

HAZARDOUS MATERIAL SPECIFICATIONS AND DRAWINGS
AUDITORIUM BUILDING (BUILDING C) DEMOLITION

MEASURE H1 – PIEDMONT SCHOOL IMPROVEMENT/
MODERNIZATION BOND PROGRAM
PIEDMONT HIGH SCHOOL CAMPUS

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SECTION 02010
HAZARDOUS MATERIALS SUMMARY OF WORK

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work Included: Contractor shall furnish all labor, materials, services, permits, insurance (specifically covering: the handling and transportation of Asbestos-Containing Materials, Asbestos-Containing Construction Materials, Asbestos-Containing Waste Materials, Lead-containing Waste Materials, Hazardous Wastes, Treated Wood Waste (TWW), Other Regulated Materials (ORMs), and Universal Wastes) and equipment which is specified, shown, or reasonably implied for the following activities:

1. Hazardous Material Removal & Demolition

Removal and disposal of the following environmentally-regulated material(s) which are shown, identified or otherwise implied in these Contract Documents (including but not limited to: Hazardous Material Plans and Contract Documents:

a) Asbestos:

- i. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (4% Chrysotile): ACM Resilient Floor Tile (RFT) with ACM mastic in Room 104, Women's Dressing Room and Room 101, Men's Dressing Room and Hallway where manual methods are used for removal. Estimated Quantity: 690-700 sq.ft. **Where mechanical methods of removal are used see ii below.**
- ii. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Friable Asbestos [RACM] (4% Chrysotile): ACM Resilient Floor Tile (RFT) with ACM mastic in Room 104, Women's Dressing Room and Room 101, Men's Dressing Room and Hallway **where mechanical methods are used for removal.** Estimated Quantity: 690 -700 sq.ft.
- iii. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (4% Chrysotile): Non-ACM Resilient Floor Tile (RFT) and ACM mastic in Room 211, Paint Storage and Room 214, Storage Room where manual mechanical methods are used for removal. Estimated Quantity: 145-160 sq.ft. **Where mechanical methods of removal are used see iv below.**
- iv. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Friable Asbestos [RACM] (4% Chrysotile): Non-ACM Resilient Floor Tile (RFT) with ACM mastic in Room 211, Paint Storage Room and Room 214, Storage Room **where mechanical methods are used for removal.** Estimated Quantity: 145-160 sq.ft.

- v. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (2% Chrysotile): ACM Resilient Floor Tile (RFT) and Non-ACM mastic in Room 100, Holding Area where manual methods are used for removal. Estimated Quantity: 450-500 sq. ft. **Where mechanical methods of removal are used see vi below.**
- vi. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Friable Asbestos [RACM] asbestos-containing waste (2% Chrysotile): ACM Resilient Floor Tile (RFT) and Non-ACM mastic in Room 100, Holding Area **if mechanical methods are used.** Estimated Quantity: 450-500 sq. ft.
- vii. Removal and disposal as a Category II Non-Friable [CAT II NF ACM] asbestos containing waste (5% Chrysotile): Metal sinks with ACM soundproof undercoating on sinks (1) in Mens (Room 101) and (1) in Womens (Room 104) Dressing Rooms Lower Level, and (2% Chrysotile) metal sinks with ACM soundproof undercoating on sinks (1) on the southwest corner of Mens Restroom Exterior Wall (Room 205) and (1) on the southeast corner of the Womens Restroom Exterior Wall (Room 204) in the Lobby of the Upper Level. Estimated Quantity: 8-16 sq.ft. (4 sinks).
- viii. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Friable Asbestos [RACM] (assumed): Fire Doors scheduled to be removed from Building C. Suspect Fire Doors to be drilled prior to removal. Estimated Quantity: Approximately 55-60 doors (1,300 – 1,450 sq. ft).
- ix. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (assumed to contain asbestos at concentrations greater than 1% [$>1\%$] (unless sampled prior to immediate removal and found not to contain asbestos or found to contain less than 1% [$<1\%$] asbestos): All ceiling mounted Spot Lights in Auditorium (upper level) with white Asbestos Electrical Cords. Estimated Quantity: 20 sq. ft.
- x. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (assumed to contain asbestos at concentrations greater than 1% [$>1\%$] (unless sampled prior to immediate removal and found not to contain asbestos or found to contain less than 1% [$<1\%$] asbestos): All HVAC vibration dampers in lower level in Rooms 110, 111 and 112. Estimated Quantity – 4 dampers (20 sq. ft.).
- xi. Removal and disposal, as an Asbestos Containing Construction Material (ACCM) ($<0.25 - 0.50\%$ Chrysotile): Drywall system with ACCM joint compound and ACCM Texture/Skim Coat scheduled for demolition in interior walls of Building C. Removal of ACCM drywall shall be performed in conformance with CAL/OSHA Regulation 1529 (Asbestos in Construction Standard). Estimated Quantity: 12,000-13,000 sq. ft.

b) Lead:

- i. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Lead (CA Waste Code 181)- LWS-1: tan ceramic wall tile systems in lower level men's and women's restrooms (Room 102) and upper-level theater restrooms. Estimated quantity: Lower Level restrooms – 440 sq. ft., Theater (upper) Level Restrooms – 740 sq. ft.

Note: Owner's Environmental Consultant will collect representative sample of Lead Waste Stream (LWS-1) for TCLP analysis. Where TCLP is determined to be greater than 5 mg/L, the waste stream shall be classified as a RCRA Hazard Waste (EPA waste code D008).

- ii. Removal, characterization and disposal of the following lead-containing paint coating systems and/or waste streams (WS) to enable recycling of concrete substrate and/or a painted building component:
 - a. LWS-2: White Texture Coat – Interior Building Column Face in Theater Seating and Lobby Area. Estimated quantity: 3,100 sq. ft. (Lead <0.0100%, based on bulk sampling, XRF – 0.7 to 1.4 mg/cm²).
 - b. LWS-3: Brown Paint – Interior Theater Seating Area Floor and Stem Walls. Estimated quantity: 5,000 sq. ft. (Lead <0.0720% [max] based on bulk sampling).
 - c. LWS-4: White Paint – Interior Theater Seating Area Walls. Estimated quantity: 2,250 sq. ft. (Lead XRF 0.5 to 1.0 mg/cm²).
 - d. LWS-5: White Pebble Texture Coat – Exterior Building Column Faces/Pilasters and Trellis/Canopy Column Faces. Estimated quantity: 2,100 sq. ft. for Exterior Building Column Faces; 2,100 sq. ft. for Trellis Canopy Column faces (Lead XRF 0.5 to 1.0 mg/cm²)
 - e. LWS-6: White Stucco Texture Coat – Exterior Painted Building Wall Faces. Estimated quantity: 8,000 sq. ft. (Lead XRF 0.2 to 1.0 mg/cm²)

Note: above list is a summary. See Specification Section 02090 for detailed list of building components or wall systems with paint coating systems considered to be lead-based (equal to greater than 5,000 ppm/1.0 mg/cm²) and lead-containing (less than 5,000 ppm/1.0 mg/cm²).

- iii. All lead-containing and/or lead-based paint coating systems identified in Section (b)(i) above or identified in Section 02090 will require waste profiling to determine appropriate waste disposal as either Non-hazardous construction debris, Non-RCRA California Hazardous Waste, or RCRA Hazardous Waste.

Waste classification shall include performing necessary segregation of waste streams identified in lead notes ii and iii above and in Section 02090. **Following segregation of the waste streams, Owner's Environmental Consultant will collect representative sample of Lead Waste Streams (LWS-2, LWS-3, LWS-4, LWS-5 and LWS-6) for the following waste characterization analyses: total lead (TTLC), WET lead (STLC), and TCLP.** The specific waste testing shall be

detailed in a waste characterization work plan to be prepared by the owner's environmental consultant. See specification 02090 for additional requirements for waste characterization.

- iv. Lead-Related Construction (Implementation of Lead-Related Safe Work Practices) – Removal of lead flashing system at roof vent pipe locations. Lead flashing materials shall be recycled.

c) Other Regulated Materials

- i. Lamps - Remove, package, label, transport and dispose of and/or recycle all "Lamps" in conformance with California Universal Waste Rule requirements. This includes lamps contained in an electric lighting device located inside the building, attached to the exterior of the building, or located within the planned demolition limits as part of the scheduled demolition of the Auditorium Building (Building C).

A lamp is also referred to as "universal waste lamp". A lamp is defined as the bulb or tube portion of an electric lighting device, that is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.

- ii. Mercury-containing Building Components - Remove, package, label, transport and dispose of all mercury-containing building components in conformance with California Universal Waste Rule requirements. These include CFL'S, fluorescent light tubes, mercury-containing switches and thermostats as part of the scheduled demolition of the Auditorium Building (Building C).
- iii. PCB-Containing Ballasts and Building Components - Remove, package, label, transport and dispose of and/or recycle all assumed PCB containing ballasts from light fixtures scheduled for demolition. The demolition contractor shall inspect each ballast for "No PCB" labeling. Any light ballasts discovered that do not contain "no PCB" labeling shall be properly removed, packaged, labeled and disposed of as PCB containing. Dispose of ballasts confirmed to contain PCB's as a Hazardous Waste in conformance with TSCA requirements.
- iv. Ozone Depleting Substances (Refrigerants/Compressor Oils) - Removal, packaging and disposal and/or recycling of all assumed HVAC refrigerants and oils and HVAC system components scheduled for removal for the purpose of demolition of Building C. EPA regulations (40 CFR Part 82, Subpart F) under Section 608 of the Clean Air Act restrict the venting of ozone depleting substances and CHFC and HFC refrigerants. These substance must be reclaimed by an EPA-certified refrigerant reclaimer. Refrigerant that has been recovered and/or recycled can be returned to the same system or other systems owned by the same person without being reclaimed. PUSD does not intend to re-use recovered refrigerants.

- v. Pressure Treated Wood/Treated Wood Waste (TWW) - Remove, package, label, secure, transport and dispose of all exterior Pressure Treated Wood generated from the demolition of the Trellis/Canopy Structure, perimeter window sunshades and tile roof equipment screens on Building C. PUSD does not intend to reuse or reclaim the pressure treated wood. The contractor will properly containerize, secure, label and prepare treated wood for disposal in conformance with Specification 02121, Handling and Disposal of Treated Wood Waste.
 - vi. Electronic Wastes - Remove, package and dispose of and/or recycle Fire Alarm Components (Smoke and Fire Detectors) prior to demolition of the building in conformance with the California Electronic Waste Recycling Act of 2003 (Act), Chapter 526, Statutes of 2003; as amended by Chapter 863, Statutes of 2004. The approximate locations of fire alarm components to be removed are shown on the Fire Alarm Drawings (See Auditorium Building Pre-demolition Hazardous Material Survey).
 - vii. Low-level Radioactive Components - Smoke detectors and self-illuminating exits signs contain a small amount of low-level radioactive materials. Smoke detectors under vi above that contain low-level radioactive components and self-illuminating exit signs shall be returned to the manufacturer. See Specification 02095, Other Regulated Materials.
2. Respirable Crystalline Silica Dust Generating Work Activities
- a. Contractor shall be the Creating, Controlling, and Correcting Employer for purposes of compliance with Cal/OSHA's multi-employer worksite rule (8 CCR 336.10) for itself and all of its site workers.
 - b. The Contractor is solely and exclusively responsible for maintaining job-site safety and compliance with all pertinent Groups and Articles set forth in Title 8, California Code of Regulations (Cal/OSHA), and Title 29, Code of Federal Regulations (OSHA; where applicable). This shall include implementation of the respirable crystalline silica standard. See Specification Section 02085.
3. Project Coordination
- a. Contractor shall be responsible for coordination between subcontractors and all project planning and project scheduling, specifically including scheduling work area clearance tasks. "Clearance" shall be conducted by Owner's Representative. Clearance of asbestos abatement work activities will be performed by visual inspection methods. This will be augmented with Post Abatement "air sampling" where reentry into the work area is necessary for non-asbestos abatement related demolition to be performed. Completion of visual inspection and clearance air sampling duration is subject to the effectiveness of the Abatement sub-contractor. Other, non-qualified trades, including the General Contractor, may not access such areas or otherwise conduct any "work" until such time that the abatement work area is "Cleared", in writing, by Owner or Owner's Representative). Bids shall reflect

such conditions; delays in obtaining access to abated work areas due to abatement subcontractor's performance shall not be cause for Change Orders.

- b. Contractor shall be responsible for coordination between subcontractors and all project planning and project scheduling, specifically including establishing regulated work areas and best management practices for work activities that will generate lead dust and respirable crystalline silica dust. Visual inspection of regulated areas and necessary perimeter air monitoring shall be conducted by Owner's Representative to evaluate the effectiveness of implemented work practices.
- c. Contractor shall coordinate all Work, as necessary and as directed by the General Contractor, to assist in the execution of this contract.

1.02 RELATED DOCUMENTS

A. The requirements of the General Conditions and Division 1 apply to all work hereunder:

- 1. Section 02038: Existing Conditions: Hazardous Materials
- 2. Section 02080: Asbestos Abatement
- 3. Section 02085: Respirable Crystalline Silica-related Construction
- 4. Section 02090: Lead-related Construction
- 5. Section 02095: Other Regulated Materials – Handling and Disposal.
- 6. Section 02121: Treated Wood Waste Removal, Handling and Disposal
- 7. Hazardous Material Drawings HM-1 through HM-5 included in Appendix A of the project specifications

1.03 WORK NOT INCLUDED IN THE CONTRACT DOCUMENTS

A. Area air monitoring for Owner by Observing Service.

1.04 EXISTING CONDITIONS

- A. Existing conditions are reflected correctly to the best of Owner's knowledge. Should minor conditions be encountered which are not exactly as indicated, modification to new work shall be made as required at no additional expense to Owner.
- B. Results of tests of hazardous materials (which are specifically excluded from these Contract Documents) taken from building materials within the scope of this Project are available for review at the Owner's Office. However, the Contractor is cautioned that, should interpretations to be made, opinions be formed, and conclusions be drawn as a result of examining the test results, those interpretations, opinions, and conclusions will be those made, formed and drawn solely by Contractor.
- C. Owner makes no representation, warranty, or guaranty that the conditions indicated by the test reports either are representative of those conditions existing throughout the area, or that unforeseen developments may not occur, or that materials other than, or in proportions different from those indicated may not exist.

1.05 PHASING

- A. The Contractor shall remove all environmentally regulated materials as described in Paragraph 1.01 (A)(1), above, prior to any and all activities which may cause their disturbance. Under no circumstances shall contractor commence demolition activities on any building known to contain environmentally-regulated materials without prior written approval from the Owner and/or Owner's Representative.
- B. The Contractor shall maintain necessary regulated areas for work areas generating respirable crystalline silica through out the duration of building demolition including waste load-out.
- C. The Contractor shall maintain necessary regulated areas for lead work areas generating lead dust through out the duration of building demolition including waste load-out.
- D. The Contractor shall maintain necessary regulated areas for asbestos abatement work areas throughout the duration of building demolition including waste load-out.

1.06 STORAGE

- A. Contractor shall coordinate equipment and temporary waste container storage space with Owner and on-site representatives prior to mobilization. Owner and/or on-site representatives shall reserve the right to modify storage space accommodations without incurring additional costs.
- B. Contractor shall secure all TWW to prevent unauthorized removal or pilfering following removal until all TWW waste load-out has been completed.

1.07 WORKING DAYS AND HOURS

- A. All work shall be performed in conformance with working hours identified elsewhere in the project documents.
- B. If Contractor elects to perform removal operations in excess of the aforementioned work hours and days and Owner concurs, Contractor shall pay for monitoring performed by Observation Service and his Consultant, associated with the additional hours, including testing, laboratory analysis and all project related expenses.
- C. Obtain written approval from Owner prior to altering work schedule.

1.08 PARKING

- A. Contractor shall coordinate employee parking and equipment staging with Owner and on-site representative prior to mobilization.
- B. Contractor shall provide parking for PUSD's environmental consultant in order to perform scheduled inspections and air sampling.

1.09 BUILDING/PROJECT WORK AREA SECURITY

- A. Maintain personnel on the site at all times when any portion of the work area(s) is open or not properly secured, including at hazardous waste transport vehicle. Secure work areas completely at the end of each working day.
- B. The Contractor shall provide adequate security within the work site during working and non-working hours.
- C. All waste bins used to store asbestos waste, lead waste, ORM/Universal wastes shall be equipped with lockable lids.
- D. TWW storage areas shall be secured to prevent scavaging, pilfering or unauthorized removal.

1.10 CORRECTION OF DAMAGE TO PROPERTY

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

1.11 OBSERVATIONS

- A. The Owner's Representative will observe the status and progress of the Work for completeness and general compliance with the requirements of the Contract Documents.

1.12 UTILITIES

- A. Contractor shall be responsible for the coordination, permits, fees and installation of all necessary utilities, including temporary power systems, water connections and waste disposal for the duration of the project.
- B. Contractor shall be responsible for demobilization and/or removal of all natural gas service and related equipment, deenergization of all electrical service and related equipment, shutoff of all water service and capping and/or removal of water service lateral and sewer lateral in conformance with water and sewer provider requirements prior to demolition of any structure.

1.13 SALVAGABLE MATERIALS

- A. Consider all materials and items demolished or removed in the execution of the Work unsalvageable unless specifically noted otherwise in the Specifications, Drawings, elsewhere in the contract documents or where specifically identified and/or directed by PUSD to be salvaged.

1.14 FUTURE WORK

- A. Coordinate and schedule the Work of these Contract Documents in a manner that will expedite the transition to other work by other trades, where specified elsewhere in the contract documents.

1.15 OWNER RULES

- A. The Contractor shall abide by all facility security rules and regulations, including, but not limited to work hour limitations, traffic management, dust control, noise level restrictions, visible emissions which may be imposed by the Owner (Immaculate Conception Academy), local Air Quality Management District, or other public agencies.

1.16 ROYALTIES AND PATENTS

- A. The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner, its Consultants and Architect harmless from loss on account thereof, but shall be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END

SECTION 02038
EXISTING CONDITIONS: HAZARDOUS MATERIALS-----
PART 1 – GENERAL

1.01 SUMMARY

- A. This section provides a list of known and assumed hazardous materials that will or may become disturbed during demolition and hazardous material abatement activities associated with the planned demolition of the existing Auditorium Building (Building C) and the associated portion of the existing Trellis/Canopy Structure at the Piedmont High School (PHS) Campus. The hazardous materials information presented herein has been summarized from pre-demolition hazardous materials assessments conducted by the Piedmont Unified School District's environmental consultant. The Contractor shall refer to the pre-demolition hazardous material surveys for specific information related to hazardous materials.
- B. The results of the pre-demolition hazardous material assessments conducted at the Auditorium Building (Building C) site indicate the presence of materials known to the State of California to be either hazardous, carcinogenic or reproductive toxins. Materials include but are not limited to asbestos, lead, PCB's, silica, treated wood preservatives, other man-made chemicals/materials, and naturally occurring materials.

1.02 HAZARD COMMUNICATION

A. Asbestos Hazards – See Specification section 02080

1. Asbestos has been identified at concentrations greater than one percent (>1%) in the following materials in the lower and upper floors of the Auditorium Building:
 - a. Resilient Floor Tile (RFT), light brown with brown lineations with black mastic (RFT< 1%, mastic - 4% Chrysotile), located on the upper level in Room 211, Paint Storage Room and Room 214, Storage. Substrate under the RFT and mastic is wood. Estimated quantity: 145-160 sq. ft.
 - b. Resilient Floor Tile (RFT), light brown/tan with brown lineations with brown mastic (RFT< 1%, mastic - 4% Chrysotile), located on the lower level in Room 101, Men's Dressing Room, Room 104, Women's Dressing Room and Hallway. Substrate under RFT and mastic is concrete. Estimated Quantity: 690-700 sq. ft.
 - c. Resilient Floor Tile (RFT), grey with brown spots and black mastic (2% Chrysotile) located on the lower level in Room 100, Holding Area. Resilient Floor Tile (RFT) is ACM. Substrate under RFT and mastic is concrete. Estimated Quantity: 450-500 sq. ft.
 - d. Sink Soundproof Coating (5% Chrysotile), pink, located on the lower level in Room 104, Women's Dressing Room and Room 101, Men's Dressing Room. The soundproof coating is an under-sink coating system. Sink is attached to a countertop. Substrate under the soundproof coating is metal. Estimated Quantity: 2 sinks (4-8) sq. ft.

- e. Sink Soundproof Coating (2% Chrysotile), pink, sinks located on exterior wall of Room 204, Women's Rest Room and the exterior wall of Room 205, Men's Rest Room. The soundproof coating is an under-sink coating system. The sinks are attached to the wall. Substrate under the soundproof coating is metal. Estimated Quantity: 2 sinks (4-8) sq. ft.
2. The following materials have not been sampled and shall be assumed to contain asbestos at concentrations greater than 1% [$>1\%$] (unless sampled prior to immediate removal and found not to contain asbestos or found to contain less than 1% [$<1\%$] asbestos):
 - a. Existing Fire Doors located throughout building interior and at entrances to building. Estimated Quantity: 55-60 doors (1,300 – 1,450 sq. ft).
 - b. HVAC Vibration Dampers located on the lower level in Rooms 110, 111 and 112. Estimated Quantity: 2 to 4 dampers (20 sq. ft.).
 - c. Vapor barrier under the concrete slab on grade floor. Estimated Quantity: 12,000 – 12,800 sq. ft.
 - d. Ceiling Mounted Spot Lights in Auditorium Theater Level with white electrical cords (Noted in AHERA Survey September 1st, 1988 – No specific location is given). Electrical cords have suspect ACM cover. Estimated Quantity: 5 Spot Lights (20 sq. ft.).
 3. Asbestos has been identified at concentrations less than one percent ($<1\%$) in the following materials:
 - a. Drywall with Joint Compound ($<0.25\%$ to 0.50% Chrysotile) in interior drywall systems throughout the Auditorium and Adult Education Center (Bldg. C). Drywall system is present in both lower and upper levels. Drywall system is an asbestos containing construction material (ACCM). Estimated Quantity for Removal: 12,000-13,000 sq. ft.
 4. Sampled suspect materials that reported NO asbestos detected by standard PLM analysis:
 - a. See hazmat survey report for Auditorium Building (Building C).
 5. Areas and/or Spaces known or presumed to be contaminated with asbestos-containing materials, dust, and debris include:
 - a. None identified in the Auditorium Building (Building C).
 6. Areas and/or Spaces where asbestos abatement was conducted include:
 - a. No prior asbestos abatement has been documented for Auditorium Building (Building C).

