled as “Universal Waste – Mercury-Containing Lamps,” and stored in a secure, ventilated area.
- Disposal: Dispose of all mercury-containing lamps according to universal waste regulations (UWR). In most jurisdictions, this includes following the guidelines outlined in California Code of Regulations, Title 22, Division 4.5, Chapter 23. Facilities should partner with an EPA-certified recycler that specializes in the handling and recycling of mercury-containing lamps to ensure compliance and environmental safety.

**Thermostats, Timers, Pressure Gauges, and Switches:**

- Devices such as thermostats, timers, pressure gauges, and switches that may contain mercury should be treated as mercury-containing universal waste. During removal, these devices must be handled with caution to prevent breakage or damage that could lead to a mercury spill. Personnel should be equipped with suitable PPE, such as chemical-resistant gloves and safety goggles, and should receive training on proper removal techniques.
- Packaging: Place all suspect devices in leak-proof, crush-resistant containers designed for hazardous materials. It is essential to label each container accurately, indicating that it contains “Universal Waste – Mercury-Containing Devices.” Secure storage of these containers in a designated area, away from high-traffic zones, reduces the risk of accidental damage.

- All mercury containing fluorescent bulbs and high intensity flood lights should be carefully removed, packaged, and disposed of as mercury containing universal waste.
- Remove, package, and dispose of all suspect thermostats, timers, pressure gauges, and switches as mercury containing universal waste.

**Draining Refrigerant from Refrigerated Units and HVAC Systems Prior to Demolition**

Before the demolition of refrigerated units or HVAC systems, it is important to safely drain and recover all refrigerants to comply with environmental regulations and to protect the environment and worker safety. The following steps may be taken to safely drain refrigerants:

- Conduct a thorough inspection of all refrigerated units and HVAC systems scheduled for demolition to identify the type and quantity of refrigerants present. Prepare a demolition plan that includes refrigerant recovery as a key task. Ensure that all technicians handling the equipment are EPA-certified and trained in refrigerant recovery procedures as required under Section 608 of the Clean Air Act.
- Use EPA-approved recovery machines designed for the specific type of refrigerant being drained. The equipment should be capable of achieving the required evacuation levels based on the refrigerant type and equipment size. Properly maintained and regularly calibrated recovery equipment is essential to ensure efficiency and compliance.

- Before starting the recovery process, isolate the refrigerant lines by shutting off all relevant valves and disconnecting the power supply to the equipment. This helps to prevent accidental activation of the unit and potential refrigerant leaks.

- Connect the recovery machine to the unit's service ports and initiate the recovery process. Monitor the recovery machine's gauges to ensure that the refrigerant is being properly evacuated and stored in a certified recovery cylinder. Follow industry best practices and manufacturer guidelines for each type of refrigerant and equipment to achieve full recovery.

- It is illegal to vent refrigerants into the atmosphere due to their harmful environmental effects. Ensure that all recovery procedures adhere to EPA, State, and local regulations to prevent intentional or accidental releases.

- Once the refrigerant is fully recovered, transfer it to EPA-approved storage containers. Label the containers with relevant information, such as the type and quantity of refrigerant, to facilitate safe handling, transportation, and disposal. Verify that the storage containers are in good condition and have the necessary safety caps and labels.

- After the recovery process, perform a final leak check on the unit to confirm that no refrigerant remains in the system. This step is crucial to prevent unintended releases during the demolition phase.

- Maintain accurate records of the refrigerant recovery process, including dates, quantities recovered, types of refrigerants, and disposal methods. These records are required for demonstrating regulatory compliance.

- Transport the recovered refrigerant to an EPA-certified recycling or disposal facility. Recycling facilities can reclaim the refrigerant to meet purity standards, allowing it to be reused in other applications. For refrigerants that cannot be reclaimed, ensure that they are disposed of safely at a facility approved for handling hazardous substances.

- Communicate with the demolition team to confirm that all refrigerants have been fully drained and the units are safe for dismantling. Provide documentation verifying that the refrigerant recovery has been completed according to regulatory standards.