B. Lead Hazards – See Specification section 02090

1. Lead-based Building Components and Paint Coating Systems: Lead has been detected in individually painted surfaces and surface coatings in concentrations **greater** than 5,000 parts per million (ppm) [$>5,000$ ppm] of lead or 1.0 milligram of lead per square centimeter (> 1.0 mg/cm²). Where ranges of lead levels are indicated, Contractor shall presume the highest level is typical. These lead-containing surfaces include, but are not limited to the following:
 - a. Interior
 - 1) White Texture Paint Coating (1.4 mg/cm²) – Interior column faces on all twelve (12) columns located in the Auditorium Theater. Substrate: concrete. Estimated Quantity: 3,100 sq. ft.
 - 2) White Paint Coating (1.0 mg/cm²) – Interior faces of painted concrete walls located in the Auditorium Theater. Estimated Quantity: 2,250 sq. ft.
 - b. Exterior
 - 1) Lead Sheet Pipe Flashing (99% inorganic lead) - At all roof vent pipe locations.
2. Lead-containing Building Components and Paint Coating Systems: Lead has been identified in individually painted surfaces, surface coatings and exposed soils at a concentration **less** than 5,000 ppm [$<5,000$ ppm] lead or 1.0 mg/cm². Where ranges of lead levels are indicated, Contractor shall presume the highest level is typical. These lead-containing surfaces include, but are not limited to the following surfaces:
 - a. Interior
 - 1) Wall and Ceiling Paint Coating Systems (various colors - <100 ppm) - All painted wall and hard ceiling systems located in the interior of the building.
 - 2) Wood Trim, Door, and Door Casing Paint Coating Systems (various colors - 0 mg/cm²) - All painted wood wall trim, wood doors and wood door casings located in the interior of the building.
 - 3) Metal Door Systems (Gray and Black - 0 mg/cm², 1,400 mg/Kg) - All painted metal doors and metal door frames in the interior theater level of the building.
 - 4) Metal Hand Rails (various colors – 0.5 mg/cm²) - All painted metal handrails in the interior theater area of the building.
 - 5) Ceramic Wall Tile Systems (630 – 1,200 mg/Kg) – Tan ceramic wall tile in lower level men's and women's restrooms (Room 102) and upper-level theater restrooms. Estimated quantity: Lower Level restrooms – 440 sq. ft., Theater (upper) Level Restrooms – 740 sq. ft.

- 6) Ceramic Tile Floor Systems (<100 mg/Kg) – Brown ceramic tile in the lower level men’s and women’s restrooms (Room 102) and upper-level theater restrooms.
- 7) Concrete Floor Paint (380 – 720 mg/Kg) – Brown paint on the concrete floor the Theater. Paint extends under the carpet and up concrete step walls. Estimated quantity: 5,000 sq. ft.

b. Exterior

- 1) White Paint Coating (0.3 – 0.5 mg/cm²) – North, South, East and West side building wall faces. Estimated quantity: 8,000 sq. ft.
 - 2) White Texture Coating (0.4 – 1.0 mg/cm²) – Exterior faces of columns on the North, South, East and West sides of the building. Estimated quantity: 2,100 sq. ft.
 - 3) White Pebble Texture Coating (0.2 – 0.5 mg/cm²) – Exterior faces of Trellis/Portico columns. Estimated Quantity: 2,100 sq. ft.
 - 4) Metal Windows and Doors (various colors - 0 mg/cm²) - All painted metal windows, metal doors and metal door frames on the exterior of the building.
3. The Contractor shall assume that all paints and surface coatings contain detectable quantities of lead requiring compliance with CAL/OSHA lead regulation in the absence of objective data to the contrary. Additionally, the Contractor shall assume that, at a minimum, lead is “present” in all of these materials at levels that have a potential, until proven otherwise, to create a lead hazard. The Contractor shall treat all paints, coatings, dusts or materials as having a reportable lead concentration requiring dust controls and personal protective procedures for construction activities in conformance with the Cal/OSHA Lead Construction Standard, 8 CCR 1532.1 lead. Any paint, varnish, or other coating or finish not listed above shall be considered to be lead-based paint with lead levels at or exceeding 5000 ppm lead or 1.0 mg/cm² for this contract.
4. In addition to lead-containing paints and coatings, the Contractor shall assume that lead is present at detectable levels in existing plumbing components and solders, glazing compounds, roof jacks where scheduled to be removed or demolished.

C. Other Regulated Materials – ORM (Mercury-containing materials) See Specification section 02095

Metallic mercury and mercury compounds are present in fluorescent lighting tubes, high-intensity discharge lamps, mercury switches and mercury thermostats in the buildings scheduled for demolition. All demolition and disposal of these items shall be conducted in accordance with applicable safety and environmental regulation and the requirements of the Contract Documents.

D. Other Regulated Materials – ORM (PCB-containing materials) See Specification section 02095

Polychlorinated biphenyl (PCB)-containing fluorescent lighting ballasts. Building C **DOES** contain fluorescent lighting fixtures manufactured or installed prior to 1979. All fixtures known or presumed to have been installed prior to 1979 shall be considered to contain PCB ballasts unless otherwise noted in the contract documents. Removal, handling, and disposal of PCB ballasts are subject to the

applicable regulatory requirements and the requirements of the Contract Documents.

E. Other Regulated Materials – ORM (HVAC refrigerants) See Specification section 02095

HVAC Refrigerants. Building C **DOES** contain HVAC equipment. Where the HVAC system components that are scheduled to be removed contains a refrigerant reservoir, the refrigerant shall be recovered by a certified refrigerant recovery technician prior to the removal and/or demolition of the HVAC equipment. Removal, handling, and disposal of refrigerant are subject to applicable regulatory requirements and requirements of the Contract Documents.

F. Other Regulated Materials – ORM (Pressure Treated Wood /Treated Wood Waste, [TWW]) See Specification section 02121

Pressure Treated Wood or TWW contains Pentachlorophenol and/or regulated wood preservative chemicals. Building C has window shade canopies and roof-mounted equipment screens that are constructed primarily of pressure treated wood. In addition, the associated Trellis/Canopy structure is also constructed with pressure treated wood. Pressure treated wood that is removed for disposal is classified as Treated Wood Waste (TWW). None of the pressure treated wood is scheduled to be salvaged and reused by PUSD. Consequently, all removed pressure treated wood will need to be handled and disposed of as Treated Wood Waste (TWW) under the alternative management standards (AMS) under California Code of Regulations, Title 22, Division 4.5, Chapter 34.

G. Other Regulated Materials – Crystalline Silica See Specification section 02085

Crystalline Silica is presumed present in all concrete, plaster, ceramic tile, grouts, and other cementitious materials at this site as well as soils. Worker protection and control of air dust during cutting, drilling, demolition and other construction operations is the responsibility of the Contractor. The Contractor is responsible for providing necessary training, dust control and/or conducting necessary exposure assessments for compliance with current OSHA regulations including 29 CFR 1926.55, 29 CFR 1926.1053 and Cal/OSHA regulations regarding dust/silica exposure included in 8 CCR 1530.1 and 8 CCR 1532.3

H. Mold was not observed during the previous demolition survey investigation. Mold may be encountered in wall cavities exposed during select demolition activities conducted on the interior of the building. Where encountered, the contractor shall notify the Owner and the Owners Environmental Consultant immediately. Contractor shall implement necessary personal protective equipment (dermal and inhalation) in conformance with the contractors IIPP or site-specific health and safety plan. Contractor shall cease work in the area until the contractor can fully implement PPE under the IIPP or health and safety plan.

I. The Contractor shall take into consideration all existing known and presumed hazardous materials that may be disturbed or otherwise impacted by the Work of this project. All work of this project that disturbs or otherwise impacts hazardous material shall be considered included in the Work of the project and shall be conducted in accordance with all applicable regulations and the Contract Documents. The Contractor shall use appropriately trained and qualified personnel to conduct all hazardous material related work and shall adhere to the requirements for handling, removal, clean-up, and disposal in accordance with the Contract Documents and all applicable Cal/OSHA, Cal/EPA, Department of Safety and Health Services (DOSH), and Local Air Quality Management District

regulations (Bay Area Air Quality Management District [BAAQMD]).

1.03 RELATED DOCUMENTS

- A. Contract Documents including hazardous material-related plans and specifications and all other project construction documents. Refer to Section 02010 Summary of Hazardous Material Work for a more detailed listing.

1.04 USE OF HAZARDOUS MATERIALS INFORMATION

- A. Hazardous material information identified herein was obtained for the use of Piedmont Unified School District and its Consultants for planning and design stages of the Project. Survey data and reports identified in this section are not, as a whole, part of the Contract Documents, but can be relied upon by the Contractor to characterize general site conditions, although quantities, friability and other factors may have changed or altered since the issuance of the survey report.
- B. Bidders are advised that the limited testing of components allows for generalizations in describing the extent of hazardous materials. Contractors may visit the site and investigate to identify locations of hazardous materials identified herein. Specific components or materials should be checked against the referenced survey reports and the Contract Documents, or be tested at affected locations, prior to disturbance of such components.

PART 2 – PRODUCTS: NOT USED

PART 3 – EXECUTION: NOT USED

END

SECTION 02080
ASBESTOS ABATEMENT-----
PART 1 - GENERAL

1.01 SECTION CONTENTS

- A. **Work included:** Contractor shall furnish all labor, materials, services, permits, insurance (specifically covering the handling and transportation of hazardous Wastes, Asbestos-Containing Material, Asbestos-Containing Construction Material and Asbestos-Containing Waste Material), and equipment which is specified, shown, or reasonably implied for Asbestos Abatement activities required to execute the requirements detailed in Sections 02080, and applicable sections detailed below.

This Section is not intended to be used for compliance with any disturbance of naturally-occurring asbestos, if required.

1.02 RELATED DOCUMENTS:

The requirements of the General Conditions and Division 1 apply to all work hereunder:

1. Section 02038: Existing Conditions: Hazardous Materials
2. Section 02080: Asbestos Abatement
3. Section 02085: Respirable Crystalline Silica-related Construction
4. Section 02090: Lead-related Construction
5. Section 02095: Other Regulated Materials – Handling and Disposal.
6. Section 02121: Treated Wood Waste Removal, Handling and Disposal
7. Hazardous Material Drawings HM-1 through HM-8 included in Appendix A of the project specifications

1.03 SCOPE OF WORK

- A. The work of this section includes the provision for all labor, materials, equipment, permits, and services necessary to effect the preparation, removal, cleaning, and disposal of asbestos, asbestos-containing materials (ACM) and asbestos-containing construction materials (ACCM) as indicated by the contract drawings and within this specification.
- B. The Contractor shall be responsible for reviewing all specifications, drawings, addenda, hazardous materials reports or other information to determine the impact of construction activities on designated or suspect hazardous containing building materials. Such hazards shall include, but may not be limited to asbestos, lead-based paint (LBP), lead-containing paint, PCB lighting ballasts, mercury-containing materials or other non-specified materials.
- C. The contractor shall refer to Related Documents for details on materials, quantities, locations and work requirements. Should any conflicts exist, the contractor shall immediately notify the Owner prior to submitting its bid.

- D. Asbestos-related work to be performed under the Contract can be summarized as follows:
1. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (4% Chrysotile): ACM Resilient Floor Tile (RFT) with ACM mastic in Room 104, Women's Dressing Room and Room 101, Men's Dressing Room and Hallway where manual methods are used for removal. Estimated Quantity: 690-700 sq.ft. Where mechanical methods of removal are used see D2 below.
 2. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Friable Asbestos [RACM] (4% Chrysotile): ACM Resilient Floor Tile (RFT) with ACM mastic in Room 104, Women's Dressing Room and Room 101, Men's Dressing Room and Hallway where mechanical methods are used for removal. Estimated Quantity: 690 -700 sq.ft.
 3. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (4% Chrysotile): Non-ACM Resilient Floor Tile (RFT) and ACM mastic in Room 211, Paint Storage and Room 214, Storage Room where manual mechanical methods are used for removal. Estimated Quantity: 145-160 sq.ft. Where mechanical methods of removal are used see D4 below.
 4. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Friable Asbestos [RACM] (4% Chrysotile): Non-ACM Resilient Floor Tile (RFT) with ACM mastic in Room 211, Paint Storage Room and Room 214, Storage Room where mechanical methods are used for removal. Estimated Quantity: 145-160 sq.ft.
 5. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (2% Chrysotile): ACM Resilient Floor Tile (RFT) and Non-ACM mastic in Room 100, Holding Area where manual methods are used for removal. Estimated Quantity: 450-500 sq. ft. Where mechanical methods of removal are used see D6 below.
 6. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Friable Asbestos [RACM] asbestos-containing waste (2% Chrysotile): ACM Resilient Floor Tile (RFT) and Non-ACM mastic in Room 100, Holding Area if mechanical methods are used. Estimated Quantity: 450-500 sq. ft.
 7. Removal and disposal as a Category II Non-Friable [CAT II NF ACM] asbestos containing waste (5% Chrysotile): Metal sinks with ACM soundproof undercoating on sinks (1) in Mens (Room 101) and (1) in Womens (Room 104) Dressing Rooms Lower Level, and (2% Chrysotile) metal sinks with ACM soundproof undercoating on sinks (1) on the southwest corner of Mens Restroom Exterior Wall (Room 205) and (1) on the southeast corner of the Womens Restroom Exterior Wall (Room 204) in the Lobby of the Upper Level. Estimated Quantity: 8-16 sq.ft. (4 sinks).
 8. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Friable Asbestos [RACM] (assumed): Fire Doors scheduled to be removed from Building C. Suspect Fire Doors to be drilled prior to removal. Estimated Quantity: Approximately 55-60 doors (1,300 – 1,450 sq. ft).

9. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (assumed to contain asbestos at concentrations greater than 1% [$>1\%$] (unless sampled prior to immediate removal and found not to contain asbestos or found to contain less than 1% [$<1\%$] asbestos): All ceiling mounted Spot Lights in Auditorium (upper level) with white Asbestos Electrical Cords. Estimated Quantity: 20 sq. ft.
10. Removal and disposal as a Category I Non-Friable [CAT I NF ACM] asbestos-containing waste (assumed to contain asbestos at concentrations greater than 1% [$>1\%$] (unless sampled prior to immediate removal and found not to contain asbestos or found to contain less than 1% [$<1\%$] asbestos): All HVAC vibration dampers in lower level in Rooms 110, 111 and 112. Estimated Quantity – 4 dampers (20 sq. ft.).
11. Removal and disposal, as an Asbestos Containing Construction Material (ACCM) ($<0.25 - 0.50$ % Chrysotile): Drywall system with ACCM joint compound and ACCM Texture/Skim Coat scheduled for demolition in interior walls of Building C. Removal of ACCM drywall shall be performed in conformance with CAL/OSHA Regulation 1529 (Asbestos in Construction Standard). Estimated Quantity: 12,000-13,000 sq. ft.

1.04 APPLICABLE REGULATIONS AND PUBLICATIONS:

A. 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	Occupational Exposure to Asbestos, Tremolite, Anthophyllite and Actinolite
29 CFR 1910.1101	Asbestos
29 CFR 1910.1200	Hazard Communication
29 CFR 1910.20	Access to Employee Exposure and Medical Records
29 CFR 1910.132	General Requirements - Personal Protective Equipment
29 CFR 1910.133	Eye and Face Protection
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.145	Specifications for Accident Prevention, Signs and Tags
29 CFR 1926.1101	Asbestos, Tremolite, Anthophyllite and Actinolite
40 CFR 61, Subpart A	General Conditions
40 CFR 61, Subpart M	National Emission Standards for Asbestos
40 CFR 61.152	Standard for Waste Disposal for Manufacturing, Demolition, Renovation, Spraying and Fabrication Operations

2. American National Standard Institute (ANSI) Publications:

Z9.2-1979	Fundamentals Governing The Design and Operation of Local Exhaust Systems
Z88.2-1980	Practices for Respiratory Protection

3. National Fire Protection Association (NFPA):
Standard 90A Installation of Air Conditioning
and Ventilation Systems.
4. U. S. Environmental Protection Agency (EPA):
Publication No.
560/5-85-024 Guidance for Controlling Asbestos-
Containing Materials in Buildings, June 1985
5. American Society for Testing Materials (ASTM) Publications:
E 849-82 Safety and Health Requirements Relating to
Occupational Exposures to Asbestos
P-189 Specifications for Encapsulants for Friable
Asbestos-Containing Materials
6. National Institute of Occupational Safety and Health (NIOSH) Publications:
Manual of Analytical Methods, 2nd Ed., Vol. 1.
Physical and Chemical Analysis Method (P&CAM):
Method 239 Asbestos Fibers in Air
Method 7400 Fibers (N1, 3rd Ed., Vol. 1.)
7. Underwriters Laboratories, Inc. (UL) Publications:
586-77 Test Performance of High Efficiency,
(R1982) Particulate, Air Filter Units
8. Title 8 California Code of Regulations (CCR):
Section 1529 Asbestos Construction Industry
Section 1531 Respiratory Protective Equipment
Section 5208 General Industry Safety Orders
Section 5194 Hazardous Communication
9. Title 22 California Code of Regulations (CCR):
Section 66621 Hazardous Waste
Section 66268 Landfill Notification/Treatment

1.06 DEFINITIONS

- A. **Owner:** Piedmont Unified School District (PUSD)
- B. **Abatement:** Procedures to control fiber release from Asbestos-Containing building materials. Includes removal, encapsulation, and enclosure.
- C. **Adequately Wet:** A term as defined in -CFR 40 Part 61, Subpart M-, and EPA 340/1-90-019- that means to sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.

- D. **Air Lock:** A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area.
- E. **Air Monitoring:** The process of measuring the fiber content of a specific volume of air in a stated time period.
- F. **Air Sampling Professional:** The professional contracted or employed to supervise air monitoring and analysis schemes. This individual is also responsible for recognition of technical deficiencies in Worker protection equipment and procedures during both planning and on-site phases of an Abatement Project. Acceptable Air Sampling Professionals include Industrial Hygienists, Environmental Engineers and Environmental Scientists with equivalent experience in Asbestos air monitoring and Worker protection.
- G. **Amended Water:** Water to which a surfactant has been added.
- H. **Area Monitoring:** Sampling of airborne fiber concentrations within the Asbestos Work Area and outside the Asbestos Work Area which are representative of the airborne concentrations of Asbestos fibers which may reach the breathing zone.
- I. **Asbestos:** (29 CFR 1926.1101 Definitions) Includes Chrysotile, Amosite, Crocidolite, Tremolite asbestos, and any of these minerals that has been chemically treated and/or altered.
- J. **Asbestos** (California Code of Regulations definitions): Means fibrous forms of various hydrated minerals including Chrysotile, (fibrous serpentine), Crocidolite (fibrous Riebeckite), Amosite (fibrous Cummingtonite-Grunerite), Fibrous Tremolite, fibrous Actinolite, and fibrous Anthophyllite.
- K. **Asbestos-Containing Material** (ACM) EPA definition: Material composed of asbestos of any type in an amount greater than 1 percent and by weight, either alone or mixed with other fibrous or non-fibrous materials.
- L. **Asbestos-Containing Construction Material** (California definition): Means any manufactured construction material, which contains more than 1/10th of 1% asbestos by weight.
- M. **Asbestos-Containing Waste Material:** Means asbestos waste and asbestos waste from control devices (Pollution Control Devices).
- N. **Asbestos Fibers:** Asbestos fibers having an aspect ratio of at least 3:1 and 5 micrometers in length.
- O. **Authorized Visitor:** The Owner's Project Team members, the Owner's Representative, Observation Service and any representative of a regulatory or other agency having jurisdiction over the Project.
- P. **Clean Room:** An uncontaminated area or room which is a part of the Worker Decontamination Enclosure with provisions for storage of Workers' street clothes and protective equipment.

- Q. **Contained Work Area:** A Work Area which has been Isolated, Plasticized, and equipped with a Decontamination Enclosure System.
- R. **Curtained Doorway:** A device to allow ingress or egress from one area to another while permitting minimal air movement between the areas, typically constructed by placing three overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, and securing the vertical edge of the outer two sheets along the opposite vertical side of the doorway.
- S. **Decontamination Enclosure System:** A series of connected rooms, with Air Locks or Curtained Doorways between any two adjacent rooms, for the decontamination of Workers and of materials and equipment. A Decontamination Enclosure System always contains at least one Air Lock to the Work Area.
- T. **Encapsulant (sealant):** A liquid material which can be applied to Asbestos-Containing material and which controls the possible release of Asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).
- U. **Encapsulation:** All herein-specified procedures necessary to apply an encapsulant to Asbestos-Containing building materials to control the possible release of Asbestos fibers into the ambient air.
- V. **Enclosure:** All herein-specified procedures necessary to enclose completely Asbestos-Containing Material behind airtight, impermeable, permanent barriers.
- W. **Excursion Limit:** An exposure of airborne concentrations of Asbestos fibers of one fiber per cubic centimeter of air (1f/cc) as averaged over a sampling period of thirty (30) minutes.
- X. **Equipment Room:** A contaminated area or room that is part of the Worker Decontamination Enclosure with provisions for storage of contaminated clothing and equipment.
- Y. **Equipment Decontamination Enclosure:** That portion of a Decontamination Enclosure System designed for controlled transfer of materials, waste containers and equipment, typically consisting of a Washroom and a Waste Loadout.
- Z. **Friable Asbestos Material (40 CFR, Subpart M Definition):** Material that contains more than one percent (1%) Asbestos by weight and that can be broken, crumbled, pulverized, or reduced to powder by hand pressure when dry.
- AA. **Fixed Object:** A unit of equipment or furniture or other building component that cannot be detached from the building or can only be detached by destructive methods resulting in irreparable damage to the item.
- AB. **Glove-bag Method:** A method with limited applications for removing small amounts of friable Asbestos-Containing material from HVAC ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces in an Isolated (non-contained) Work Area. The glove-bag (typically

constructed of six [6] mil transparent Regalite plastic) has two inward-projecting long-sleeved rubber gloves, one inward-projecting water-wand sleeve, an internal tool pouch, and an attached, labeled receptacle for Asbestos waste. The glove-bag 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 Glove-bag Method must be highly trained, experienced, and skilled in this method.

- AC. **HEPA Filter:** A high efficiency particulate air (HEPA) filter capable of trapping and retaining 99.97 percent of all mono-dispersed particles (Asbestos fibers) equal to or greater than 0.3 microns in mass median aerodynamic equivalent diameter.
- AD. **HEPA Vacuum Equipment:** Vacuuming equipment with a HEPA filter system.
- AE. **Waste Load out:** A room in the Equipment Decontamination Enclosure located between the Washroom and an uncontaminated area. The Waste Load out comprises an Air Lock.
- AF. **Isolation:** The sealing of all openings into a Work Area.
- AG. **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.
- AH. **Maximum Acceptable Level:** An exposure of airborne concentrations of fibers of 0.05 fibers per cubic centimeter of air at any time. This level is a contractual standard for this Project.
- AI. **Moveable Object:** A unit of equipment, furniture or other building component that is detached or can be detached from the building without destructive methods or results.
- AJ. **Negative Air Pressure Equipment:** A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contaminated areas from adjacent uncontaminated areas.
- AK. **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.
- AL. **Observation Service:** The agent of the Owner or the Owner's Representative (Millennium Consulting Associates [MECA Consulting, Inc.]) who shall observe the Work, perform tests, verify that abatement methods and procedures specified by the Contract Documents are being complied with, and reports all observations and test results to the Owner or the Owner's Representative.
- AM. **Permissible Exposure Limit (PEL):** An airborne concentration of asbestos, Tremolite, Anthophyllite, Actinolite, or a combination of these minerals in excess of 0.1 fibers per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Title 8, CCR 1529.

- AN. **Personal Monitoring:** Sampling of Asbestos fiber concentrations within the breathing zone of an Asbestos Worker.
- AO. **Plasticize:** To cover floors, walls and other structural elements of a Work Area with plastic sheeting as herein specified with all seams securely taped.
- AP. **Removal:** All herein-specified procedures necessary to remove Asbestos-Containing materials from the designated areas and to dispose of these materials at an acceptable site.
- AQ. **Shower Room:** A room between the Clean Room and the Equipment Room in the Worker Decontamination Enclosure with hot and cold or warm running water, and suitably arranged for complete showering during decontamination. The Shower Room comprises an Air Lock between contaminated and clean areas.
- AR. **Surfactant:** A chemical wetting agent added to water to reduce surface tension and improve penetration.
- AS. **Washroom:** A room between the Work Area and the Waste Load out in the Equipment Decontamination Enclosure System where equipment and waste containers are decontaminated. The Washroom comprises an Air Lock.
- AT. **Wet Cleaning:** The process of eliminating Asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as Asbestos-contaminated waste.
- AU. **Work Area (Also known as "Regulated Area"):** Designated rooms, spaces, or areas of the Project in which Asbestos Abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A Contained Work Area is a Work Area which has been Isolated, Plasticized, and equipped with a Decontamination Enclosure System. An Isolated (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.
- AV. **Worker Decontamination Enclosure System:** That portion of a Decontamination Enclosure System designed for controlled passage of Workers, and other personnel and Authorized Visitors, typically consisting of a Clean Room, a Shower Room, and an Equipment Room.

1.07 SUBMITTALS AND NOTIFICATIONS

- A. **Personnel Training:** At the Pre-Construction Meeting, Contractor shall submit (1) declaration certifying that all Contractor's employees have been adequately trained, and (2) a photocopy of training certificates, for each employee from their respective training agency or organization. Contractor may submit a photocopy of the employee's Asbestos Worker Certification card in lieu of training certificates.
- B. **Respirators:** Submit at the Pre-Construction Meeting manufacturer's certification that the respirators to be used in this Project comply with government agency requirements. Contractor's certifications for each employee must clearly state that each employee has been fit tested and properly trained for respirators.

- C. **Medical Examinations:** Submit proof that all persons providing labor and/or professional services who will be entering contaminated areas have had current (less than one year prior to the date of their participation on the Project) medical examinations. Furnish physician's Written Opinion to the Owner's representative at the Pre-Construction Meeting, or prior to each person's commencing work on this Project, and for each person subsequently providing labor and/or professional services at the job site for whom a certificate was not initially furnished
- D. **Product Submittals and Substitutions:** Comply with pertinent provisions of applicable Sections.
- E. **Abatement Product Data:** Within ten (10) days after Contractor has received the Owner's Notice of Award, submit manufacturer's catalogue, samples, Material Data Safety Sheets, (MSDS) and other items needed to demonstrate fully the quality of the proposed abatement materials. Under no circumstances shall proposed materials be used before written approval from the Owner, Owner's Representative or Observation Service. Submittals are required if the following materials are proposed (not necessarily a complete list.) Do not submit data on products not proposed for this project.
1. Encapsulant
 2. Surfactant
 3. Protective packaging
 4. Lagging adhesive
 5. Glove-bags
 6. Re-saturant
 7. Solvents
- F. **Permits:** Submit at the Pre-Construction Meeting proof satisfactory to the Owner, Owner's Representative or Observation Service that all required permits have been obtained. If no permits are required, submit notarized letter stating such.
- G. **Waste Transportation:** Submit at the Pre-Construction Meeting the method of transport of Hazardous Waste, including the name, address, EPA ID number, and telephone number of the Transporter(s).
- H. **Hazardous Waste Disposal Facility:** Submit for approval at the Pre-Construction Meeting the name, address, EPA ID number, and telephone number of the Hazardous Waste Disposal Facility(s) to be used. Submit a letter from each hazardous waste landfill attesting the landfills willingness to accept the waste. No waste shall be transported off any site until the letter(s) is(are) reviewed and accepted by the Observation Service.
- I. **Asbestos Plan:** The Contractor shall submit at the Pre-Construction Meeting for approval, a detailed plan of the work procedures to be used in the removal, repair, clean-up or encapsulation of materials containing Asbestos. Such a plan shall include:
1. Location of Asbestos Work Areas.
 2. Asbestos Waste Load Plan and Procedures since abatement will require removal of asbestos containing materials from multiple levels of the building with limited or restricted access.

3. Scaffolding location plan in areas where abatement will require removal from ceiling and location not readily accessible from existing floor elevations/levels
 4. Layout and construction details of Decontamination Enclosure Systems.
 5. Project schedule including important milestones, critical paths and interface of trades involved in the Work.
 6. Personal air monitoring procedures.
 7. Detailed description of the method to be employed in order to prevent the spread of contamination, including negative air equipment calculations.
 8. Names of Superintendent, Foremen, Project Manager and other key personnel, and their day time and emergency telephone numbers.
 9. Security Plan including sketches necessary to clearly describe the plan.
 10. Emergency evacuation plan for injured workers, compressor failure, fire and other emergencies. Include a list of emergency phone numbers and a route map to the nearest medical facility for emergency treatment.
 11. Fire Watch Plan including any sketches necessary to clearly describe the plan.
 12. A contingency plan, in the event of a major contamination incident caused by fire (on or off the floor being abated), a large breach in the Work area containment barrier, the opening of stairwell doors, breakage of the building's exterior windows or sabotage. Such a plan will focus on how to maintain safety and order when the building is fully occupied by office employees and other building users.
 13. Negative Exposure Assessment(s) (NEA). The Contractor shall provide any NEA to be used along with all air sampling data including the actual lab results from the Laboratory and the Chain of Custody or air sampling form the Contractor used to record the air sampling information.
 14. The Observation Service and Owner must approve the Asbestos Plan in writing at least 5 work days before the start of any work.
- J. **Equipment Certification:** Submit at Pre-Construction Meeting manufacturers' certification that vacuums, negative air pressure equipment filters, and other local exhaust ventilation equipment conform to ANSI Z9.2-1979.
- K. **Rental Equipment:** When rental equipment is to be used in removal areas or to transport waste materials, a copy of the written notification provided to the rental company informing them of the nature of use of the rented equipment shall be signed by the rental company and submitted to the Observation Service at the Pre-Construction Meeting.
- L. **Notifications:** Contact the following government agencies in writing by certified/registered mail or overnight mail service, postmarked or delivered at least **ten (10) workdays** prior to commencing any disturbance of asbestos:
1. Local Air Quality Management District
 2. Occupational Safety and Health Administration

All notifications shall contain as a minimum the following information:

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

3. Name, address and description of the building, including size, age, and prior use of building.
4. The type and quantity of friable Asbestos material involved and the description of the Work.
5. Scheduled starting and completion dates for Abatement Work.
6. Procedures that shall be employed to comply with the regulations.
7. The name, address, EPA number and telephone number of the Transporter.
8. The name and address of the Hazardous Waste Disposal Facility where the Asbestos Waste shall be deposited.

Copies of all government agency correspondence and proof of delivery shall be delivered to the Observation Service at the Pre-Construction Meeting. NOTE: No work shall commence until verification of required notifications is made by the Observation Service.

- M. Provide proof of Contractor's License and Asbestos Certification from the Contractor Licensing Board, and proof of registration with the Division of Occupational Safety and Health in accordance with California Labor Code, Section 6501. Submit proof with Bid.
- N. Encapsulant manufacturer's certification (when required) that the Contractor is an approved applicator of the encapsulants to be used on this project
- O. Scaffolding: Submit to the Owner's Representative or Observation Service prior to abatement work, certification from a licensed professional or other qualified expert 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.
- P. Certification naming the manufacturer of supplied-air (Type C) respirator equipment. Include certification of compliance with Occupational Safety and Health Administration, Environmental Protection Agency, and all other pertinent regulatory agencies. Include testing reports (previous and current). Include the rated capacity of each type of equipment used.

1.08 ADMINISTRATION OF THE CONTRACT

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

1.09 SAFETY

- A. Submit at the Pre-Construction Meeting written procedures for evacuation of injured Workers. Aid for seriously injured Workers shall not be delayed in order to comply with standard decontamination procedures. It is the responsibility of the Contractor to decide if the seriousness of the injury warrants noncompliance with the standard decontamination procedures.
- B. The Contractor shall have a comprehensive job safety meeting at the beginning of the project with the Observation service in attendance. The Contractor shall give 72-hours' notice of this job safety meeting. The Contractor shall thereafter hold tail-gate safety meetings once per week.

The Contractor shall keep a record of the topics and persons in attendance. Workers shall each sign an attendance sheet for each safety meeting.

1.10 QUALITY CONTROL

- A. Safety Compliance: In addition to detailed requirements of this Specification, comply with laws, ordinances, rules, and regulations of federal, state, regional, and local authorities and publications regarding handling, storing, transporting, and disposing of Asbestos Waste materials. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the Work. Where the requirements of this Specification and referenced documents vary, the most stringent requirement shall apply. When requirements of reference documents vary, the most stringent requirement shall apply.
- B. Contractor shall have at least one copy each of 29 CFR Part 1910 - Occupational Safety and Health Standards, 29 CFR 1926.1101, 8 CCR 1529, 40 CFR Part 61, Subparts A & M, and all pertinent state and local regulations at his office and at the job site.
- C. Before the commencement of any work at the site, the Contractor shall post bilingual (as appropriate) EPA and OSHA caution signs in and around the Work Area to comply with EPA and OSHA regulations.
- D. Area Monitoring shall be performed by the Observation Service, which will conduct air sampling of the Abatement Project (1) outside the building, (2) immediately outside the Work Area, (3) in the Work Area, and (4) for Work Area Clearance Testing after decontamination operations.
- D. Personal Monitoring and other monitoring, which are required by law, or considered necessary by the Contractor for Worker protection shall be the responsibility of the Contractor. The Contractor shall submit on a daily basis, all personal air monitoring data received. In no event shall results be submitted more than 5 working days from the day of collection.

PART 2 - WORKER PROTECTION

2.01 TRAINING PROGRAM

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

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

2.02 MEDICAL SURVEILLANCE REQUIREMENTS

- A. Before exposure to airborne Asbestos, the Contractor will provide each employee performing labor or professional services at the Project site with a current comprehensive medical exam, including a history of respiratory and gastrointestinal diseases, meeting the general definition outlined in 29 CFR 1910.1101, and California Code of Regulations Title 8, Section 1529. The medical report shall contain a statement from the examining physician that the employee can (or cannot) function normally wearing a respirator or that the safety or health of the employee or other employees will or will not be impaired by his use of a respirator. No employee will be allowed to enter the Work Area without having first provided a copy of their Medical Examination, to the Owner's Representative and until the submitted medical has been approved by the Observation Service.
- B. The requirement for medical certification must have been satisfied within the last 12 months. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation.
- C. Information Provided to the Physician

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

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

2.03 PERSONAL PROTECTIVE EQUIPMENT

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

2.04 RESPIRATORS

- A. Respiratory protective equipment shall be NIOSH approved in accordance with the provisions of 40 CFR 84 (July 10, 1995) unless superseded by local regulations with more stringent requirements. Respiratory instructions shall be posted in the Clean Room.
- B. Contractor shall maintain a Respiratory Protection Plan in accordance with 29 CFR 1910.134 and Title 8, CCR section 1529.
- C. At the sole discretion of the Contractor, use Powered Air Purifying Respirator (PAPR) in lieu of Type C Supplied Air Respirators for the abatement of Asbestos Containing Materials (ACM) until the Contractor statistically establishes the Time Weighted Average airborne concentrations of Asbestos fibers the employees will encounter during each unique work activity. Determine in accordance with 29 CFR 1926.1101, 8 CCR 1529 regulations both the 30-minute Excursion Limit and the 8-hour, time-weighted average (TWA) concentration of Asbestos fibers to which employees will be exposed in each Work Area. When the exposure levels are established, the respirators that afford greater protection at the upper confidence level of airborne Asbestos fibers shall be used.
- D. Half-mask or full-face air-purifying respirators with HEPA filters may be worn during the preparation of the Work Area, performance of repair work, use of glove-bag techniques and decontamination work, provided Work Area fiber concentrations are less than 1.0 f/cc.
- E. The Contractor shall provide Workers with approved, permanently personally-issued and marked respirators with changeable filters. The Contractor shall provide a sufficient quantity of filters approved for Asbestos so that Workers can change filters during the workday. Filters shall not be used any longer than one (1) workday or whenever an increase in breathing resistance is detected. The respirator filters shall be stored at the job site in the Clean Room and shall be totally protected from exposure to Asbestos before their use.
- F. Workers shall always wear a respirator, properly fitted on the face, in the Work Area, from the initiation of preparation work until all areas have been given written clearance by the Observation Service.
- G. Provide at least two (2) extra PAPR respirators when this type of respirator is required. Provide instruction on the use of the above respirators to Authorized Visitors.

2.05 WORKER PROTECTION PROCEDURES - TO BE POSTED IN CLEAN ROOM

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

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

- B. All Workers shall, each time they leave the Work Area: remove gross contamination using a HEPA vacuum from clothing before leaving the Work Area; proceed to the Equipment Room and remove all clothing except respirators; still wearing the respirator, proceed naked to the showers; clean the outside of the respirator with soap and water while showering; remove the respirator; thoroughly shampoo and wash themselves.
- C. Following showering and drying off, each Worker shall proceed directly to the Clean Room and dress in their personal clothing. Before reentering the Work Area, each Worker and Authorized Visitor shall put on a clean respirator and shall dress in clean protective clothing.
- D. Contaminated protective clothing and work footwear shall be stored in the Equipment Room when not in use in the Work Area. At appropriate times or upon completion of Asbestos Abatement, dispose of protective clothing and footwear as contaminated waste.
- E. Workers removing waste containers from the Equipment Decontamination Enclosure shall enter the Waste Load out 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 Decontamination Area or the Work Area.
- F. The disposable clothing worn outside the Work Area shall be of different color or markings from the disposable clothing worn inside the Work Area.
- G. Workers shall not eat, drink, smoke, or chew gum or tobacco while in the Work Area.
- H. Workers and Authorized Visitors with beards or who are unshaven shall not enter the Work Area.

2.06 EMPLOYEE IDENTIFICATION

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

PART 3 - PRODUCTS

3.01 GENERAL

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

3.02 PROTECTIVE COVERING (PLASTIC)

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

3.03 TAPE

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

3.04 DISPOSAL CONTAINERS AND BAGS

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

3.05 WARNING LABELS AND SIGNS

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

3.06 SURFACTANT

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

3.07 ENCAPSULATING SEALER

- A. Shall be a penetrating or bridging type, pollution-free, nontoxic, with a Class A fire classification as specified herein. Encapsulants with the ingredient Methylene Chloride are not acceptable unless the contractor can prove to the Owner's satisfaction that equal substitute materials are not available. If substitutes are not used, the Contractor shall submit with the Asbestos Plan for Owner approval respiratory protection and negative air discharge procedures to protect workers, authorized personnel and the public from Methylene Chloride exposure. Material shall be flexible when cured, resistant to weathering, oxidation, aging and abuse.
- B. Shall be a water-dispensed coating, insoluble in water when cured.
- C. Shall be used undiluted.
- D. Shall have a written certification from the manufacturer that the encapsulant is compatible with the replacement material and will safely withstand temperatures of all surfaces on which the encapsulation will be applied.
- E. The Owner's Representative may at any time take random samples of encapsulant from open containers or spray equipment for testing to insure product quality and compliance with the Specifications.

- F. Encapsulant found not to be in conformance with requirements of these Specifications shall be removed from the site immediately. All areas where the defective encapsulant has been applied shall be resprayed with approved encapsulant or remedied in a manner, including the possibility of removal and replacement of the subject Asbestos-Containing Material, acceptable to the Owner. Re-encapsulation expense shall be borne by the Contractor.

3.08 GLOVE-BAGS (where used)

- A. The glove-bag (typically constructed of six [6] mil transparent regulate plastic) has two (2) inward-projecting long-sleeved rubber gloves, one (1) inward-projecting water wand sleeve, an internal tool pouch, and an attached labeled receptacle for Asbestos Waste.
- B. Glove-bag operations shall conform to the procedures in Title 8 CCR 1529.
- C. Two workers shall be assigned per glove-bag removal.

3.09 TOOLS AND EQUIPMENT

- A. Provide suitable tools for Asbestos removal and encapsulation.
- B. Negative air pressure equipment:
1. High-efficiency particulate air (HEPA) filtration systems shall have filtration equipment in compliance with ANSI Z9.2-1979, local exhaust ventilation. No air movement system or air filtering equipment shall discharge unfiltered air outside the Work Area.
 2. HEPA filtration systems used in areas that will be reoccupied shall be DOP/Portacount tested on-site prior to the start of the project. Equipment that fails shall be removed from the jobsite immediately
- C. Manometer:
1. Shall have a built-in alarm. Continuous hard copy readout **REQUIRED**.
- D. HEPA Vacuums:
1. Shall comply with ANSI Z9.2-1979.
 2. HEPA vacuums used in areas that will be reoccupied shall be DOP/Portacount tested on-site prior to the start of the project. Equipment that fails shall be removed from the jobsite immediately.

3.10 LUMBER

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

3.11 SOLVENTS

- A. Shall be non-toxic, non-carcinogenic, nonflammable (flash-point in excess of 200° F.), non-reactive with or damaging to materials it will come in contact with and approved for indoor use by regulatory agencies. Provide ventilation of Work Area as required by manufacturer. Vent

exhaust to the exterior of the building and in such 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.

- B. The Contractor shall submit Material Safety Data Sheets (MSDS) for each and every product used on site. Product MSDS shall be submitted along with other pre-job submittals prior to commencement of work. No product shall be used or substituted without submitting a current MSDS for review and approval by the Observation Service.
- C. Mastic solvents shall be low odor and not leave any objectionable, noxious or toxic odors after use. The Contractor shall be responsible for ensuring that solvents do not leave odors.

PART 4 - EXECUTION

All Class I, Class II, and III asbestos work for renovation projects where the work area will be reoccupied shall be conducted within regulated areas with negative pressure enclosures. The regulated areas shall be demarcated in a manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Certain exterior work – specifically limited to window removal (when conducted substantially intact) and roof mastic removal (when using hand tools only), may forego negative pressure enclosure and full containment requirements.

All Class I asbestos work for demolition projects where the work area will not reoccupied shall be conducted within regulated areas with a negative pressure enclosure. Class II and Class III asbestos work for demolition projects shall be conducted within a regulated area. The regulated areas shall be demarcated in a manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos.

Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Access to regulated areas shall be limited to authorized persons. The Contractor shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area. The Contractor may permit smoking in designated areas.