**Draining and Removal of Generators and Transformers**

- Conduct a thorough assessment of the generators and transformers to identify all potentially hazardous materials, such as oil, coolants, lubricants, and Polychlorinated Biphenyls (PCBs). Establish whether the transformer contains PCB-contaminated oil or non-PCB oils, as this will affect the handling and disposal procedures.
- Confirm that all activities comply with local, state, and federal regulations for hazardous materials handling and disposal. This includes obtaining any required permits and following guidelines set by the EPA, DOT, OSHA, CAL/OSHA, DTSC, State, and local regulatory agencies.
- Disconnect all power sources from the generators and transformers to avoid electrical hazards. Isolate the units by disconnecting them from all electrical connections and grounding them to ensure the safety of personnel working on the draining and removal.
- Generators and transformers often contain fluids such as oil or coolants that need to be drained before removal. Follow these steps:
    - Use Spill Containment Measures: Set up spill containment measures, including using spill pans, absorbent materials, and secondary containment barriers, to prevent spills and leaks from contaminating the worksite.
    - Open the designated drainage valves or ports and use pumps if necessary to drain the fluids into approved containers. Ensure that the containers are clearly labeled, compatible with the fluids being collected, and meet the standards for hazardous waste storage. If dealing with PCBs, special containers rated for hazardous waste must be used.
    - Seal and Label Containers: After draining, securely seal all containers and label them with the contents, date, and any relevant safety warnings.

**Handling and Removal of Units**

- Once the fluids are drained, the physical removal of generators and transformers can proceed:
    - Use Proper Lifting Equipment: Generators and transformers are heavy and may require specialized lifting equipment. Use cranes, forklifts, or hoists with trained operators to ensure the safe removal of these units.

- Inspect for Residual Fluids: Conduct an inspection of the units to check for any remaining residual fluids or contamination. If residues are found, conduct additional draining or cleaning as needed before transport.

- Package the drained units securely for transport to prevent movement or shifting during transit. Depending on their condition and contamination level, the units may need to be transported to a recycling facility or a hazardous waste disposal site. If the generators or transformers contain PCB-contaminated materials, they must be transported following EPA's Toxic Substances Control Act (TSCA), DOT, DTSC, State and local guidelines.
- After the removal of generators and transformers, clean and decontaminate the site to remove any traces of oil or hazardous substances. Use absorbent materials, spill response kits, and approved cleaning agents. Collect and dispose of all cleaning materials following hazardous waste regulations.
- The drained fluids, including oil or coolant, should be disposed of or recycled at an EPA-approved facility. Non-PCB oils may be recycled, while PCB-contaminated fluids must be disposed of at a facility certified for PCB waste.
- Maintain accurate records of all activities, including fluid volumes drained, transport documentation, disposal certificates, and any safety measures taken. This documentation should be retained for regulatory compliance.
- Ensure that all personnel involved in draining and removing generators and transformers receive proper training on the handling of hazardous materials and emergency procedures in case of spills or accidents. Conduct periodic safety briefings and review site-specific hazards.

**Personnel Requirements for Handling Hazardous and Regulated Materials**

Only personnel who have received **OSHA HAZWOPER 40-hour specialized training** in the safe handling, management, and disposal of **PCB-containing materials**, **universal wastes**, **refrigerants**, and other **regulated materials (ORMs)** shall be permitted access to designated work areas. The training program must be developed and conducted by a **competent person** to ensure full adherence to all relevant regulatory standards. This training program must cover the following critical areas:

1. Personnel must be trained to identify various hazardous materials, including PCBs, universal waste (e.g., batteries, fluorescent lamps, mercury-containing devices), refrigerants, and other regulated substances. The training should cover the specific health risks, environmental impacts, and safety considerations associated with each type of material.
    - **PCB-Containing Materials:** Personnel must be trained to recognize and understand the hazards associated with Polychlorinated Biphenyls (PCBs), including their toxicological effects and environmental risks. The training should include recognizing common PCB-containing equipment, such as transformers, capacitors, ballasts, and other electrical components.
    - **Universal Wastes:** Training should cover the identification of universal wastes, such as batteries, fluorescent lamps, mercury-containing devices, electronic waste (e-waste), and any other universal waste identified by the Department of Toxic Substances Control (DTSC) or equivalent regulatory bodies.

    - **Refrigerants:** Personnel must be familiar with different types of refrigerants (e.g., CFCs, HCFCs, and HFCs) and their environmental impacts. Emphasis should be placed on the hazards associated with exposure to these substances, such as asphyxiation and chemical burns.
    - **Other Regulated Materials (ORMs):** Personnel should be trained in the identification and handling of additional regulated materials, including but not limited to hazardous oils, coolants, and contaminated soils or debris.
2. Personnel should receive specific instructions on the selection, use, and maintenance of PPE required for handling hazardous materials. This training should include:
    - Proper selection of gloves, safety goggles, foot covers, chemical-resistant clothing, and respiratory protection.
    - Correct procedures for donning and doffing PPE to avoid cross-contamination.
    - Maintenance, inspection, and storage of PPE to ensure ongoing protection.
3. Detailed decontamination procedures must be covered, including the safe removal and disposal of contaminated clothing, proper use of decontamination stations, and handwashing protocols to reduce the risk of exposure to hazardous substances.
4. Training must include an thorough overview of all relevant OSHA, CAL/OSHA, and EPA regulations pertaining to the safe handling, storage, transportation, and disposal of PCB-containing materials, universal wastes, refrigerants, and other regulated materials. This should include:
    - OSHA's Hazard Communication Standard (29 CFR 1910.1200), Personal Protective Equipment Standard (29 CFR 1910.132), and Respiratory Protection Standard (29 CFR 1910.134).
    - EPA's Universal Waste Rule and Section 608 of the Clean Air Act.
    - CAL/OSHA-specific regulations for handling hazardous materials within California.
5. Personnel must be trained on emergency response protocols for handling spills, leaks, or accidental releases of hazardous materials. This includes:
    - Procedures for containing and cleaning up spills using approved spill response kits.
    - Evacuation plans, first aid for chemical exposure, and the use of emergency showers and eyewash stations.
    - Incident reporting and documentation processes for regulatory compliance.
6. Establish clear access control protocols to limit entry to designated work areas. Personnel should be aware of entry and exit procedures, signage indicating restricted areas, and requirements for Surveillance Personnel entering hazardous zones. Surveillance Personnel should be provided with guidelines for wearing minimum PPE and limiting time spent in these areas.
7. The training must cover the identification and mitigation of health and safety risks specific to hazardous and regulated materials. Personnel should be trained to recognize symptoms of exposure, understand the importance of medical surveillance, and follow procedures for reporting health concerns.

**Personnel Protective Equipment**

The Contractor is responsible for taking all necessary precautions to protect employees from exposure to hazardous materials. Employees must utilize appropriate Personal Protective Equipment (PPE) to safeguard against risks associated with handling hazardous

substances. The Contractor shall ensure that all required PPE is provided, maintained, and worn consistently by all personnel in designated work areas.Each worker shall be provided with the appropriate personal protective equipment (PPE), as required by OSHA Regulations, PPE shall include, but not be limited to, the following:

- ✓ Disposal chemical resistant coveralls
- ✓ Chemically resistant gloves over plastic disposable gloves
- ✓ Disposable foot covers
- ✓ Half-mask cartridge respirator
- ✓ Eye protection
- ✓ Hand/Face and Eye Wash Stations

Surveillance Personnel: Surveillance personnel may enter a PCB control area for brief periods of time provided they wear disposable polyethylene gloves and disposable polyethylene foot covers, as a minimum. Additional protective equipment may be required if respiratory hazard is involved or if skin contact with PCB is involved.

**Execution of Removal PCB Ballast, PCB Transformers, Fluorescent Light Tubes**
Salvage operations (includes removal and recycling), shall commence prior to abatement and demolition/renovation as feasible.

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

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

Ballast having labels with the words "NO PCBs" or labels with similar words having the same meaning, may be disposed of with the light fixture. All other ballast, unlabeled PCB-containing ballasts and transformers, regardless of age, will be assumed to contain PCB. Ballast containing, or assumed to contain, PCB may be removed from mounted light fixtures, or the entire light fixture may be removed and taken to a ballast removal area. Floor covering requirements must be met if ballast is removed from mounted fixtures, and ballast shall not be dropped, thrown, or miss handled. Segregate materials shall be segregated based on constituent, condition and proposed disposal/recycling point. All PCB-containing ballasts and transformers will be removed and placed into 55-gallon steel drums or other DOT-approved containers appropriately labeled in accordance with EPA, DTSC and DOT regulations.

Establish a designated staging area(s), for temporary placement of hazardous materials. Cover the floor with one (1) layer of 6-mil plastic sheeting (as a drop cloth), taped down. The sheeting shall be sealed at the joints and shall extend 3 feet beyond the work area.

Damaged, holed, or torn sheeting shall be resealed before ballast removal work continues or resumes. The purpose of the sheeting is to contain spills.

**Removal of Leaking Ballast (only if needed)**: The Contractor shall remove lamps from fixtures. Lamps shall remain intact (unbroken) and shall be placed carefully into cardboard containers designed to hold lamps (preferably obtained from the manufacturer or lamp recycling facility). Special care shall be taken not to break tubes during removal, handling and transport.

The Contractor shall HEPA vacuum and thoroughly decontaminate any areas where lamps are accidently broken.