In addition to the Work Area Preparation requirements in paragraph 4.1, below, Exterior Class I and/or II work shall be constructed to withstand the natural elements and be secured (i.e. lockable entry). Construction materials shall be of rigid support framing members and rip-stop polyethylene sheeting (fire retardant) or equivalent.

4.1 WORK AREA PREPARATION

- A. Preparation procedures for removal of: ALL FRIABLE (CLASS I TSI AND SURFACING and PACM), CLASS II MATERIALS AND CATEGORY I NON-FRIABLE):
 - 1. Removal of the above or other friable Asbestos-Containing Materials (ACM) and Asbestos Containing Construction Materials (ACCM) unless specified otherwise, shall be executed in a "Contained" Work Area. For demolition projects, the contained area can be demarcated by critical barriers.

2. Contractor shall isolate the Work Area for the duration of the Project, completely sealing all openings including, but not limited to, HVAC ducts, diffusers and grilles, skylights, doorways, and windows, with six (6) mil polyethylene taped securely to a clean surface. Particular attention shall be paid to the sealing of cracks in the field area, openings along the perimeter of the floor, openings at floor/wall intersection adjacent to utility shafts and any other openings in the floor in general that would provide an avenue for water migration. Barriers shall form a seal at vertical walls and at the floor deck above and below.

For Renovation work where areas will be reoccupied, the contractor shall be responsible for any and all wall and surface damage. Surfaces shall be left after all abatement in their original condition or better and suitable for paint preparation.

3. HVAC systems shall **be shut down**. Contractor shall design his Work Area preparation and engineering controls as specified and/or as required to prevent damage to and contamination of the affected HVAC system.
4. Contractor shall remove all Movable Objects from the Work Area. All Movable Objects removed from the Work Area shall be cleaned before being moved to the designated storage area for reuse or disposal.
5. Clean and cover Fixed and Movable Objects that can remain in the Work Area with six (6) mil polyethylene sheeting taped securely in place. Special precautions shall be taken to protect Fixed Objects vulnerable to damage or contamination. This provision is not applicable for demolition projects. For building demolition, Work Areas shall be cleared of all movable objects and fixed objects shall be demolished or salvaged to enable full access to asbestos containing materials scheduled for abatement.
6. All Fixed and Movable Objects requiring cleaning shall be washed with amended water or cleaned with a HEPA filtered vacuum prior to removal.
7. Work Area (Containment): Contractor shall cover entire floor, as appropriate, with a minimum of two (2) six (6) mil protective coverings. Cover wall, column or vertical surfaces with a minimum of two (2) four (4) mil protective covering. Floor coverings shall extend a minimum of 12" up vertical surfaces and behind wall covers. All seams shall be staggered and securely taped.
8. Install 2' x 2' plexiglass observation window(s) at strategic location(s) in the "Containment" barrier to allow observation of work from outside the Work Area. Do not install observation windows at locations accessible to building occupants or the public unless there is no other suitable location.
9. Seal all wall, plumbing, duct and other cavities to prevent Asbestos materials from falling into such cavities during the Work.
13. The Contractor shall check regularly (at beginning, middle and end of each shift as a minimum) all polyethylene isolation and containment (protective) barriers for

punctures, loose seals, and contact with heat-generating devices, etc. Problem areas shall be repaired or mended immediately.

14. Maintain existing emergency exits from the building. Maintain a minimum of two (2) exits from Work Areas where possible. The first exit shall be the Worker the Decontamination Enclosure System. The second exit may be the Equipment Decontamination Enclosure System or a ripcord type, emergency only exit in the plastic containment at a door, window or other appropriate location. Exits, where possible, shall be on opposite ends of the Work Area. All exits shall be labeled in bright letters or signage. The second exit shall be labeled "Emergency Exit Only." Establish alternative exits satisfactory to fire officials where existing building or Work Area emergency exits are unavoidably blocked by activities of this project.
15. Provide and maintain appropriate fire extinguisher inside and outside the Work Area. [One 30-pound type "ABC" fire extinguisher is required for each 2,000 sq. ft. of floor area.]
16. Install and maintain temporary emergency exit lighting with battery backup power in all Work Areas. Work Areas with natural lighting, and no night work to be performed, are exempt from this requirement.
17. Shutdown of electric power during the wet removal or encapsulation phase of the Project is mandatory unless directed otherwise. Provide temporary power and lighting when necessary and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements including appropriate Ground Fault protection. Temporary light fixtures will be explosion proof. Provide and maintain auxiliary diesel generator equipment where existing facility power is insufficient. Locate generator or vent generator exhaust in a manner that will prevent carbon monoxide hazards to workers and the public. When a power shutdown is required, the Contractor shall check for conditions where shutdown will pose a danger to the building or to the building's components. Contractor shall take all precautions necessary, including inspections and testing, to insure the safety of his employees and other building occupants from electrical hazards during the course of the Project. Existing fire, smoke detection and other life safety systems shall be kept in operation at all times, or, the Contractor shall install and maintain a temporary system or alternate acceptable to the Owner and fire officials.
18. This provision not used and is included only for reference. The Contractor shall install and maintain Negative Air Pressure Equipment during the abatement and decontamination phases of the Project until the Clearance Test has passed. In unoccupied facilities a sufficient amount of air shall be exhausted by the unit(s) to create a pressure of -0.02 inches of water within the Work Area with respect to the area outside the Work Area. If only one unit is necessary to provide the specified negative air pressure in a Work Area, the Contractor shall have a backup unit in place should the first unit fail, and for filter changes.
21. This provision not used and is included only for reference. Install and maintain a manometer from the time abatement begins until the Clearance Test has passed in all Work Areas.

Provide photocopies (dated & signed) to the Observation Service at the start and end of each work shift.

22. Notify the Observation Service twenty-four (24) hours in advance of when preparatory steps will be completed. **Asbestos Abatement Work shall not commence until: all preparation requirements have been completed; all tools, equipment, and materials are on hand; all required submittals, notices and permits have been approved, and until the Observation Service authorizes in writing that Work may commence.**

4.2 DECONTAMINATION ENCLOSURE SYSTEMS

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

1. Build suitable wood, metal or PVC framing as described herein and as approved by the Observation Service at the shop drawing submittal stage. [Framed walls susceptible to damage or which also form a security barrier between Work Areas and public areas shall be sheathed with 3/8" min. plywood. Paint public facing side of plywood (color to be selected by Owner).] Portable prefab units, if utilized, must be submitted for review and approval by the Observation Service before start of construction. Submittal shall include, but not be limited to, a floor plan layout complying with the schematic layouts bound herein, showing dimensions, materials, sizes, thickness, plumbing, and electrical outlets, etc.

B. Decontamination Enclosure System for asbestos abatement work in "Contained" Work Areas for Class I work, Class II work delineated in 4.1A, above, or where the exposure levels may exceed the PEL for Asbestos:

1. Construct a Workers' Decontamination Enclosure System contiguous to the Work Area consisting of three totally enclosed chambers to conform with standard drawings bound herein as follows:
 - a. An Equipment Room with an Air Lock to the Work Area and a Curtained Doorway to the Shower Room.
 - b. A Shower Room with two Curtained Doorways, one to the Equipment Room and one to the Clean Room. Plastic on Shower Room and adjoining Equipment and Clean Rooms shall be opaque. The Shower Room shall contain at least one shower with hot and cold or warm water. Careful attention shall be paid to the shower enclosure to ensure against leaking of any kind. Trap shower waste using filters having a maximum pore size of 1.0 micron and drain into a sanitary sewer. Replace filter when they become clogged. Ensure a supply of soap and disposable towels at all times in the Shower Room.
 - c. A Clean Room with one Curtained Doorway into the shower and one entrance or exit to non-contaminated areas of the building. The Clean Room shall have sufficient space for storage of the Workers' street clothes, towels, and other non-

contaminated items. Joint use of this space for other functions, such as offices, storage of equipment, materials, or tools, shall be prohibited.

4.3 ASBESTOS REMOVAL - GENERAL

- A. Before removal, Asbestos materials shall be sprayed with Amended Water. The Asbestos materials shall be sufficiently saturated without causing excessive dripping and to prevent ambient emission of airborne fibers, at any time, in excess of 0.05 f/cc. Spray materials repeatedly during the work process to maintain a wet condition. If the materials are not easily saturated, then the Work Area shall be constantly misted to keep fiber emission minimal.
- B. Asbestos material shall be removed in manageable sections by a multi-person team, some of whom are wetting and the remainder removing and cleaning. Any material, which falls to the floor shall be wetted and picked up immediately. Material shall not be allowed to dry out. Material drop shall not exceed 5 feet. Before a second area can be started, removed material shall be packed into approved and labeled, leak-tight packaging while it is still wet. The outside of all containers shall be clean before leaving the Work Area. Move containers to the Washroom (Shower Room when Equipment Decontamination System is not required), wet-clean each container thoroughly, and move to Waste Load out pending removal to uncontaminated areas.
- C. The Contractor shall not remove any asbestos material in one shift than can be cleaned up and properly bagged in labeled 6-mil asbestos bags by the end of the shift. No loose asbestos material may be left in a work area after the end of any shift.
- D. Asbestos material applied to concrete, steel decks, beams, columns, pipes, tanks, and other nonporous surfaces shall be wet-cleaned to a degree that no traces of debris or residue are visible.
- E. Asbestos material debris, drippings, splatters, and overspray on surfaces within ceiling cavities and other accessible areas shall be removed in the same manner and cleaned to the degree as specified above.
- F. The Work Area shall be kept orderly, clean and clear of work materials, polyethylene sheeting, tape, cleaning material, and clothing, and all other disposable material or items used in the Work Area shall be packed into properly labeled protective packaging and removed from the Work Area.
- G. Protective packages and drums containing Asbestos materials shall be cleaned and stored in the isolated Waste Load out 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 such a manner that will not result in damage to the packages or drums. Transport bags in covered drums or carts from the Waste Load out to the transport. The waste storage area shall be locked at all times when waste is not actively being transported to the storage area.
- H. Equipment removal procedures: Clean surfaces of contaminated equipment thoroughly by wet-sponging or wiping before moving such items into the Washroom (Shower Room when Equipment Decontamination System is not required) for final cleaning and removal to

uncontaminated areas. Ensure that personnel do not leave Work Area through the Equipment Decontamination Enclosure.

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

4.4 SPECIFIC ASBESTOS REMOVAL METHODS

FRIABLE (CLASS I TSI AND SURFACING and PACM), CLASS II MATERIALS AND CATEGORY I/II NON-FRIABLE MATERIALS

1. Class I Work Specific Control Methods: Class I asbestos work shall be performed using the following control methods: (Method not anticipated to be used based on previous pre-demolition hazardous material survey. Method included for reference only.)
 - a. Negative Pressure Enclosure (NPE) systems The negative pressure enclosure shall be kept under negative pressure with at least 4 air changes per hours. A minimum of -0.02 column inches of water pressure differential, relative to the outside pressure, shall be maintained and evidenced by manometric measurements. Air movement shall be directed away from the employees and toward a HEPA filtration device. The NPE shall be smoke tested for leaks at the beginning of each shift.
 - b. Glove Bag Systems to remove ACM from straight runs of piping and elbows and other connections.
 1. Designated boundary limits for the asbestos work shall be established with rope or other continuous barriers and all other requirements for asbestos control areas shall be maintained including area signage and boundary warning tape as specified
 2. Area monitoring of airborne asbestos fibers shall be conducted by the Observation Service during the work shift at the Designated boundary limits and personal air monitoring shall be performed for each worker engaged in asbestos handling (removal, disposal, transport and other associated work) at such frequency as specified in the Contractor's air monitoring plan.
 3. The Contractor shall correct the condition to the satisfaction of the owner to include visual inspection and air sampling.
 4. Work resumption will only be allowed upon notification by the Observation Service. If adjacent areas outside the regulated work area are contaminated, the contractor at his expense, shall clean the contaminated area The Observation Service shall visually inspect the cleaned area, and conduct TEM air monitoring.

5. Glove bags shall be made of 6 mil thick plastic, seamless at the bottom and used without modification. Glove bags shall be smoke-tested for leaks and any leaks sealed prior to use. Glove bags shall be used only once and shall not be moved.
 6. Before beginning the operation, loose and friable material adjacent to the glove bag operation shall be wrapped and sealed in two layers of six-mil plastic or otherwise rendered intact. At least two persons shall perform Class I glove bag removal.
 7. After installation of glovebag(s), thoroughly wet material to be removed with amended water. Allow to soak in, then remove insulating material from piping. Insulation not to be removed shall be cut clean to form a new smooth edge a minimum of 6" back from the original end of the insulation. Thoroughly wash the inside of the bag, the piping surfaces and the tools.
 8. Place glovebag directly into another six mil sealable plastic bag or appropriate container labeled in accordance with 8 CCR 1529. Sealed outer bag by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape.
- c. TSI Wrap and Cut Method: (Not anticipated to be used based on pre-demolition survey. Method included for reference only.)
1. Removal of TSI from piping may be performed using approved Wrap and Cut procedures in specified areas. In all cases, Work shall be conducted within negative pressure enclosures.
 2. Before using this method, the contractor shall verify the piping being removed is going to be abandoned or removed prior to proceeding. The Contractor shall drain lines prior to cutting pipe(s).
 3. Wrap pipe being removed with two layers of six mil polyethylene sheeting. Install glovebags at sections where the pipe will be abated and subsequently cut. Seal to polyethylene sheeting. Thoroughly wet material to be removed with amended water. Allow to soak in, then remove a section of insulating large enough to allow for cutting without disturbing the remaining asbestos insulation.
2. Class II Work Specific Control Methods: Class II asbestos work shall be performed using the following control methods for friable (RACM) and non-friable (Category I Non-Friable ACM and Category II Non-Friable ACM):
- a. Resilient Vinyl Floor Tile (RFT/VFT)/Mastic Removal (CAT I NF)
 1. Wet floor with amended water, removal encapsulant, or detergent solution, so that entire exposed RFT/VFT floor surface is wet. Do not allow to

puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with Manufacturer's Instructions.

2. Cover with sheet polyethylene to allow humidity to release tile from floor. Allow time for humidity and water or removal encapsulant to loosen tiles prior to removal.
 3. Remove loose tiles and wrap manageable stacks of tiles in two layers of 6-mil polyethylene. Continue wetting during removal and take care not to break the tiles.
 4. Tiles, which do not come loose after saturation, will be removed using methods that minimize the breakup of individual tiles. Continue wetting during removal.
 5. Sanding of the tiles or adhesive is not permitted.
 6. The residual mastic and/or adhesive shall be removed by scraping under wet conditions. The adhesive shall be removed such that, when completed, there are no remaining ridges or undulations of adhesive and no further preparation is required for the floor to be retiled. If using a commercial mastic remover MSHA/NIOSH half-face dual cartridge respirators equipped with HEPA cartridges and any "piggy back" cartridges specified by the abatement contractor's respiratory protection plan. Appropriate cartridges shall be provided by the abatement contractor's competent person/site safety officer to workers working in the RFT/VFT designated regulated area.
 7. Perform prompt cleanup of removed materials using manual pickup for large pieces and wet sweeping with HEPA vacuum for smaller debris.
 8. Dry sweeping will not be allowed.
 9. Package all asbestos waste in appropriate leak-tight containers, seal and label.
 10. Dispose of as a Category I Non-Friable Asbestos Waste (Non-Hazardous).
- b. Resilient Sheet Flooring (RSF) Removal (RACM): In addition to the requirements for regulated areas and friable ACM removal indicated above, the following engineering controls and work practices shall be used for RSF:
1. Thoroughly wet the surface with amended water
 2. Where feasible, remove the resilient sheet flooring with wood substrate attached in sections suitable for bagging.
 3. Where RSF substrate is concrete, remove resilient sheet flooring by manually separating the resilient sheet flooring at a free edge. Keep the

exposed face wet with amended water while using manual removal methods. Cut free RSF into manageable segments and/or pieces for placement in leak-tight container. Keep cut line wet.

4. Perform prompt cleanup of removed materials using manual pickup for large pieces and wet sweeping with HEPA vacuum for smaller debris.
 5. Dry sweeping will not be allowed.
 6. Package all asbestos waste in appropriate leak-tight containers, seal and label.
 7. Dispose of as a Non-RCRA California-regulated Hazardous Waste – Friable Asbestos (RACM).
- c. Wall Cavity, Pipe Chase and Plenum Decontamination: In addition to the requirements for regulated areas and friable ACM removal indicated above, the following engineering controls and work practices shall be used:
1. Remove all visible loose non-friable ACM debris and dispose of as ACM waste where exposed by scheduled demolition in wall cavities, pipe chases or plenums.
 2. Remove pipe insulation in wall cavities, pipe chases and/or plenums where exposed by scheduled demolition activities in accordance with procedures described in the above. Dispose of as a Non-RCRA California-regulated Hazardous Waste – Friable Asbestos (RACM).
 3. Upon completion of removal, thoroughly HEPA vacuum all surfaces. Thoroughly wash down all exposed surfaces in wall cavities, pipe chases and/or plenums. Contractor shall perform two complete cleanings of the affected crawlspace / prior to final visual inspection. All WORK shall be performed by personnel registered and licensed in accordance with this Section.

4.5 DECONTAMINATION OF WORK AREA

- A. Decontamination procedures for "Contained or Regulated" Work Areas (Friable Class I and II and Category I non-friable), excluding Asbestos-Containing Material encapsulation work:
1. Remove all visible accumulations of Asbestos material and debris. Wet-clean all surfaces within the Work Area to remove Asbestos residue.
 2. After cleaning, the Contractor shall perform a complete visual inspection of the Work Area to ensure that the Work Area is free of any visible debris or residue.
 3. Upon completion of his visual inspection, the Contractor shall notify the Observation Service in advance that the Work Area is ready for Initial Review.

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

during the Pre-Testing Visual Inspection shall be remedied by the Contractor, at his expense, prior to clearance testing.

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

4.06 UNCLASSIFIED ASBESTOS REMOVAL OPERATIONS (ACCM DEMOLITION)

A. Work Procedures (General)

1. Install barrier tape a minimum of ten feet away from the perimeter of Work Areas.

2. Use wet methods or methods that minimize or eliminate the generation of dust during demolition operations. Wet methods shall include the use of a Dust Boss or other approved type of wet fogger.
3. Perform prompt cleanup of removed materials using manual pickup for large pieces and wet sweeping with HEPA vacuum for smaller debris.
4. Dry sweeping will not be allowed.
5. Package all asbestos waste in appropriate leak-tight containers, seal and label.

4.07 ASBESTOS DISPOSAL REQUIREMENTS

- A. Asbestos-Containing Waste Materials shall be packed into approved sealed and labeled protective packaging.
- B. Containers removed from the Waste Load-out must be removed by Workers who have entered from uncontaminated areas dressed in clean coveralls. Workers must not enter from uncontaminated areas into the Washroom or the Work Area; contaminated Workers must not exit the Work Area through the Equipment Decontamination Enclosure System.
- C. Contractor shall deliver Asbestos-Containing Waste Materials to the pre-designated Waste Disposal Facility in accordance with the guidelines of the EPA or the State of California.
- D. The Contractor shall notify the Observation Service twenty-four (24) hours, in advance, when Asbestos-Containing Waste Materials are to be removed from the site. The Observation Service must be present during the removal of Asbestos-Containing Waste Materials from the Work Area. A copy of the Uniform Hazardous Waste Manifest or other document required by State or Local agencies shall be submitted to the Observation Service for review and signature prior to transporting Asbestos-Containing Waste Materials to the disposal facility.
- E. At the conclusion of Work, the Contractor shall provide evidence (such as a "Waste Disposal Record" or "Hazardous Waste Manifest") that the Asbestos-Containing Waste Material was disposed of at the approved EPA Hazardous Waste Disposal Facility. The evidence shall be submitted with the final request for payment. The Contractor shall indicate on the "Waste Disposal Record" 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.
- E. The Contractor shall be responsible for the safe handling and transportation of all Hazardous Waste generated by the Project of this Contract to the designated Hazardous Waste Disposal Facility. The Contractor shall bear all costs for all claims, damages, losses, and clean up expenses against the Owner or the Observation Service, including but not limited to attorney's fees arising out of or resulting from Asbestos spills on the site or spills enroute to the Hazardous Waste Disposal Facility.

- F. Demolition debris containing ACCM texture coat shall be kept wet during loading such that there are no visible emissions. Demolition debris with ACCM can be disposed as general construction debris.

4.7 AIR MONITORING AND TESTING

A. Area Air Monitoring:

1. Throughout removal, encapsulation, and cleaning operations, Area Air Monitoring shall be conducted by the Observation Service to ensure that the Contractor's engineering controls and work practices are minimizing worker and public exposures to airborne asbestos fibers. In accordance with applicable codes, regulations, and ordinances. Fiber counting shall be done by PCM using NIOSH Method No. 7400, with the following as minimum daily samplings:
 - a. Outside the work area at the DECON entrance
 - b. At the waste load out (if present)
 - c. Downwind for exterior work at the Regulated Area Boundary.
2. The Observation Service shall report the Area Air Monitoring results to the Contractor on the following day. If Area Air Monitoring results are unsatisfactory, the Contractor shall make changes in his engineering controls and work practices to assure compliance with the following standards. Unsatisfactory results are fiber counts within the Work Area in excess of the Maximum Acceptable Level (0.05 f/cc) or fiber counts outside the Work Area in excess of the Benchmark.

B. Personal Air Monitoring:

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

The Contractor shall report Personal Monitoring results to the Observation Service within 48 hours from the end of the work shift. Worker exposures to airborne Asbestos concentrations shall not exceed the Permissible Exposure Limit (PEL) of 8-hour time-weighted average (TWA) of 0.1 fibers (longer than 5 micrometers) per cubic centimeter of air.

C. Visual Inspection and Clearance Testing (where performed):

1. For demolition projects where the work area will not be re-occupied, The Contractor shall not be released until final visual inspection is performed.
2. Contained Work Areas for (TSI/Surfacing/Friable Asbestos materials only): The Contractor should not be released until final visual inspection and air testing is performed using Transmission Electron Microscopy (TEM) Methods
3. Clearance criteria for TEM samples will be the average of 5 TEM samples less than 70 structures/mm².
4. Clearance criteria for PCM samples will be up to 5 PCM's, each of which must be less than 0.01 f/cc.
4. If the visual inspection or results of air tests (where performed) show that the Work Area has not been decontaminated, the Contractor shall repeat the cleaning and encapsulation application until the Work Area is in compliance.

4.7 REIMBURSEMENT OF COSTS OF THE OWNER OR THE OBSERVATION SERVICE

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

4.8 STOPPING THE WORK

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

END

SECTION 02085
RESPIRABLE CRYSTALLINE SILICA-RELATED CONSTRUCTION

PART 1 - GENERAL

1.01 OBJECTIVES AND SCOPE

A. Purpose

1. The purpose of this specification is to protect employees, the public, the environment, and property from the detrimental effects of silica-containing dust generated from demolition, construction and restoration/maintenance activities.

B. Scope and Application

1. This specification applies to powered tools or equipment used to cut, grind, core or drill masonry or concrete materials. Also, includes any work activity that would generate respirable crystalline silica dust.

C. Definitions

1. Action Level - Action Level means a concentration of airborne respirable crystalline silica of $25 \mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.
2. Competent Person - Competent Person means an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in 8 CCR 1532.3(g).
3. Concrete and Masonry Material - For purposes of this specification concrete and masonry material shall include concrete block, brick, stones (natural and man-made), terracotta tile, mortar and concrete made by mixing cement, and water with sand, and aggregate such as gravel or crushed stone. Material that is apparently stone-like in appearance and texture shall be presumed to be concrete or masonry material unless otherwise indicated by evidence as presented by the employer.
4. Dust reduction system - Technology that utilizes the application of water or local exhaust ventilation to reduce airborne dust generated by the use of powered tools or equipment. Local exhaust ventilation may include vacuum systems, dust collection systems, and dust exhaust systems.
5. Employee Exposure - Employee Exposure means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

6. High-efficiency Particulate Air (HEPA) Filter – A High-efficiency Particulate Air (HEPA) Filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.
7. NIOSH REL - The National Institute for Occupational Safety and Health Recommended Exposure Limit. For silica this is 0.05 milligrams per cubic meter (mg/m³) averaged over a 10-hour time-weighted average.
8. Objective Data - Objective Data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations
9. OSHA PEL - The Occupational Safety and Health Administration's Permissible Exposure Limit of 50 µg/m³ over an 8-hour Time Weighted Average (TW) per Title 8 California Code of Regulations Section 1532.3 (8 CCR 1532.3) and Code of Federal Regulations (CFR) 1926.1153 – Occupation Exposures to Respirable Crystalline Silica.
10. Powered tools or equipment — Tools in which the motive force that disrupts concrete or masonry materials is provided by a source other than human energy. Powered tools and equipment include those powered by electrical, combustion, hydraulic, chemical, or pneumatic energy.
11. Respirable Crystalline Silica - Respirable Crystalline Silica means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality -Particle Size Fraction Definitions for Health-Related Sampling.

C. Controls

1. In all cases, engineering and/or work-practice or administrative controls that reduce dust at the source where it is being generated shall be the control of choice. In those instances where such controls cannot be used, even temporarily, employees shall be protected with respirators that are used as part of a respiratory protection program. Additionally, the contractor must document how they determined that engineering and/or work practice or administrative controls could not be used.
 - a. Safety and Effectiveness of Dust Control Systems
 - 1) Procedures shall be implemented to ensure that dust reduction systems maintain their effectiveness for dust reduction throughout the work shift.
 - 2) Dust reduction systems shall be installed, operated, and maintained in accordance with manufacturer recommendations when there are such.

- 3) When electrical tools are used with water as a dust reduction system, it shall be done in accordance with applicable requirements of electrical safety.

b. Dust Collection/Management

- 1) Dust shall be contained and disposed of in bags that can effectively hold dust without breaking.
- 2) Work surfaces and clothing shall be cleaned with vacuums and not by dry sweeping or the use of compressed air.
- 3) Respirators shall be worn when changing out bags or handling dust.

D. Evaluating the Effectiveness of Controls

1. The primary purpose of exposure monitoring and site inspections for the presence of dust is to ensure that engineering controls are effective in reducing silica dust generation. When personal air monitoring results are elevated or when there is visible dust, the contractor must intervene to determine the cause of the problem and fix it.
2. As soon as possible after the beginning of cutting or grinding tasks, the contractor shall conduct personal air monitoring of workers performing the cutting/grinding tasks. An industrial hygienist shall perform the monitoring and must be consulted prior to the execution of work. If personal air monitoring results indicate that the exposures are above the NIOSH Recommended Exposure Limits (REL) for silica, the contractor must ensure that the controls are functioning and being used properly. In all cases when the REL is exceeded, workers shall be provided with proper respiratory protection.
3. Following modification of controls as described above, the contractor shall conduct personal air monitoring to verify the effectiveness of those modifications in reducing employee exposure to silica.
4. If the contractor has done similar work in the past, has conducted exposure monitoring, and has records of this, the results can be used as a preliminary means to evaluate the effectiveness of controls. It is important that the previous jobs where the monitoring was conducted be similar to the current job, and that the control used be the same, including the manufacturer and model of the vacuum used.
5. Periodic monitoring shall be performed to assure the effectiveness of controls over time.
6. The contractor shall conduct daily visual inspections of the site for the presence of visible dust during grinding and cutting tasks. The presence of such dust is a sign that the controls are not doing their job.

E. Training

1. Employee training. An employer whose operations include using powered tools or equipment to cut, grind, core, or drill concrete or masonry materials shall provide training on the following topics to all employees prior to their assignment to jobs or work areas where the employer will be conducting these operations that potentially expose them to silica-containing dusts:
 - a. The potential health hazards of overexposure to airborne dust generated from concrete and masonry materials, including silicosis, lung cancer, chronic obstructive lung disease (COPD) and decreased lung function.
 - b. Methods used by the employer to control employee exposures to airborne dust from concrete and masonry materials, including wet cutting, local exhaust ventilation systems, and process isolation, as applicable.
 - c. Proper use and maintenance of dust reduction systems, including the safe handling and disposal of waste materials collected in connection with their use.
 - d. The importance of good personal hygiene and housekeeping practices when working in proximity to dust from concrete and masonry materials including: not smoking tobacco products; appropriate methods of cleaning up before eating, and appropriate methods of cleaning clothes
 - e. OSHA requirements including permissible exposure limits, requirements for engineering controls, and respirator protection program requirements
2. Supervisor training. Prior to supervision of employees who will be cutting, grinding, drilling, or coring concrete or masonry materials, supervisory employees shall be trained on the following topics:
 - a. The information required to be provided by subsection above. Identification of tasks the employees will perform, which may result in employee exposure to concrete or masonry dust.
 - b. Procedures for implementation of the measures used by the employer to reduce the exposure to concrete or masonry dust.
 - c. Measures for verifying the effectiveness of controls.
3. Periodic training. On jobs that last more than one year, the employer shall conduct the training required by this section at least annually.

G. Training Records

1. General Requirements: The contractor must maintain a record of all training required by this part within the preceding three (3) years for each person, who performs or directly supervises this specific job function (Masonry, Grinding, Cutting and Sawing). These training records must be maintained during the time that the person

performs or supervises this job function (Masonry, Grinding, Cutting and Sawing). These training records must be kept for direct employees of the contractor as well as independent contractors, subcontractors and any other person who performs or directly supervises these job functions for the contractor.

2. Location of Records: The contractor must retain the training records required by this part to include all initial and recurrent training received within the preceding three (3) years for all persons performing or directly supervising this job function (Masonry, Grinding, Cutting and Sawing). Records may be maintained electronically or by other acceptable means. When the person ceases to perform or directly supervise this job function (Masonry, Grinding, Cutting and Sawing) the contractor must retain the training records for an additional ninety (90) days.
3. Contents of Records: Each training record must contain the following:
 - a. The individual's name;
 - b. The most recent training completion date;
 - c. A description, copy or reference to training materials used to meet training requirements;
 - d. The name of the person or organization providing the training.

H. Written Program

1. The contractor shall have a site-specific, written program that contains the following elements:
 - a. Introduction: Project description, location, scope and schedule of work.
 - b. Personnel: Project manager, person in charge of silica program.
 - c. Silica dust-emitting activities: Tasks, equipment, materials, work crew.
 - d. Engineering and work-practice controls: Type of control, use and maintenance procedures and how effectiveness will be verified including personal air monitoring data and schedules for air monitoring.
 - e. Respiratory Protection Program.
 - f. Schedule: Timetable for implementing compliance program.
 - g. Hygiene procedures: Protective clothing (beside respirators) and equipment, housekeeping, hand washing stations.

PART 2 - PRODUCTS

2.01 PROTECTIVE COVERING

- A. Polyethylene sheets, of 6 mil thickness, in dimensions of adequate width, to minimize the frequency of joints.

2.02 TAPE

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

2.03 CLEANERS

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

2.04 SPRAY ADHESIVE

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

2.05 DISPOSAL CONTAINERS

- A. Where Block and Tarp is used, provide 6-mil thick polyethylene sheeting, 6-mil leak-tight polyethylene bags and other impervious containers as required by the TWW regulations to prevent contact with soil, rain and stormwater run-on. All wastes shall be kept elevated to prevent contact with soil.
- B. Where the TWW will be containerized, all hazardous waste shipping containers shall meet federal and California DOT requirements and shall be equipped with a lockable lid.
- C. Disposal containers containing hazardous wastes shall appropriate signage and placard that meet CAL/OSHA requirement.
- D. Disposal containers shall remain locked when not in use.
- E. Disposal containers that contain hazardous waste shall be kept separate from containers used to store non-hazardous construction debris. In addition, disposal containers containing hazardous wastes shall be secured by a perimeter fencing unless the site is equipped with full perimeter fencing and lockable gate. Where the site is equipped with perimeter fencing, the disposal containers shall be demarcated with warning tape.

2.06 WARNING SIGNS AND LABELS

- A. Caution signs are to be a minimum of 14 x 20 inches and include phrase " SILICA DUST HAZARD - EXPOSURE TO CRYSTALLINE SILICA DUST CAN CAUSE CANCER OR SILICOSIS, AVOID BREATHING DUST" in lettering at least 2" in height. These signs shall be posted at each work area where a hazard assessment identifies a potential silica hazard or where a silica exposure could exceed the silica Action Level.

2.07 PERSONAL PROTECTIVE EQUIPMENT

- A. Personal protective equipment shall conform to the Contractor's Injury and Illness Prevention Plan (IIPP) and or the site safety plan for the specific task, whichever is

more stringent. Workers may wear full body disposable TYVEK type suits with dust masks for nuisance dust where allowed under the Contractor's IIPP or site safety plan.

- B. Goggles with side shields will be worn during all cutting and coring or during manual demolition activities.
- C. In addition, all Cal-OSHA requirements, such as hard hats, hearing protection, etc. are required.

2.08 TOOLS AND EQUIPMENT

- A. Provide suitable tools for collection of dust generated from cutting, coring and demolition including required HEPA vacuums and exhaust units, airless sprayers, ground fault interrupters, hand tools, wipes, ladders, and scaffolds. Mechanical abrasion tools and saws shall be equipped with local HEPA exhaust and subject to approval by the Owner's representative. All tools and equipment brought on site shall be clean and free of contamination from hazardous materials. HEPA filtered equipment shall be labeled with a warning label and dedicated to masonry and concrete work to prevent combining with hazardous wastes generated from differing work activities (e.g. lead and/or TWW resizing).
- B. Provide adequate support equipment, including, but not limited to lumber, hardware, decontamination showers, sprayers, hoses, drain pans, miscellaneous collection devices, and secure holding facilities.

PART 3 - EXECUTION

3.01 GENERAL

- A. Several levels of preparation and dust control procedures are outlined in this section to address various conditions and methods of work.

3.02 SPECIFIED EXPOSURE CONTROL METHODS

- A. For each employee engaged in a task identified on 8 CCR 1532.3 -Table 1, the contractor shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless the employer assesses and limits the exposure of the employee to respirable crystalline silica in accordance with the exposure assessment requirements identified in 8 CCR 1532.3 (d).

3.03 SITE PREPARATION (Interior and Exterior Work Areas)

- A. The level of preparation described in this section is appropriate for demolition of concrete and masonry building components, and for the demolition of concrete foundation and wall systems as specified in these contract documents. All concrete and masonry demolition, removal and resizing actions shall occur in a contained and regulated area to control migration of silica dust.

1. Post Caution signs (described in Section 2.06) at all exterior approaches to the work area, and in addition, post Cal-OSHA warning signs at all immediate entrances to work area
2. Cover all floors and non-moveable objects (within 10 feet of the affected area) with 6- mil polyethylene sheeting and seal with duct tape.
3. Provide dust migration barriers as required by sealing all openings to the work area that will not be used for direct access (ingress/egress) with minimum 6-mil flame retardant polyethylene sheeting.
4. Install double flapped curtain doorway at the entrance to the work area by attaching two layers of 6-mil polyethylene sheeting to the doorway. Attach one sheet to the top and one vertical edge of the doorway, and one to the top and the opposite vertical side.
5. In areas where the interior will be reoccupied, provide suitable containment/enclosure on the interior of affected areas. Protect adjacent architectural components and finishes from damage.
6. Notify the Owner's Representative when the work area is ready for visual inspection. Additional work shall not proceed until the Owner's representative has inspected and approved work area preparations.

3.04 WORKER SAFETY/DECONTAMINATION PROCEDURES

- A. Worker Safety shall conform to the Contractor's IIPP and/or Site Safety Plan, whichever is stricter.
- B. The Contractor shall have written procedures for employee decontamination for specific work tasks identified in the Contractor's IIPP.
- C. The Contractor shall provide appropriate PPE and training in the use and care of the PPE for each work task identified in the Contractor's IIPP or site safety plan
- D. The contractor shall provide decon/wash stations at appropriate locations where demolition/renovation activities will generate silica dust or construction dust to adequately wash face, hands, arms, etc.
- E. All tools and equipment shall be decontaminated by HEPA vacuuming and/or wet wiping prior to being taken out of the Work Area.
- F. Workers shall not eat, drink, smoke, or chew gum or tobacco at the work site.

3.04 GENERAL REMOVAL PROCEDURES

- A. DEMOLITION

1. Prepare work site and provide protective measures in accordance with Section 3.03, above.
2. Using wet removal and/or dust suppression methods, Contractor shall perform demolition in manner to remove concrete or masonry in manageable pieces. After the conclusion of work on each day and after final demolition is complete, clean area until free of loose dust and debris to the satisfaction of the Owner's representative using HEPA.
3. Remove plastic sheeting from immovable objects, floors, or applicable horizontal surfaces after misting by folding it and all its contents toward the center. Place protective sheeting and waste rags in segregated 6 mil plastic bags, seal and store in a designated, secure waste storage area for disposal as construction generated debris.
5. All tools and equipment shall be cleaned by vacuuming and wet wiping prior to leaving the work area.
6. At least 24 hours prior to completion and upon completion of final cleanup and removal of debris, notify the Owner's representative to obtain final visual clearance inspection.

B. DISMANTLING/REMOVAL

1. Prepare work site and provide protective measures in accordance with Section 3.03, above.
2. Building components to be dismantled shall be carefully removed in manageable sections and all work shall be performed over protective polyethylene sheeting. Workers shall exercise caution to avoid release of silica dust into the air where manual demolition methods are utilized. Do not saw or cut the materials unnecessarily. Dismantling operations shall be conducted in a careful, safe manner.
3. Properly clean the work area in accordance with procedures outlined in Section 3.03, Part A, above.

3.05 INSPECTION PROCEDURE WORK AREA CLEARANCE

- A. After the final clean-up, a preliminary visual inspection will be conducted by the Owner's representative to ensure that all visible dust and debris has been removed. The Contractor shall provide the Owner's representative at least 24-hours notice prior to scheduling inspection.
- B. If the Work Area is not visibly clean, as determined by the preliminary visual inspection by the Owner's representative, the Contractor shall re-clean and decontaminate as described in Section 3.03, A., at his own costs, until the work area passes inspection.

- C. Clearance criteria to release contractor from each work area is as follows:
 - No visible debris (performed following removal of concrete and masonry components and after demolition of structures)
- D. A work area shall be considered cleared only after all areas within the work area have met the above criteria.
- E. If a work area fails the clearance criteria specified above, the Contractor shall be responsible to re-clean the area at no additional cost to the Owner and shall be responsible for associated additional re-inspection costs, including laboratory fees (where determined necessary).

3.06 WASTE HANDLING AND DISPOSAL

- A. The Contractor shall provide for secure on-site storage of concrete and masonry waste. Waste storage location, equipment, storage methods and/or containers shall be in compliance with applicable regulations.
- B. DISPOSAL
 1. The Contractor shall submit name, address, and telephone number of landfill or landfills and/or concrete recyclers to Observation Service for review, prior to disposal. Neither the Observation Service nor the Owner shall approve the location of waste disposal or recycler. It is the Contractors sole responsibility to evaluate the suitability of each waste transporter and disposal/recycler facility.
 2. Copies of the landfill weight tickets shall be provided to the Owner to verify the amount of waste disposed of at the site.
 3. The Contractor is responsible for all costs associated with transportation and disposal of the waste.

3.07 STOP WORK ORDERS

- A. The Owner or Owner representative has the authority to stop work if it is determined that conditions or procedures are not in compliance with the Work Plan and/or applicable regulations; the Contractor is deficient in providing required submittals; the waste is not securely stored; or a potential release of silica dust to outside the Work Area is imminent based on the Owner's or the Owner's representative's judgment.
- B. The work stoppage shall remain in effect until conditions have been corrected and corrective measures have been taken to the satisfaction of the Owner and/or Owner's representative.

Milani & Associates

Piedmont High School
Auditorium Building (Building C) Demolition

END

SECTION 02090
LEAD-RELATED CONSTRUCTION

PART 1 - GENERAL

1.01 SECTION CONTENTS

A. This section specifies the methods, procedures, and requirements related to the removal and disposal of lead-based paint including, but not limited to:

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

1.02 RELATED DOCUMENTS

The requirements of the General Conditions and Division 1 apply to all work hereunder:

1. Section 02038: Existing Conditions: Hazardous Materials
2. Section 02080: Asbestos Abatement
3. Section 02085: Respirable Crystalline Silica-related Construction
4. Section 02090: Lead-related Construction
5. Section 02095: Other Regulated Materials – Handling and Disposal.
6. Section 02121: Treated Wood Waste Removal, Handling and Disposal
7. Hazardous Material Drawings HM-1 through HM-8 included in Appendix A of the project specifications

1.03 SCOPE OF WORK

A. The work of this section includes the provision for all labor, materials, equipment and services necessary to effect the work area preparation, minimization of dust generation, dust control, dust removal, cleaning, and disposal of lead-containing wastes generated from demolition and renovation activities and components coated with lead paint as indicated by the contract drawings and within Section 02010 of this specification.

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

- i. Removal and disposal as a Non-RCRA California Regulated Hazardous Waste – Lead (CA Waste Code 181)- LWS-1: tan ceramic wall tile systems in lower level men's and women's restrooms (Room 102) and upper-level theater restrooms. Estimated quantity: Lower Level restrooms – 440 sq. ft., Theater (upper) Level Restrooms – 740 sq. ft.

Note: Owner's Environmental Consultant will collect representative sample of Lead Waste Stream (LWS-1) for TCLP analysis. Where TCLP is determined to be greater than 5 mg/L, the waste stream shall be classified as a RCRA Hazard Waste (EPA waste code D008).

- ii. Removal, characterization and disposal of the following lead-containing paint coating systems and/or waste streams (WS) to enable recycling of concrete substrate and/or a painted building component:
 - a. LWS-2: White Texture Coat – Interior Building Column Face in Theater Seating and Lobby Area. Estimated quantity: 3,100 sq. ft. (Lead <0.0100%, based on bulk sampling, XRF – 0.7 to 1.4 mg/cm²).
 - b. LWS-3: Brown Paint – Interior Theater Seating Area Floor and Stem Walls. Estimated quantity: 5,000 sq. ft. (Lead <0.0720% [max] based on bulk sampling).
 - c. LWS-4: White Paint – Interior Theater Seating Area Walls. Estimated quantity: 2,250 sq. ft. (Lead XRF 0.5 to 1.0 mg/cm²).
 - d. LWS-5: White Pebble Texture Coat – Exterior Building Column Faces/Pilasters and Trellis/Canopy Column Faces. Estimated quantity: 2,100 sq. ft. for Exterior Building Column Faces; 2,100 sq. ft for Trellis Canopy Column faces (Lead XRF 0.5 to 1.0 mg/cm²)
 - e. LWS-6: White Stucco Texture Coat – Exterior Painted Building Wall Faces. Estimated quantity: 8,000 sq. ft. (Lead XRF 0.2 to 1.0 mg/cm²)

Note: above list is a summary. See Specification Section 02090 for detailed list of building components or wall systems with paint coating systems considered to be lead-based (equal to greater than 5,000 ppm/1.0 mg/cm²) and lead-containing (less than 5,000 ppm/1.0 mg/cm²).

- iii. All lead-containing and/or lead-based paint coating systems identified in Section (b)(i) above or identified in Section 02090 will require waste profiling to determine appropriate waste disposal as either Non-hazardous construction debris, Non-RCRA California Hazardous Waste, or RCRA Hazardous Waste.