Ballast removal shall be immediately discontinued if any sign of black tar-like or yellow oil-like substances are discovered on a ballast, light fixture, or cover. The contractor shall don a Ty- Vek suit, along with the rubber gloves and eye protection before continuing work. Light fixtures, covers, and ballast with the black tar-like substance shall be scraped and wet wiped with an approved solvent until clean and no visible signs of the tar-like substance remain. Use of solvents must be submitted, for approval, to the owner prior to use.

All precautions shall be taken to prevent PCB spills/leakage into the environment. In the case of a PCB spill and/or leakage the contractor shall immediately notify the owner. If the spill is estimated to be in excess of one (1) pound, the local fire department and county environmental compliance department shall also be immediately notified. A PCB spill kit shall always be kept on-site in the immediate vicinity of PCB work areas. Personnel trained in managing and controlling PCB spills/leakage shall undertake the handling of such situations.

In case of PCB spill and/or leak the contractor shall also:

Rope off an area around the edges of a PCB leak or spill and post a "PCB Spill Authorized Personnel Only" caution sign, immediately transfer leaking items to a drip pan or other container; initiate cleanup of spill as soon as possible, but no later than 48 hours of its discovery; and properly contained and disposed of as solid PCB waste.
Any and all cleanup shall be documented with records of decontamination in accordance with applicable cleanup rules and regulations.

**Disposal**

Disposal of oil or tar-like substance cleaning materials: The remover shall place all tar-like substance residue and materials with the tarlike substance on them (such as Ty-Vek suits, disposable scrappers, rags, and floor covering) in a separate steel drum. The external surface of all drums, lids, and lock bands shall be thoroughly cleaned of all tar-like substances, labeled and sealed.

Disposal of The Drums: Arrange for the transport of all properly containerized PCB-containing ballasts to an EPA- approved recycling/disposal facility. The contractor shall completely with all local state and federal agencies as it relates to the disposal of the PCB drummed materials. The drums containing PCB ballast and those containing rags, towels, residue, etc. will be transported and properly disposed of as PCB waste.

The Contractor is responsible for determining and complying with all current applicable regulations pertaining to hazardous waste handling, transport, and disposal of PCB-

containing ballasts and transformers. Copies of completed original waste shipment records/manifests documenting the proper transport, recycling, or incineration of non-recycled components shall be provided to the owner upon project completion. The Contractor shall also obtain and provide documentation to the owner that the recycling/disposal facility has all the required permits and approvals necessary for operations involving recycling and disposing of PCB-containing equipment.

**Disposal of Fluorescent and Other Universal Lamps - Only if needed (light Tubes)**

Background: The U. S. Environmental Protection Agency (EPA) has promulgated regulations governing the accumulation and disposal of Universal Waste Lamps.

The scope of work for the abatement contractor includes the removal and recycling of all fluorescent lamps, mercury vapor bulbs, and high intensity discharge (HID) bulbs from lighting fixtures. Fluorescent lamps, mercury vapor bulbs, and HID bulbs shall be removed prior to starting demolition, properly packaged to prevent breakage, and transported intact to an EPA-approved recycling facility. Contractors responsible for the removal and recycling of the fluorescent lamps, mercury vapor bulbs, and HID bulbs shall handle and manage them in accordance with all local, state, and federal regulations.

All fluorescent-ceiling fixtures will be checked from all construction areas prior to the first disturbance. All the light tubes will be carefully removed from the fixture as not to break the tubes and set aside in a pre-approved secured area prior to disposal. All mercury containing light tubes will be properly removed, stored, and disposed of following all local, state, and federal guidelines. Containers for disposal of waste UW lamps (fluorescent lamps) shall be pre-approved by the consultant.

Lamp Removal: Assume all fluorescent lamps associated with this project, regardless of age, are harmful to the environment. The contactor will provide the containers for disposal of the lamps. After all waste lamps have been placed in the containers, identification and hazard labels shall be placed on each container.

- Carefully remove lamps and bulbs from fixtures. Lamps and bulbs shall remain intact (unbroken) and shall be carefully placed into cardboard containers designed to hold them (preferably original boxes obtained from the manufacturer or special boxes obtained from a lamp recycler).

- Broken lamps and bulbs should still be recycled. However, if they are not acceptable to the recycling facility, they must be evaluated to determine if they are hazardous waste. Remove and discard residues from broken lamps and bulbs promptly. Personnel cleaning up spills should have appropriate training, cleanup equipment, and wear appropriate personal protective equipment. Acceptable storage for broken, damaged, or leaking lamps and bulbs include a closed 55-gallon steel drum or a closed wax fiberboard drum.

- Store boxed lamps and bulbs in a secure area and limit access to personnel qualified to handle them.