Waste classification shall include performing necessary segregation of waste streams identified in lead notes ii and iii above and in Section 02090. **Following segregation of the waste streams, Owner's Environmental Consultant will collect representative sample of Lead Waste Streams (LWS-2, LWS-3, LWS-4, LWS-5 and LWS-6) for the following waste characterization analyses: total lead (TTLC), WET lead (STLC), and TCLP.** The specific waste testing shall be detailed in a waste characterization work plan to be prepared by the owner's environmental consultant. See specification 02090 for additional requirements for waste characterization.

- iv. Lead-Related Construction (Implementation of Lead-Related Safe Work Practices) – Removal of lead flashing system at roof vent pipe locations. Lead flashing materials shall be recycled.

1. Preparation of Work Areas where demolition activities will result in the generation of dust. This shall include placement of drop sheets and dust barriers prior to the start of work. Drop sheets shall consist of two layers of 6-mil plastic fire retardant sheeting taped in place. The drop sheets shall extend at least five feet laterally beyond the planned work limits;
 2. Use of engineering control including HEPA shrouds and/or local dust collection while using dust generating equipment and/or work practices;
 3. Prompt cleanup of work areas to remove debris and dust
 4. Implementation of industry and OSHA specified safe lead work practices (See 8CCR 1532.1, Lead in Construction Standard).
4. Administrative Requirements necessary to execute the Work, including but not limited to:
- a. Preparation and delivery of all required submittals;
 - b. Waste characterization of lead containing waste streams for proper classification for disposal as construction debris, Non-RCRA California Hazardous Waste or RCRA Hazardous Waste, and
 - c. Packaging, transportation and disposal of all hazardous and non-hazardous materials and components shown, specified or otherwise implied.

1.04 POTENTIAL LEAD HAZARD

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

1.05 REGULATIONS

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

Code of Federal Regulations (CFR)

29 CFR 1926, Construction Standards
29 CFR 1926.62, Lead in Construction Standard
40 CFR Part 50.12, Ambient Air Quality Standard for Lead
40 CFR Parts 261, 265, and 268, Hazardous Waste Management
49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation EPA
Lead-based Paint Renovation, Repair and Painting Program Rule

California Code of Regulations (CCR)

8 CCR Division 1, Chapter 4, Subchapter 4, Construction Safety Orders
8 CCR 1532.1, Lead in Construction Standard
8 CCR 5144, Respiratory Protection
22 CCR Divisions 4 and 4.5, Hazardous Waste

1.06 DEFINITIONS

- A. General: Definitions contained in this Section are not necessarily complete but are general to the extent that they are not defined more explicitly elsewhere in the Contract Documents.
1. **Action Level:** An airborne concentration of 30 micrograms per cubic meter (30 $\mu\text{g}/\text{m}^3$) of air as an eight (8) hour time weighted average (TWA) as covered by OSHA regulations 29 CFR 1926.62 and Cal-OSHA Title 8, Section 5216.
 2. **Air Monitoring:** The process of measuring the lead levels of a specific volume of air.
 3. **Authorized Visitor:** The Owner, testing lab personnel, or a representative of any federal, state and local regulatory or other agency having authority over the project.
 4. **Breathing Zone:** A hemisphere forward of the shoulders with a radius of approximately 6 inches to 9 inches.
 5. **Certified Industrial Hygienist (C.I.H.):** A person certified in comprehensive practice by the American Board of Industrial Hygiene and qualified by training and/or experience to specify measures for the recognition, evaluation, and control of occupational health hazards.
 6. **Certified Lead Worker:** An individual who performs lead-related construction work in residential or public buildings under the direction of a certified lead supervisor and has received a certificate from the California Department of Public Health (CDPH) as a certified lead worker and from a Federal EPA approved RPP Trainer.
 7. **Certificate:** “Certificate” means the document issued by the Department to an individual who meets the requirements for certification as described in sections 35083, 35085, 35087, 35089, or 35091 of Title 17 and certification under the Federal EPA RPP.
 8. **Child- Occupied Facility:** “Child-occupied Facility” means a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, under 6 years of age, on at least two different days within any week (Sunday through Saturday), provided that each day’s visit last at least 3 hours and the combined weekly visits last at least 6 hours, and the combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, day care centers, preschools and kindergarten classrooms. Child-occupied facilities may be located in target housing or in public or commercial buildings. With respect to common areas in public or commercial buildings that contain child-

occupied facilities, the child-occupied facility encompasses only those common areas that are routinely used by children under age 6, such as restrooms and cafeterias. Common areas that children under age 6 only pass through, such as hallways, stairs and garages are not included. In addition, with respect to exteriors of public or commercial buildings that contain child-occupied facilities, the child-occupied facility encompasses only the exterior sides of the building that are immediately adjacent to the child-occupied facility or the common areas routinely used by children under age 6.

9. **Construction Barrier:** Demarcation of the work area limiting access by unauthorized personnel.
10. **Detergent:** Any good detergent is acceptable.
11. **Disposal Bag:** A 6 mil thick leak-tight plastic bag used for transporting lead waste from work area to disposal site.
12. **Elevated Blood Lead Level:** Means a blood lead concentration equal to or greater than twenty-five (25) micrograms per deciliter ($\mu\text{g}/\text{dl}$) as an Action Level.
13. **Encapsulation:** Involves resurfacing or covering surfaces, and sealing or caulking with durable materials, so as to prevent or control chalking, flaking lead-containing substances from becoming part of house dust or accessible to children.
14. **Enclosure:** The construction of an air-tight, impermeable, permanent barrier around lead-containing material to control the release of lead dust into the air.
15. **Filter:** A media component used in respirators to remove solid or liquid particles from the inspired air.
15. **Final Inspection:** Inspection by a qualified inspector, industrial hygienist, or local public health official to determine whether abatement and cleanup are complete.
16. **Hazardous Waste:** As defined in 40 Code of Federal Regulation Part 261 - Resource Conservation Recovery Act (RCRA) and Title 22 California Code of Regulations Division 4, the term "hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Federal levels of hazardous waste levels for lead are as follows:
 - Total Threshold Limit Concentration (TTLC): $\geq 1,000$ milligrams per kilogram (mg/kg)
 - Soluble Threshold Limit Concentration (STLC): ≥ 5.0 milligrams per liter (mg/l)

- Toxic Characteristic Leachate Procedure (TCLP): ≥ 5.0 milligrams per liter (mg/l)
17. **HEPA Filter:** A High Efficiency Particulate Air filter capable of trapping and retaining 99.97% of particles greater than 0.3 μm in diameter.
 18. **HEPA Filter Vacuum Collection Equipment (or vacuum cleaner):** High Efficiency Particulate Air (absolute) filtered vacuum collection equipment with a filter system capable of collecting and retaining 99.97% of particles of 0.3 μm in diameter or larger.
 19. **Industrial Building:** A structure that is used primarily for industrial activity, which is generally not open to the public, including but not limited to, warehouses, factories, and storage facilities. Industrial building does not include any structure which fits the definition of a public building or a residential building.
 20. **(Initial) Exposure Assessment:** Must be performed in all workplaces where employees may be exposed to lead. An assessment of potential exposure to lead as delineated in OSHA's "trigger task" definitions. Until such time that an appropriate, trigger task and job-specific exposure assessment has been conducted, all employers are mandated to provide appropriate respiratory protection, personal protective clothing, change areas, hand washing facilities, biological monitoring and training.
 21. **Intact LBP Components:** LBP components removed substantially intact with LBP firmly adhering to the surface. Examples are door, door trim, baseboards, etc., with intact paint. Also referred to as architectural debris with intact paint.
 22. **Lead-Based Paint (LBP):** The concentration of lead in paint or other surface coatings in the amount of or equal to 0.5% lead by weight when analyzed by AAS or ICP-AES or 1.0 milligrams of lead per square centimeter (mg/cm^2) as determined by XRF testing or as identified by specification.
 23. **Lead-Based Paint Related Waste:** Paint chips, vacuum dust, and debris, used cleaning articles, waste water, plastic sheets and other disposable items which were used during the Lead abatement process and as a result are considered lead contaminated waste or assumed hazardous waste pending further characterization.
 24. **Lead-Containing Paint/Surface Coatings:** any surface coatings containing detectable concentrations of Lead or the concentration of lead in paint or other surface coatings less than 0.5% lead by weight when analyzed by AAS or ICP-AES or 1.0 mg/cm^2 as determined by XRF testing or as identified by specification.
 25. **Lead-Contaminated Dust:** The amount of lead equal to, or in excess of, 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) for floor surfaces, 250 $\mu\text{g}/\text{ft}^2$ for horizontal window sills and 400 $\mu\text{g}/\text{ft}^2$ for window wells (troughs) and exterior horizontal surfaces.

26. **Lead-Contaminated Soil:** Bare soil that contains an amount of lead equal to, or in excess of 400 parts per million (ppm) in children's play areas and 1,000 ppm in all other areas.
27. **Lead Hazard:** Deteriorated lead-based paint or lead-containing surface/coating material, lead contaminated dust, lead contaminated soil, disturbing lead-based paint or lead-containing surfaces/coating materials or presumed lead-containing surfaces without containment, or any other nuisance which results in environmental lead contamination.
28. **Lead Hazard Abatement:** Special abatement activities undertaken with the specific intent to eliminate or reduce existing lead hazards as defined herein. Not to be confused with abatement controls on normal lead-related construction work in construction areas with restricted access to the general public. In this latter case, lead is present in or on construction materials and is impacted by the work but is not the focus of the work to be undertaken.
29. **Lead-Related Construction Work:** Any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup that, by using or disturbing lead-containing materials, surfaces or soil, may result in significant exposure of adults or children to lead.
30. **Lead Permissible Exposure Limit (PEL):** The employer shall ensure that no employee is exposed to an airborne concentration of lead in excess of 50 micrograms per cubic meter ($50 \mu\text{g}/\text{m}^3$) of air as an eight (8) hour time weighted average (TWA) as covered by OSHA regulations 29 CFR 1926.62 and Cal-OSHA Title 8, Section 1532.1.
31. **Minor Repair and Maintenance Activities:** Minor repair and maintenance activities are activities, including minor heating, ventilation or air conditioning work, electrical work, and plumbing, that disrupt 6 square feet or less of painted surface per room for interior activities or 20 square feet or less of painted surface for exterior activities where none of the work practices prohibited or restricted by 40 CFR 745.85(a)(3) are used and the work does not involve window replacement or demolition of painted surfaces. When removing painted components, or portions of painted components, the entire surface area removed is the amount of painted surface disturbed. Jobs, other than emergency renovations, performed in the same room within the same 30 days must be considered the same job for purposes of determining whether the job is a minor repair and maintenance activity.
32. **Negative Pressure:** Air pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).
33. **Negative Pressure Respirator:** A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere. Negative pressure respirators include all powered-air purifying respirators (PAPRs)

34. **Negative Pressure Ventilation System:** A local exhaust system utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.
35. **Observation Service:** The Owner's contracted environmental consultant.
36. **Pamphlet:** Pamphlet means the EPA pamphlet titled, "Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and Schools," developed under CFR Section 406(b) of TSCA, or any State or Tribal pamphlet approved by EPA pursuant to 40 CFR 745.326 that is developed for the same purpose. This includes reproductions of the pamphlet when copied in full and without revision or deletion of material from the pamphlet (except for the addition of State or local sources of information). Before December 22, 2008, the term "pamphlet" also means any pamphlet developed by EPA under Section 406(a) of TSCA or any State or Tribal pamphlet approved by EPA pursuant to 40 CFR 745.326.
37. **Personal Monitoring:** Sampling of lead concentrations within the breathing zone of an employee.
38. **Renovation:** Renovation means the modification of any existing structure, or portion thereof, that results in the disturbance of painted surfaces, unless that activity is performed as part of an abatement as defined by 40 CFR 745.223. The term renovation includes (but is not limited to): The removal, modification or repair of painted surfaces or painted components; the removal of building components; weatherization projects, and interim controls that disturb painted surfaces. A renovation performed for the purpose of converting a building, or part of a building, into target housing or a child-occupied facility is a renovation under 40 CFR 745. The term renovation does not include minor repair and maintenance activities.
39. **Renovator:** Renovator means an individual who either performs or directs workers who perform renovations. A certified renovator is a renovator who has successfully completed a renovator course accredited by EPA or an EPA-authorized State or Tribal Program.
40. **Residential Building:** A structure which is used or occupied, or intended to be used or occupied, in whole or in part, as the home or residence of one or more persons.
41. **Respirator:** A device designed to protect the wearer from the inhalation of harmful atmospheres.
42. **Training Hour:** Training hour means at least 50 minutes of actual learning, including, but not limited to, time devoted to lecture, learning activities, small group activities, demonstrations, evaluations, and hands-on experience.

43. **Testing Laboratories:** A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.
44. **Time Weighted Average (TWA):** The average concentration of a contaminant in air during a specific time period.
45. **Visible Emissions:** Any emissions containing particulate lead material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.
46. **Wet Cleaning:** The process of eliminating lead contamination from building surfaces and objects by using cloth, mops, or other cleaning utensils which have been dampened with detergent and afterwards thoroughly decontaminated or disposed of as lead contaminated waste.
47. **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.

1.07 SUBMITTALS AND NOTICES

- A. **Schedule:** Submit three (3) days before starting work and include specific dates and tasks, including man-loading for the beginning and ending of each phase of the work and dates for testing.
- B. **Respiratory Protection Program:** Submit three (3) days before starting work copy of Respiratory Protection Program which is in compliance with ANSI 288.2-1980, OSHA 29 CFR 1910 and 1926, Cal-OSHA Title 8 Section 5216.
- C. **Hazard Communication Program:** Submit three (3) days before starting work copy of Hazard Communication Program which is in compliance with 29 CFR 1910.1200.
- D. **OSHA Lead Compliance Plan:** Submit a detailed plan of the procedures proposed in order to comply with the requirements of 29 CFR 1926.62 and Cal-OSHA Title 8 Section 1532.1. Include in the plan all components required under the standard.
- E. **Hazardous Waste Characterization, Handling and Management Plan:** The hazardous waste characterization, handling and management plan is a required submittal since demolition work is anticipated to generate lead containing waste stream that will exhibit a Toxic Characteristic of a hazardous waste. Submit seven (7) days before starting work, two copies of the Hazardous Waste Management plan which is in compliance with federal, state, and local hazardous waste regulations and addresses:
 1. Identification of hazardous wastes associated with the work.
 2. Estimated quantities of wastes to be generated and disposed.

3. Method, procedure and rationale for segregation and or aggregation of lead containing waste streams. The plan shall identify the specific lead containing waste streams will be segregated and/or aggregated for waste profiling. Wall systems containing lead-based ($>1 \text{ mg/cm}^2$) paint shall not be aggregated with wall systems containing lead containing paint ($<1 \text{ mg/cm}^2$) for waste characterization. Building components exhibiting similar lead concentrations in paint coating systems may be aggregated.
 4. Waste characterization Procedures: Contractor shall develop and submit a lead waste sampling and characterization plan. All lead containing wastes will be profiled for proper disposal in conformance with this plan. Waste sampling and characterization procedures shall follow EPA SW846 procedures. Analysis shall include total (TTLC) and soluble (STLC and TCLP) for disposal. Analysis of samples for WET and TCLP lead require different sample size and preparation than for TTLC lead. Sample preparation methods for TTLC, WET and TCLP shall be fully described in the work plan.
 5. Waste handling procedure: Lead containing wastes will be generated from locations that may be both below grade and at elevated locations where restricted access is present. Contractor shall identify how wastes shall be packaged and transported from below grade or elevated locations to ground level for disposal.
 6. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two (2) copies of EPA, state, and local permit applications, permits, and EPA Identification numbers.
 7. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.
 8. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
 9. Spill prevention, containment, and cleanup contingency measures to be implemented.
 10. Names of EPA approved hazardous waste treatment or disposal facility for lead disposal.
- F. Emergency Procedures Plan: Submit three (3) days before starting work three (3) copies of the Emergency Procedures Plan. This Plan shall be prominently posted in the clean change area. All persons entering the work area shall read and sign the procedures to acknowledge receipt and understanding of the work site layout, location of emergency exits, and emergency procedures.
- G. Contractor Qualifications: Contractor shall submit documentation of lead awareness training for all workers. Contractor shall also submit documentation that the company and all subcontractors are firm certified under the Federal Renovate, Repair and Paint (RRP) regulation and that the foreman and/or site supervisor for each company whose work activities will

generated lead containing dust have completed training as a certified Renovator per the RRP regulation. Contractors shall provide documentation of RRP Renovator training.

H. Waste Disposal Records:

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

I. Worker Protection Records:

1. Daily log: Keep a daily log listing workers names and hours worked and detailing each entry and exit. Submit a copy to OBSERVATION SERVICE at interim clearance and final clearance.

1.08 OBSERVATION SERVICE

A. The Owner may authorize an Observation Service and a Certified Industrial Hygienist to provide the following inspection, testing, and monitoring services including, but not limited to:

1. Wipe lead testing to establish pre-abatement and post-abatement lead concentrations.
2. Visual inspections to verify Contractor's compliance with the specifications, as well as applicable regulations, regarding hazard control measures, and related decontamination procedures.
3. Wipe Sampling for lead contamination to determine whether Contractor has successfully completed clean-up and met the project decontamination criteria.
4. Interpretation of technical sections of the contract documents, and coordination with Owner and Contractor for enforcement of regulatory and contractual conformance, including stop work issues.

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

1.09 CONTRACTOR QUALIFICATIONS

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

Experience and Training: The General Superintendent/Supervisor and workers must be RRP Certified and have had on-the-job training in lead-related construction/demolition and dust control procedures. Submit documentation for each worker per section 1.06.

Where manual removal of lead containing material may result in exposure above the PEL, the General Superintendent/Supervisor shall have completed training and CDPH certification as lead supervisor. This provision requires that the contractor demonstrate, through a negative exposure assessment, that manual removal of lead containing wastes will not expose workers above the PEL.

- B. The Prime Contractor and any subcontractors that will engage in lead paint disturbance activities will provide a copy of their lead compliance program specific for this project, as specified in 8 CCR 1532.1. and indicated in Section 1.05 -Submittals, above.

PART 2 - PRODUCTS

2.01 PROTECTIVE COVERING

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

2.02 TAPE

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

2.03 CLEANERS

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

2.04 CHEMICAL PAINT REMOVERS

- A. Chemical remover and all components of the chemical removal system shall contain no methylene chloride products. Chemical removal systems shall be compatible with the painted substrate materials and shall leave the substrate unharmed. The chemical removal system and

paint removal procedures shall leave an acceptable smooth surface, capable of receiving an application of the primer/sealer coat without further treatment.

2.05 SPRAY ADHESIVE

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

2.06 DISPOSAL CONTAINERS

- A. Provide 6-mil thick polyethylene sheeting, 6 mil leak-tight polyethylene bags and other impervious containers as required by applicable regulations. All waste shall be labeled as potentially hazardous waste unless proven otherwise by appropriate sampling and laboratory analysis.
- B. All hazardous waste shipping containers shall meet federal and California DOT requirements and shall be equipped with a lockable lid.
- C. Disposal containers containing hazardous wastes shall appropriate signage and placard that meet CAL/OSHA requirement.
- D. Disposal containers shall remain locked when not in use.
- E. Disposal containers that contain hazardous waste shall be kept separate from containers used to store non-hazardous construction debris. In addition, disposal containers containing hazardous wastes shall be secured by a perimeter fencing unless the site is equipped with full perimeter fencing and lockable gate. Where the site is equipped with perimeter fencing, the disposal containers shall be demarcated with warning tape.

2.07 WARNING SIGNS AND LABELS

- A. Caution signs are to be a minimum of 14 x 20 inches and include phrase "CAUTION - LEAD HAZARD - KEEP OUT UNLESS AUTHORIZED" in lettering at least 2" in height. These signs shall be posted at each approach to the work area.
- B. Cal-OSHA Lead Warning Posters: Wording shall comply with signage requirements in 8 CCR 1532.1(m). Lead Warning Posters shall be posted at the entrance to each regulated lead work area in compliance with 8 CCR 1532.1(i)(6).
- C. Hazardous waste labels in accordance with federal, state and local regulations, including, but not limited to the California Code of Regulations, Title 22 Chapter 30 and the U.S. Department of Transportation 49 CFR Parts 172, 173, 178 and 179.

2.08 PERSONAL PROTECTIVE EQUIPMENT

- A. Personal protective equipment shall conform to the Contractor's Injury and Illness Prevention Plan (IIPP) and or the site safety plan for the specific task, whichever is more stringent. Workers may wear full body disposable TYVEK type suits with dust masks for nuisance dust where allowed under the Contractor's IIPP or site safety plan.
- B. Goggles with side shields will be worn when working with a material that may splash or fragment, or if protective eye wear is specified on the Material Safety Data Sheets (MSDS) for that product.
- C. Additional respiratory protection by supplemental filters, such as organic vapor cartridges, may be needed when handling some coating products. Consult the MSDS and obtain the proper filters as necessary. The following guideline presented in Table 1 indicates types of respirators appropriate for adequate protection against varying lead exposures:

TABLE 1
RESPIRATORY PROTECTION FACTORS
ASSOCIATED WITH LEAD EXPOSURE OPERATIONS

Respirator Type	Protection Factor	Airborne Concentration of Lead
Air purifying, negative pressure respirator, half-face, HEPA filter	10	Not in excess of 500 $\mu\text{g}/\text{m}^3$
Air purifying, negative full-face, HEPA filter	50	Not in excess of 2,500 $\mu\text{g}/\text{m}^3$
Powered-air purifying positive pressure respirator half-face, HEPA	50	Not in excess of 2,500 $\mu\text{g}/\text{m}^3$
Powered-air purifying positive pressure respirator Full face, HEPA	1,000	Not in excess of 50,000 $\mu\text{g}/\text{m}^3$
Positive pressure respirator half-face, HEPA continuous flow mode half-face	1,000	Not in excess of 50,000 $\mu\text{g}/\text{m}^3$
Type C supplied air positive pressure respirator pressure demand mode full face piece	1,000	Not in excess of 50,000 $\mu\text{g}/\text{m}^3$
Self-contained breathing apparatus (SCBA) positive pressure demand mode full face piece	10,000	Greater than 500,000 $\mu\text{g}/\text{m}^3$

Note: Contractors only disturbing lead containing material can wear and N-95 respirator. Contractors will still need medical approval prior to wearing an N-95 respirator as part of their respiratory protection plan.

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

2.10 TOOLS AND EQUIPMENT

- A. Provide suitable tools for the decontamination and removal of lead-containing paint including required HEPA vacuums and exhaust units, airless sprayers, ground fault interrupters, hand tools, wipes, ladders, and scaffolds. Mechanical abrasion tools shall be equipped with local HEPA exhaust and subject to approval by the Owner's representative. All tools and equipment brought on site shall be clean and free of contamination from lead and other hazardous materials. HEPA filtered equipment shall be labeled with a warning label and dedicated to lead paint work to prevent combining hazardous wastes of differing characteristics.
- B. Provide adequate support equipment, including, but not limited to lumber, hardware, decontamination showers, sprayers, hoses, drain pans, miscellaneous collection devices, and secure holding facilities.

PART 3 - EXECUTION

3.01 GENERAL

- A. Several levels of preparation and lead dust control procedures are outlined in this section to address various conditions and methods of lead paint removal and/or lead-related demolition activities.

3.02 SITE PREPARATION (Interior and Exterior Work Areas)

- A. The level of preparation described in this section is appropriate for removal of lead-containing painted architectural components, and for the demolition of wall and ceiling systems containing in-tact lead containing paint as specified in these contract documents. All lead-related removal actions shall occur in a contained and regulated area to control migration of dust.
 - 1. Post Caution signs (described in Section 2.08) at all exterior approaches to the work area, and in addition, post Cal-OSHA warning signs at all immediate entrances to work area
 - 2. Cover all floors and non-moveable objects (within 10 feet of the affected area, or otherwise in accordance with applicable Lead Hazard Guidelines) with 6 mil polyethylene sheeting and seal with duct tape.
 - 3. Provide dust migration barriers as required by sealing all openings to the work area that will not be used for direct access (ingress/egress) with minimum 6-mil flame retardant polyethylene sheeting.

4. Install double flapped curtain doorway at the entrance to the work area by attaching two layers of 6 mil polyethylene sheeting to the doorway. Attach one sheet to the top and one vertical edge of the doorway, and one to the top and the opposite vertical side.
5. In areas where the interior will be reoccupied, provide suitable containment/enclosure on the interior of affected areas. Protect adjacent architectural components and finishes from damage.
6. Notify the Owner's Representative when the work area is ready for inspection. Abatement work shall not proceed until the Owner's representative has inspected and approved work area preparations.

3.03 WORKER SAFETY/DECONTAMINATION PROCEDURES

- A. Worker Safety shall conform to the Contractor's IIPP and/or Site Safety Plan, whichever is stricter.
- B. The Contractor shall have written procedures for employee decontamination for specific work tasks identified in the Contractor's IIPP.
- C. The Contractor shall provide appropriate PPE and training the use and care of the PPE for each work task identified in the Contractor's IIPP or site safety plan
- D. The contractor shall provide decon/wash stations at appropriate locations where demolition/renovation activities will generate lead containing dust or construction dust to adequately wash face, hands, arms, etc.
- E. All tools and equipment shall be decontaminated by HEPA vacuuming and/or wet wiping prior to being taken out of the Work Area.
- F. Workers shall not eat, drink, smoke, or chew gum or tobacco at the work site.

3.04 GENERAL REMOVAL PROCEDURES

A. DEMOLITION OF PAINTED SYSTEMS

1. Prepare work site and provide protective measures in accordance with Section 3.02, above.
2. Using wet removal and/or dust suppression methods, Contractor shall remove manageable pieces small sections. After wet removal of systems, including resulting supporting studs, lath work and related systems, remove all large debris, clean area until free of loose dust and debris to the satisfaction of the Owner's representative using HEPA vacuum and wet wiping with a good detergent.

3. Contractor shall spray surfaces with a cleaning solution applied with a garden sprayer and wipe or mop surfaces with frequently changed clean towels, rags, or mops.
4. Remove plastic sheeting from immovable objects, floors, or applicable horizontal surfaces after misting by folding it and all its contents toward the center. Place protective sheeting and waste rags in segregated 6 mil plastic bags, seal and store in a designated, secure waste storage area for waste characterization.
5. All tools and equipment shall be sealed in 6 mil plastic bags after being decontaminated using a detergent wash and wet wiping prior to leaving the work area.
6. At least 24 hours prior to completion and upon completion of final cleanup and decontamination per Section 3.03, Part A, herein, notify the Owner's representative to obtain final clearance inspection and testing.

B. DISMANTLING/REPLACEMENT

1. Prepare work site and provide protective measures in accordance with Section 3.02, above.
2. Building components to be dismantled shall be carefully removed in manageable sections and all work shall be performed over protective polyethylene sheeting. Workers shall exercise caution to avoid release of lead contaminated dust into the air. Do not saw or cut the materials unnecessarily. Dismantling operations shall be conducted in a careful, safe manner, insuring that intact lead-based paint remains so.
3. Separate building components with intact, well-grounded lead-based paint from other accumulated debris. Collect small debris off drop cloth and place in 6 mil bags for appropriate storage in the designated waste storage area.
4. Properly decontaminate the work area in accordance with procedures outlined in Section 3.03, Part A, above.

C. HAND SCRAPING

1. Prepare work site and provide protective measures in accordance with Section 3.02 above.
2. Assure that drop cloths or protective flooring plastic are secured to building and that seams are adequately sealed with tape.
3. After all site preparation is complete and approved by the Owner's representative, spray the affected surfaces with a fine mist of water before scraping begins. Using appropriate tools, scrape ungrounded lead based paint so as to carefully collect all paint chips on the drop cloth.

4. Throughout the procedure, constantly wet the surfaces and debris to minimize the potential for airborne dusts.
5. Periodically collect accumulated debris into appropriate 6 mil plastic bags. When all loose paint within a specified work area has been removed or at the end of the shift, seal the waste containers and place in the designated waste storage area.
6. Remove protective plastic sheeting and decontaminate work area in accordance with procedures outlined in Section 3.03, A, above.

D. CHEMICAL STRIPPING

1. If chemical stripping is to take place on building components left in place, prepare each work area in accordance with Section 3.02 above. If components are to be removed for stripping at a centralized location, the stripping area should be appropriately isolated and prepared in accordance with requirements outlined above. All areas from which components are removed should be adequately protected from contamination of lead-based paint debris.
2. Chemical Removal System shall be pre-approved by Owner's representative.
3. Material Safety Data Sheets for each chemical product shall be on-site at all times and available for review by the workers and by the Owner's representative.
4. The Project Superintendent (Competent Person) shall review the contents of the material safety data sheets and the safe removal procedures with the workers prior to chemical removal process.
5. Workers shall wear chemical goggles, impervious gloves, aprons, and booties over the standard protective clothing prior to beginning the chemical removal process.
6. Stage or install a temporary eyewash capable of providing a 15-minute flush within the immediate work area if corrosive paint removal products are used. In addition, an emergency shower shall be available within 50 feet of the removal operation.
7. Chemical stripping agents (and neutralizers) shall be applied in strict accordance with the manufacturer's recommendations.
8. Remove all paint down to the bare substrate. Ensure that the chemicals used, and the associated removal methods leave a clean smooth surface capable of accepting a suitable primer/sealer coating after final cleaning.
9. Containerize all paint and chemical waste in impermeable containers labeled as hazardous waste. Package all contaminated rags and protective equipment, and disposable cleaning items in separate labeled impervious containers and transfer waste containers to secure, designated waste storage area.

10. Upon completion of stripping operations, clean and decontaminate the work area in accordance with the procedures outlined herein. (Section 3.03, Part A.)

3.05 INSPECTION PROCEDURE WORK AREA CLEARANCE

- A. After the final clean-up, a preliminary visual inspection will be conducted by the Owner's representative to ensure that all visible dust and debris has been removed. The Contractor shall provide the Owner's representative at least 24-hours notice prior to scheduling inspection.
- F. If the Work Area is not visibly clean, as determined by the preliminary visual inspection by the Owner's representative, the Contractor shall re-clean and decontaminate as described in Section 3.03, A., at his own costs, until the work area passes inspection.
- G. Clearance criteria to release contractor from each work area is as follows:
 1. No visible debris (performed following removal of lead containing components and after demolition of structures)
 2. Soil: <400 ppm for child play areas, <1,000 for all other areas (TTL). Soil sampling will be performed following completion of building demolition.
 3. Interiors Floors: <40 $\mu\text{g}/\text{ft}^2$ (not applicable for building demolition)
 4. Other Interior Horizontal Surfaces: 250 $\mu\text{g}/\text{ft}^2$ (not applicable to building demolition)
 5. Exterior Horizontal Surfaces: 400 $\mu\text{g}/\text{ft}^2$
- D. A work area shall be considered cleared only after all areas within the work area have met the above criteria.
- E. If a work area fails the clearance criteria specified above, the Contractor shall be responsible to re-clean the area at no additional cost to the Owner and shall be responsible for associated additional re-inspection costs, including laboratory fees.

3.06 WASTE HANDLING AND DISPOSAL

- A. The Contractor shall provide for secure on-site storage of lead related waste. Waste storage location, equipment, containers and methods shall be in compliance with the requirements of 40 CFR 262 and 265 and California Code of Regulations Title 22.
- B. DISPOSAL
 1. The Contractor shall submit name, address, and telephone number of landfill or landfills and transporter to Observation Service for review, prior to disposal. This includes those landfills used for waste categories determined to be non-hazardous. Neither the Observation Service nor the Owner approve the location of waste disposal. It is the

Contractors sole responsibility to evaluate the suitability of each waste transporter and disposal facility.

2. The Contractor shall have all waste transported from the site in accordance with the requirements of 40 CFR 263 and 264 and disposed of properly in accordance with 40 CFR 268, 49 CFR Parts 172, 173, 178, and 179 and California Code of Regulations Title 22.
3. The Contractor shall prepare waste shipping manifests for review by the Owner. The manifests shall be signed by the duly authorized representative of the Owner and copies retained by the Owner.
4. Copies of the landfill weight tickets shall be provided to the Owner to verify the amount of waste disposed of at the site.
5. The Contractor is responsible for all costs associated with transportation and disposal of the waste.

3.07 STOP WORK ORDERS

- A. The Owner or Owner representative has the authority to stop work if it is determined that conditions or procedures are not in compliance with the Work Plan and/or applicable regulations; the Contractor is deficient in providing required submittals; the waste is not securely stored; or a potential release of lead dust to outside the Work Area is imminent based on the Owner's or the Owner's representative's judgment.
- B. The work stoppage shall remain in effect until conditions have been corrected and corrective measures have been taken to the satisfaction of the Owner and/or Owner's representative.

END

SECTION 02095
OTHER REGULATED MATERIALS – HANDLING & DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

The scope of work involves the removal, handling, staging, disposal and/or recycling of hazardous materials as identified in the solicitation and Contract Documents. Removal, handling, staging, disposal and/or recycling of these materials shall be performed in strict accordance with all applicable Federal, State, and Local regulations. See attached Table 02095-1 for listing of ORMs and Universal Wastes subject to this Specification. See Specification 02121 for quantity of Treated Wood Waste (TWW) where present.

1.2 TRAINING, PERMITS, LICENSES AND NOTIFICATIONS

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

1.3 PERSONNEL PROTECTIVE EQUIPMENT (PPE)

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

1.4 SUBMITTALS

The contractor shall submit a detailed plan of action describing the methods to be utilized to accomplish the work. The plan shall include, at a minimum: lockout/tag-out, emergency spill procedures, hazard communication, training, personal protective equipment, removal, handling, staging, packaging, disposal and/or recycling procedures, list of disposal/recycling facilities, the location of the staging area, signage and control procedures. Contractor shall submit manifests, weight tickets, receipts and/or statements that all materials have been properly disposed and/or recycled.

PART 2- PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 SEQUENCE OF EXECUTION

Salvage operations (includes removal and recycling) shall commence prior to abatement and/or demolition in accordance with the Owner's written Notice to Proceed letters and with project drawings and directives

indicating items to be salvaged and procedures to be used in temporary storage of salvaged items until they are to be reinstalled.

Shut down and lock out electric power to all work areas as necessary. (The contractor shall be allowed to use existing power in the building to the extent that it is available for use.) 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 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.

Prepare staging areas for temporary placement of hazardous materials, as necessary, by covering the floor with at least one (1) layer of 6-mil plastic sheeting (as a drop cloth), taped down. Materials shall not be commingled. Segregate materials at all times. Label and isolate staging areas accordingly. Staging location must be pre-approved by the Owner/Owner's representative.

3.2 MERCURY-CONTAINING CFL's, FLUORESCENT LIGHT TUBES, THERMOSTATS, HVAC AND BOILER CONTROL DEVICES

The Contractor shall remove CFL lights and tubes from fixtures. Lights and tubes shall remain intact (unbroken) and shall be placed carefully into cardboard containers designed to hold tubes or lights (preferably obtained from the manufacturer or light recycling facility). Special care shall be taken not to break lights or tubes during, removal, handling, and transport.

The Contractor shall HEPA vacuum and thoroughly decontaminate any areas where lights or tubes are accidentally broken.

Transport all properly containerized CFL's, Fluorescent light tubes, thermostats and HVAC and Boiler control devices to a recycling facility. The Contractor shall be responsible for determining and complying with all current applicable regulations pertaining to the waste handling and transport of Mercury-containing waste. The original waste shipment record documenting proper transport, recycling, and incineration of unrecycled components (i.e., Mercury-containing solids and liquids) shall be completed and submitted to Owner's Representative upon project completion. No hazardous wastes will be stored at the project site for more than 90 days from the date of first accumulation. Estimated Quantity: See attached Table at end of specification.

3.3 PCB BALLAST, PCB TRANSFORMERS

The Contractor shall visually inspect light ballasts and transformers. Ballasts and transformers labeled "No PCB's" will be placed in an on-site receptacle and disposed of as construction debris. All other unlabeled PCB-containing ballasts and transformers will be removed and placed into 55-gallon steel drums or other DOT-approved container or performance packaging and will be appropriately labeled in accordance with EPA and DOT regulations.

The Contractor shall wrap any leaking ballasts in 6-mil plastic disposal bags and place in a separate steel drum or approved performance packaging for PCB wastes. Light fixtures containing leaking PCB-containing

ballasts shall also be disposed of as PCB waste. Each disposal drum will have a sufficient amount of oil absorbent material placed at the bottom to contain any oil from ballast's that may leak during transport. Any materials that come in contact with leaking PCB wastes shall be considered contaminated and disposed of as PCB waste.

Transport all properly containerized, ballasts, and transformers to a recycling facility. The Contractor shall be responsible for determining and complying with all current applicable regulations pertaining to the waste handling and transport of PCB-containing ballast's and transformers. The original waste shipment record documenting proper transport, recycling, and incineration of unrecycled components (i.e., PCB-containing solids and liquids) shall be completed and submitted to Owner's Representative upon project completion. No hazardous wastes will be stored at the project site for more than 90 days from the date of first accumulation. Estimated Quantity: See Table 1 at end of specification.

3.4 EMERGENCY EXIT SIGNS (where present)

This specification covers the removal, handling and disposal of self-illuminating (Tritium containing) emergency exit signage subject to scheduled demolition and disposal. Tritium containing exit signs are regulated by the Nuclear Regulatory Commission (NRC) under 10 CFR 31.5 and 32.51a. California is an authorized state (Agreement State) to administer its own comparable program. In California, the California Department of Health Services, Radiological Health Branch regulates radioactive materials. California regulates these products as low-level radioactive materials.

To dispose of a self-illuminating emergency exit sign, the generally licensed device must be transferred to a specific licensee. Specific licensees include the sign manufacturer, distributor, licensed radioactive waste brokers and licensed low-level waste disposal facilities. Transfer to a specific licensee is the only authorized disposal method for a generally licensed tritium exit sign.

The specific licensee (manufacturer) will be identified on the back of the emergency exit sign. The Contractor shall contact the manufacturer to obtain return authorization and instructions for proper packaging and transport. The contractor shall follow the requirements for transferring a generally licensed device (self-powered emergency signage) to a specific licensee presented in 10 CFR 31.5 (c)(8)(ii). Under the regulation, the specific licensee (manufacturer) will process all necessary paperwork and assure that the product is recycled and reclaimed. The contractor will provide, at a minimum the following submittals:

- Pre-disposal submittal documentation
 1. Serial Number Log – tabular log showing the manufacturer name, manufacture date, model number, serial number and activity (Ci or TBq amount) for each sign to be disposed of.
 2. Specific handling, packing, and transportation information. This shall include as a minimum shippers' address, Consignee's address, and UN2911 designation to be included on the shipping label, and Disposal Control Number (DCN) or specific return authorization from the specific licensee.

- Post-disposal submittal documentation
 1. Provide a written report to the U.S. Nuclear Regulatory Commission, Director, Office of Nuclear Material Safety and Safeguards, ATTN: GLTS, Washington D.C. using the appropriate method listed in 10 CFR 30.6(a).
 2. The report shall contain at a minimum:
 - a. Identification of the device by the manufacturer's (or initial transferor's) name, model number, and serial number.
 - b. The name, address and license number of the person receiving the device (license number not applicable if exported), and
 - c. The date of the transfer.

The report shall be filed within 30 days of the transfer of the device to the specific licensee.

If the specific manufacturer cannot be contacted or will not accept the exit signs for recycling, Contractor shall contact one of the following vendors. Contact Information is below.

1. Isolite Corporation

Isolite - San Luis Obispo
3563 Sueldo Suite M
San Luis Obispo, CA 93401
Website: www.isolite.com
800-799-5343 Toll-Free
805-546-9669 Office
805-546-9564 Fax

Email: **Jessica Sandoval**, Shipping/Customer Support, jsandoval@isolite.com

Isolite holds an amended NRC license to handle and dispose of other manufacturer self-powered exit signs.

2. TritiumDisposal.com

TritiumDisposal.com
950 Taylor Station Road
Columbus OH, 43230
Website: www.tritiumdisposal.com
866-540-8588 Toll-Free
614-863-0622 Fax
Email: Sales@tritiumdisposal.com

The Contractor shall be responsible for determining and complying with all current applicable regulations pertaining to waste handling and transport. No hazardous wastes will be stored at the project site for more than 90 days from the date of first accumulation. Estimated Quantity: (None Observed).

3.5 REFRIGERANTS AND COMPRESSOR OILS

The Contractor shall remove/recover all refrigerants and compressor oils from HVAC equipment prior to demolition. Removal of compressor oil and refrigerant shall be performed by an HVAC technician that is certified and trained in refrigerant recovery procedures and methods. Estimated Quantity: (4 HVAC Units)

3.6 TREATED WOOD WASTE (where present)

The Contractor shall remove, package and dispose of treated wood waste in conformance with the requirements identified in Specification Section 02121, TWW Removal, Handling and Disposal.

Estimated Quantity: See Specification 02121

END OF SECTION

Table 02095 - 1
Piedmont High School - Auditorium Building (Building C) Demolition
800 Magnolia Avenue, Piedmont Ca.
ORMs and Universal Waste Summary

Component	Regulated Material	Building	Location	Description/Note	Estimated Quantity ^{1,2,3}
July 31, 2017					
Lighting - Fluorescent tubes	Mercury	C	Upper Level	4 ft tubes,	3
Lighting - Fluorescent tubes	Mercury	C	Lower Level	4 ft tubes	106
Lighting - Compact Fluorescent Light (CFLs)	Mercury	C	Upper Level	1 CFL per Fixture, 27 Fixtures	27
Lighting Ballasts	PCB's	C	Upper and lower level	1 ballast per fixture, 59 fixtures	59
Pressure Treated Wood	Pentachlorophenol (PTW)	Bldg C and D Trellis and Sun Shades	Exterior	Separate Pressure Treated wood from non-pressure treated	16,040
Thermostats	Mercury	C	Interior	One in the Auditorium and one in the Adult Ed. Office	2
Digital/Electronic Smoke Detector	Heavy Metals/Electronic Components	C	Interior	See Appendix C for Bldg C Fire Alarm Drawing	Contractor to verify
HVAC System - Compressor/Refrigerant Reservoir	Hazardous Material - Liquid	C	Roof	AC Cooling Units	1

Notes:

- Quantity of fluorescent light tubes and ballasts estimated. Contractor to field verify prior to demolition.
- HVAC unit was unable to be opened. HVAC unit contains compressor oils and/or refrigerants that require capture and/or removal by a certified refrigerant recovery technician.
- Quantity of pressure treated wood estimated. Contractor to field verify.