- Contact an EPA-approved lamp recycler and arrange for transport of the properly packaged and labeled lamps and bulbs to the recycler.

- A manifest must be prepared when fluorescent lamps and PCB waste and other universal waste/ORM materials outlined are offered for transport for off-site treatment, storage, and recycling. The waste manifest fulfills requirements for a material's Bill of Lading. Waste Manifests shall be properly completed by the Contractor for each waste shipmen and shall list each transportation container including any non-hazardous waste or hazardous materials shipped. The manifest shall contain all information required by applicable Federal, State, and local hazardous waste or materials regulations. The Contractor shall provide all data required for waste transportation, treatment, and recycling, and for completion of hazardous waste or material generator report as required by the regulatory agency of jurisdiction.

- A shipping label containing the appropriate address information shall be prepared and placed on top of the shipping drum/box/container and covered with transparent adhesive tape.

- Recycling of all specified materials shall be in accordance with all Federal, State, and local regulations.

- The Contractor and the Transporter must comply with the DOT Emergency Response Communication Standards applicable to the shipment of hazardous materials.

- Submit copies of the original shipment records documenting proper transport, recycling, and proper disposal of any non- recycled components to the owner upon project completion.

**Mercury-Containing Thermostats and Electrical Switches (if discovered during demolition activities)**

The Contractor shall inspect every thermostat and electrical switch for the presence of liquid mercury. Thermostats and electrical switches that contain mercury shall be carefully removed in accordance with the EPA - Hazardous Waste "Universal Waste" Guidance Documents and regulations, from their mounted position, wrapped to prevent breakage, and placed in a sealable, rigid, labeled container with absorbent material in the bottom. The Contractor shall arrange to have the mercury properly transported to and recycled by an authorized recycling facility. Provide to the owner, copies of shipping papers, manifest, and documentation demonstrating that the mercury has been properly transported and delivered to an approved recycling/disposal facility upon project completion. All mercury containing materials will be properly removed, stored, and disposed of following all local, state, and federal guidelines and current regulations.

**Nickel-Cadmium, Lead-Acid, and Other Metal-Containing Batteries, Nuclear Power Source Emergency Lighting** The Contractor shall check all batteries in emergency lighting fixtures, emergency exit signs, generators and battery charging systems, and other electrical equipment or components for batteries that may contain heavy-metals. This also includes any emergency lighting that has a nuclear power source. All batteries shall be removed in accordance with the EPA - Hazardous Waste "Universal Waste" Guidance Documents and regulations and placed in a separate sealable container and delivered to an approved recycling/disposal facility. Provide to the owner documentation demonstrating that all batteries containing hazardous components have been properly removed,

transported, and disposed upon project completion following all local, state, and federal guidelines and current regulations.

**DEVICES WITH POTENTIAL HAZARDOUS MATERIALS/OTHER REGULATED MATERIAL (ORM)**

All associated devices, oils, liquids, refrigerants, and ORM materials must be handled, transported, and disposed/recycled in an EPA approved facility by persons with proper training in the handling of Universal Wastes and Hazardous Materials as defined by DTSC, OSHA and the US EPA

The Contractor shall remove from the premises all regulated and general waste following all removal, transport, and disposal codes and regulations for each of the waste materials encountered. Transport all property containerized lamps, ballasts, and transformers to an approved recycling facility. The Contractor shall be responsible for determining and complying with all current applicable regulations to waste handling and transport of PCB-containing ballast's, transformers, mercury-containing lamps and ORMs. Proper personal protective equipment (PPE) will need to be in place during the cleanup and removal of human waste hazards and rotted foods.

The original waste shipment record documenting proper transport, recycling, and incineration of unrecycled components (i.e., PCB-containing solids and liquids) shall be completed and submitted to Owner's Representative upon project completion. No hazardous waste will be stored at the project site for more than 90 days from the date of first accumulation.

**RECYCLING OF NON-HAZARDOUS AND HAZARDOUS MATERIALS**

All materials regardless of hazard classification shall be manifested for recycling and shall be recycled in accordance with all applicable Federal, State, and local regulations.

- Contact EPA, State, and local authorities to determine specific material recycling requirements.
- The recycler will be required to properly store and secure waste at all times. No debris shall be left at the site or in uncovered or unlocked trucks or dumpsters.

Recycling of Hazardous Liquid or Solid Wastes

- Comply with Federal, RCRA, State, DTSC, and local regulations.
- Retain all project documents provided by the recycling site.
- At completion of hauling and recycling of each load submit a copy of the Uniform Hazardous Waste Manifest to the Owner.

**END OF SECTION III**