SECTION 02121
TREATED WOOD WASTE REMOVAL, HANDLING, AND DISPOSAL

PART 1 - GENERAL

1.01 SECTION CONTENTS

- A. This section specifies the methods, procedures, and requirements related to the removal, handling, temporary storage and disposal of Treated Wood Waste (TWW) including, but not limited to:
 - 1. Regulatory requirements
 - 2. Submittals
 - 3. Personal protective measures
 - 4. Execution
 - 5. Inspections
 - 6. Waste handling

1.02 RELATED DOCUMENTS

- A. The requirements of the General Conditions and Division 1 apply to all work hereunder:
 - 1. Section 02010: Hazardous Materials Scope of Work
 - 2. Section 02038: Existing Conditions: Hazardous Materials
 - 3. Section 02080: Asbestos Abatement
 - 4. Section 02090: Lead-Related Construction
 - 5. Section 02095: Other Regulated Materials – Handling and Disposal

1.03 SCOPE OF WORK

- A. The work of this section includes the provision of all labor, materials, equipment, and services necessary for work area preparation and setup; implementation of necessary dust control, dust removal, and cleaning during demolition of structures containing TWW; temporary storage, packaging, and disposal of TWW generated from building demolition and building components treated with registered wood preservatives pursuant to FIFRA. The scope of work excludes wood containing a lead paint coating system or that has been treated with flame retardant as indicated by the contract drawings and within Section 02010 “Hazardous Materials Summary of Work” of this specification.
- B. The work of the Contract can be summarized as follows:
 - 1. Removal and disposal of the TWW as a Non-RCRA Hazardous Waste – TWW (California Waste Code – 614) from the following exterior building components, trellis systems and/or portico walkway including the Tile roof support structure scheduled for demolition:

- a. Existing Portico/Trellis System located on the south side of the Administration Building.
- b. Existing trellis-style sun shades located on the west, north and east exterior walls of the Administration Building.
- c. Existing Tile Roof support structure located on the roof of the building

See Table 02121-1 at end of section for breakdown and quantity of TWW.

2. The above work is to be coordinated with the removal of TWW from the portion of the Trellis/Portico Structure, trellis-style sun shades and Tile roof support structure associated with the Auditorium Building (Building C) Demolition Project.
3. All TWW containing wood components or trellis or tile roofing systems identified above or TWW building components identified in this Section will be required to be disposed of in conformance with the Alternate Management Standards (AMS) for TWW. The TWW AMS are identified in California Code of Regulations Title 22, Division 4.5, Chapter 34 [22CCR, Div 4.5 Ch 34].
4. Administrative requirements necessary to execute the work includes but is not limited to:
 - a. Contractor to prepare and submit all required pre-start and pre-construction submittals in conformance with submittal requirements identified in this section and where identified elsewhere in the contract documents;
 - b. Contractor to obtain prior confirmation from a currently TWW-approved solid waste facility or hazardous waste facility that the facility will accept the TWW shipment before transporting to ensure that the load will not be rejected. Where the TWW will need to be disposed of in more than shipment, Contractor shall provide documentation and confirmation that the receiving facility will accept all loads.
 - c. Provide documentation that all employees involved in TWW handling have received training. The training shall include applicable requirements of Cal/OSHA and regulations relating to hazardous waste, methods for identifying and segregating TWW, safe handling practices, requirements of AMS; and proper disposal methods.
 - d. Label all TWW bundle/shipments with the information required under 22 CCR Section 67386.5(b).

1.04 HAZARD ASSESSMENT

A. The demolition of TWW building materials and re-sizing of removed TWW components may cause contaminated dust to be released into the environment, thereby creating a potential health hazard to workers and occupants. Ingestion or inhalation of contaminated dust from TWW can cause various health concerns, including but not limited to nausea, anemia, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet. Breathing high

levels of dust can result in a sore throat or irritated lungs. Personal protective equipment, including respiratory protection, and dust controls will be required.

- B. The handling and packaging (excluding resizing which is addressed above) TWW building materials may result with dermal contact. Direct dermal contact can result in skin irritation, redness, and local swelling.

All contractors, subcontractors, consultants, and other occupants in the vicinity of a potential TWW hazard should be apprised, by the responsible parties and applicable warning signs, per CAL/OSHA requirements cited herein.

1.05 REGULATIONS

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

Code of Federal Regulations (CFR)

- 29 CFR 1926, Construction Standards
- 40 CFR Parts 261, 265, and 268, Hazardous Waste Management
- 49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation EPA

California Code of Regulations (CCR)

- 8 CCR Division 1, Chapter 4, Subchapter 4, Construction Safety Orders
- 8 CCR 5144, Respiratory Protection
- 22 CCR Divisions 4 and 4.5, Hazardous Waste
- 22 CCR Division 4.5, Chapter 34 (Treated Wood Waste Alternate Management Standards)
- CH&SC Sections 25150, 25150.7 & 58012

1.06 DEFINITIONS

- A. General: Definitions contained in this Section are not necessarily complete but are general to the extent that they are not defined more explicitly elsewhere in the Contract Documents.
 - 1. **Action Levels:** The following actions levels apply to TWW dust generated during demolition and during re-sizing operations:
 - Established action levels identified in 29 CFR 1926, 29CFR 1910 and Cal-OSHA Title 8 for arsenic, chromium, copper, creosote, and pentachlorophenol.
 - 2. **Air Monitoring:** The process of measuring the lead levels of a specific volume of air.

3. **Authorized Visitor:** The Owner, testing lab personnel, or a representative of any federal, state and local regulatory or other agency having authority over the project.
4. **Breathing Zone:** A hemisphere forward of the shoulders with a radius of approximately 6 inches to 9 inches.
5. **Certified Industrial Hygienist (C.I.H.):** A person certified in comprehensive practice by the American Board of Industrial Hygiene and qualified by training and/or experience to specify measures for the recognition, evaluation, and control of occupational health hazards.
6. **Construction Barrier:** Demarcation of the work area limiting access by unauthorized personnel.
7. **Detergent:** Any good detergent is acceptable.
8. **Disposal Bag:** A 6-mil thick, leak-tight plastic bag used for transporting TWW waste from work area to disposal site.
9. **Enclosure:** The construction of an airtight, impermeable, permanent barrier around TWW material to control the release of TWW dust into the air.
10. **Filter:** A media component used in respirators to remove solid or liquid particles from the inspired air.
11. **Final Inspection:** Inspection by a qualified inspector, industrial hygienist, or local public health official to determine whether abatement and cleanup are complete.
12. **Hazardous Waste:** As defined in 40 Code of Federal Regulation Part 261 - Resource Conservation Recovery Act (RCRA) and Title 22 California Code of Regulations Division 4, the term "hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating, reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.
13. **HEPA Filter:** A High-Efficiency Particulate Air filter capable of trapping and retaining 99.97% of particles greater than 0.3 μm in diameter.
14. **HEPA Filter Vacuum Collection Equipment (or vacuum cleaner):** High-Efficiency Particulate Air (absolute) filtered vacuum collection equipment with a filter system capable of collecting and retaining 99.97% of particles of 0.3 μm in diameter or larger.
15. **Industrial Building:** A structure that is used primarily for industrial activity, which is generally not open to the public, including but not limited to, warehouses, factories, and storage facilities.

16. **(Initial) Exposure Assessment:** Must be performed in all workplaces where employees may be exposed to TWW dust.
17. **Negative Pressure:** Air pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).
18. **Negative Pressure Respirator:** A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere. Negative pressure respirators include all powered-air purifying respirators (PAPRs).
19. **Negative Pressure Ventilation System:** A local exhaust system utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.
20. **Observation Service:** The Owner's contracted environmental consultant.
21. **Permissible Exposure Limit:** Action Levels: The following Permissible Exposure Limits (PELS) apply to TWW dust generated during demolition and during re-sizing operations:
 - Established PELS identified in 29 CFR 1926, 29CFR 1910 and Cal-OSHA Title 8 for arsenic, chromium, copper, creosote, and pentachlorophenol
22. **Personal Monitoring:** Sampling of TWW concentrations within the breathing zone of an employee.
23. **Renovation:** Renovation means the modification of any existing structure, or portion thereof, that results in the disturbance of painted surfaces, unless that activity is performed as part of an abatement as defined by 40 CFR 745.223. The term renovation includes (but is not limited to): The removal, modification or repair of painted surfaces or painted components; the removal of building components; weatherization projects, and interim controls that disturb painted surfaces. A renovation performed for the purpose of converting a building, or part of a building, into target housing or a child-occupied facility is a renovation under 40 CFR 745. The term renovation does not include minor repair and maintenance activities.
24. **Residential Building:** A structure which is used or occupied, or intended to be used or occupied, in whole or in part, as the home or residence of one or more persons.
25. **Respirator:** A device designed to protect the wearer from the inhalation of harmful atmospheres.
26. **Testing Laboratories:** A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

27. **Training Hour:** Training hour means at least 50 minutes of actual learning, including, but not limited to, time devoted to lecture, learning activities, small group activities, demonstrations, evaluations, and hands-on experience.
28. **Time Weighted Average (TWA):** The average concentration of a contaminant in air during a specific time period.
29. **Visible Emissions:** Any emissions containing particulate lead material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.
30. **Wet Cleaning:** The process of eliminating contaminated dust from building surfaces and objects by using cloth, mops, or other cleaning utensils which have been dampened with detergent and afterward thoroughly decontaminated or disposed of as TWW waste.
31. **Work Area:** The area where TWW 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

1.07 SUBMITTALS AND NOTICES

- A. Schedule: Submit three (3) days before starting work and include specific dates and tasks, including man-loading for the beginning and the end of each phase of the work and dates for testing.
- B. Respiratory Protection Program: Submit three (3) days before starting work copy of Respiratory Protection Program which is in compliance with ANSI 288.2 1980, OSHA 29 CFR 1910 and 1926, Cal OSHA Title 8 Section 5216.
- C. Hazard Communication Program: Submit three (3) days before starting work copy of Hazard Communication Program which is in compliance with 29 CFR 1910.1200.
- D. TWW Compliance Plan: Submit a detailed plan of the procedures proposed in order to comply with the requirements in the Alternate Management Standards (AMS) for TWW. The compliance plan shall address the following elements:
 - Unit/TWW Aggregation Locations, Signage and Security
 - Accumulation Method
 - Labeling
 - Training documentation
 - Re-sizing/Pre-disposal Treatment
 - Offsite Shipments/Disposal Acceptance (includes initial notification/acceptance procedures.

- Tracking Shipments/Disposal Documentation (includes final acceptance and post-disposal documentation.
- Closeout Report/Documentation Submittal

The TWW AMS are identified in California Code of Regulations Title 22, Division 4.5, Chapter 34 [22CCR, Div. 4.5 Ch 34].

- E. Contractor Qualifications: Contractor shall submit documentation of training for all employees performing demolition, resizing and handling TWW. The training shall include all elements identified in 22CCR Section 67386.12.
- F. Closeout Report/Waste Disposal Records: The contractor shall submit a TWW Closeout Report. The closeout report shall include the following:
 - 1. Summary to TWW waste generated. Summary to include schedule showing start date of accumulation, amount of TWW, by storage location.
 - 2. Locations and/units where TWW was stored and storage method used
 - 3. Copies of observation service final visual inspections of storage locations
 - 4. Copies of written record of receipts with certified weight for disposal of all TWW wastes.

1.08 OBSERVATION SERVICE

- A. The Owner may authorize an Observation Service and a Certified Industrial Hygienist to provide the following inspection, testing, and monitoring services including, but not limited to:
 - 1. Visual inspections to verify Contractor's compliance with the specifications, as well as applicable regulations, regarding hazard control measures, and related decontamination procedures.
 - 2. Interpretation of technical sections of the contract documents, and coordination with Owner and Contractor for enforcement of regulatory and contractual conformance, including stop-work issues.
- B. The cost of the Owner's Representative will generally be the responsibility of the Owner except under special circumstances. The Contractor shall be responsible for the cost of the Owner's Representative for additional services performed when: a) The Contractor's Work Area fails final clearance inspection and/or testing; or b) Additional workdays or workday hours (overtime) are required by the Contractor; or c) The Contractor exceeds the allowable time frame for completion; or d) Additional services associated with response to an uncontrolled, unauthorized release to the environment as a result of the Contractor's performance of the work.

1.09 CONTRACTOR QUALIFICATIONS

- A. General Superintendent: Provide a General Superintendent whenever Contractor's personnel are on site who is experienced in administration and supervision of TWW demolition activities including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Contractor's Representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to hazardous materials and/or hazardous wastes.

Experience and Training: The General Superintendent/Supervisor and workers must be trained in the handling of TWW. This shall include previous on-the-job training in TWW-related construction/demolition and dust control procedures. Submit documentation for each worker per section 1.07(d).

- B. The Prime Contractor and any subcontractors that will engage in TWW disturbance activities will provide a copy of their TWW training specific for this project, as specified in 22 CCR 67386.12 and indicated in Section 1.07 -Submittals, above.

PART 2 - PRODUCTS

2.01 PROTECTIVE COVERING

- A. Polyethylene sheets, of 6 mil thickness, in dimensions of adequate width, to minimize the frequency of joints.

2.02 TAPE

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

2.03 CLEANERS

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

2.04 SPRAY ADHESIVE

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

2.05 DISPOSAL CONTAINERS

- A. Where Block and Tarp is used, provide 6-mil thick polyethylene sheeting, 6-mil leak-tight polyethylene bags and other impervious containers as required by the TWW regulations too prevent contact with soil, rain and stormwater run-on. All wastes shall be kept elevated to prevent contact with soil.
- B. Where the TWW will be containerized, all hazardous waste shipping containers shall meet federal and California DOT requirements and shall be equipped with a lockable lid.
- C. Disposal containers containing hazardous wastes shall appropriate signage and placard that meet CAL/OSHA requirement.
- D. Disposal containers shall remain locked when not in use.
- E. Disposal containers that contain hazardous waste shall be kept separate from containers used to store non-hazardous construction debris. In addition, disposal containers containing hazardous wastes shall be secured by a perimeter fencing unless the site is equipped with full perimeter fencing and lockable gate. Where the site is equipped with perimeter fencing, the disposal containers shall be demarcated with warning tape.

2.06 WARNING SIGNS AND LABELS

- A. Caution signs are to be a minimum of 14 x 20 inches and include phrase "CAUTION – HAZARDOUS WASTE - KEEP OUT UNLESS AUTHORIZED" in lettering at least 2" in height. These signs shall be posted at each approach to the TWW storage unit or area.
- B. Each TWW storage unit or area shall have signage that conforms with the Labeling requirements in 22 CCR 67386.5(b).
- C. Hazardous waste labels in accordance with federal, state and local regulations, including, but not limited to the California Code of Regulations, Title 22 Chapter 30 and the U.S. Department of Transportation 49 CFR Parts 172, 173, 178 and 179.

2.07 PERSONAL PROTECTIVE EQUIPMENT

- A. Personal protective equipment shall conform to the Contractor's Injury and Illness Prevention Plan (IIPP) and or the site safety plan for the specific task, whichever is more stringent. Workers may wear full body disposable TYVEK type suits with dust masks for nuisance dust where allowed under the Contractor's IIPP or site safety plan.
- B. Goggles with side shields will be worn when resizing TWW material, or if protective eyewear is specified on the Material Safety Data Sheets (MSDS) for that product.

- C. Contractors performing resizing operations can wear an N-95 respirator or half-face, air-purifying respirator equipped with HEPA cartridges. A full-face air-purifying respirator may be used to provide eye protection.

Note: Contractors will still need medical approval prior to wearing an N-95 respirator as part of their respiratory protection plan.

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

2.08 TOOLS AND EQUIPMENT

- A. Provide suitable tools for collection of dust generated from demolition and resizing work activities including required HEPA vacuums and exhaust units, airless sprayers, ground fault interrupters, hand tools, wipes, ladders, and scaffolds. Mechanical abrasion tools and saws shall be equipped with local HEPA exhaust and subject to approval by the Owner's representative. All tools and equipment brought on site shall be clean and free of contamination from hazardous materials. HEPA filtered equipment shall be labeled with a warning label and dedicated to TWW work to prevent combining hazardous wastes of differing characteristics.
- B. Provide adequate support equipment, including, but not limited to lumber, hardware, decontamination showers, sprayers, hoses, drain pans, miscellaneous collection devices, and secure holding facilities.

PART 3 - EXECUTION

3.01 GENERAL

- A. Several levels of preparation and dust control procedures are outlined in this section to address various conditions and methods of TWW-related demolition and re-sizing activities.

3.02 SITE PREPARATION (Interior and Exterior Work Areas)

- A. The level of preparation described in this section is appropriate for removal of TWW containing building components, and for the demolition of foundation wall systems containing intact TWW as specified in these contract documents. All TWW demolition, removal and resizing actions shall occur in a contained and regulated area to control migration of dust.
 - 1. Post Caution signs (described in Section 2.07) at all exterior approaches to the work area, and in addition, post required warning signs at all immediate entrances to work area
 - 2. Cover all floors and nonmovable objects (within 10 feet of the affected area) with 6- mil polyethylene sheeting and seal with duct tape.

3. Provide dust migration barriers as required by sealing all openings to the work area that will not be used for direct access (ingress/egress) with minimum 6-mil flame retardant polyethylene sheeting.
4. Install double flapped curtain doorway at the entrance to the work area by attaching two layers of 6-mil polyethylene sheeting to the doorway. Attach one sheet to the top and one vertical edge of the doorway, and one to the top and the opposite vertical side.
5. In areas where the interior will be reoccupied, provide suitable containment/enclosure on the interior of affected areas. Protect adjacent architectural components and finishes from damage.
6. Notify the Owner's Representative when the work area is ready for inspection. Abatement work shall not proceed until the Owner's representative has inspected and approved work area preparations.

3.03 WORKER SAFETY/DECONTAMINATION PROCEDURES

- A. Worker Safety shall conform to the Contractor's IIPP and/or Site Safety Plan, whichever is stricter.
- B. The Contractor shall have written procedures for employee decontamination for specific work tasks identified in the Contractor's IIPP.
- C. The Contractor shall provide appropriate PPE and training in the use and care of the PPE for each work task identified in the Contractor's IIPP or site safety plan
- D. The contractor shall provide decon/wash stations at appropriate locations where demolition/renovation activities will generate TWW dust or construction dust to adequately wash face, hands, arms, etc.
- E. All tools and equipment shall be decontaminated by HEPA vacuuming and/or wet wiping prior to being taken out of the Work Area.
- F. Workers shall not eat, drink, smoke, or chew gum or tobacco at the work site.

3.04 GENERAL REMOVAL PROCEDURES

A. DEMOLITION OF TREATED WOOD BUILDING SYSTEMS

1. Prepare work site and provide protective measures in accordance with Section 3.02, above.
2. Using wet removal and/or dust suppression methods, Contractor shall remove the TWW in manageable pieces. After removal of the TWW, clean area until free of loose

dust and debris to the satisfaction of the Owner's representative using HEPA vacuum and wet wiping with a good detergent.

3. Contractor shall spray surfaces with a cleaning solution applied with a garden sprayer and wipe or mop surfaces with frequently changed clean towels, rags, or mops.
4. Remove plastic sheeting from immovable objects, floors, or applicable horizontal surfaces after misting by folding it and all its contents toward the center. Place protective sheeting and waste rags in segregated 6 mil plastic bags, seal and store in a designated, secure waste storage area for waste characterization.
5. All tools and equipment shall be sealed in 6 mil plastic bags after being decontaminated using a detergent wash and wet wiping prior to leaving the work area.
6. At least 24 hours prior to completion and upon completion of final cleanup and decontamination per Section 3.03, Part A, herein, notify the Owner's representative to obtain final clearance inspection and testing.

B. DISMANTLING/REMOVAL

1. Prepare work site and provide protective measures in accordance with Section 3.02, above.
2. Building components to be dismantled shall be carefully removed in manageable sections and all work shall be performed over protective polyethylene sheeting. Workers shall exercise caution to avoid the release of contaminated dust into the air. Do not saw or cut the materials unnecessarily. Dismantling operations shall be conducted in a careful, safe manner.
3. Properly decontaminate the work area in accordance with procedures outlined in Section 3.03, Part A, above.

3.05 INSPECTION PROCEDURE WORK AREA CLEARANCE

- A. After the final clean-up, a preliminary visual inspection will be conducted by the Owner's representative to ensure that all visible dust and debris has been removed. The Contractor shall provide the Owner's representative at least 24-hours notice prior to scheduling inspection.
- F. If the Work Area is not visibly clean, as determined by the preliminary visual inspection by the Owner's representative, the Contractor shall re-clean and decontaminate as described in Section 3.03, A., at his own costs, until the work area passes inspection.
- G. Clearance criteria to release contractor from each work area is as follows:
 - No visible debris (performed following removal of TWW components and after demolition of structures)

- D. A work area shall be considered cleared only after all areas within the work area have met the above criteria.
- E. If a work area fails the clearance criteria specified above, the Contractor shall be responsible to re-clean the area at no additional cost to the Owner and shall be responsible for associated additional re-inspection costs, including laboratory fees.

3.06 WASTE HANDLING AND DISPOSAL

- A. The Contractor shall provide for secure on-site storage of TWW waste. Waste storage location, equipment, storage methods and/or containers shall follow the requirements of 40 CFR 262 and 265 and California Code of Regulations Title 22 and with TWW accumulation requirements stipulated in 22 CCR Section 67386.6.
- B. DISPOSAL
 - 1. The Contractor shall submit name, address, and telephone number of landfill or landfills approved by the waterboard to accept TWW and experienced transporters of TWW to Observation Service for review, prior to disposal. Neither the Observation Service nor the Owner shall approve the location of waste disposal. It is the Contractors sole responsibility to evaluate the suitability of each waste transporter and disposal facility.
 - 2. Where more than 10,000 pounds of TWW will be generated, the contractor shall obtain and maintain an Identification Number from DTSC.
 - 3. The Contractor shall prepare all waste shipping manifests and/or document for review by the Owner. The manifests shall be signed by the duly authorized representative of the Owner and copies retained by the Owner.
 - 4. The Contractor shall have all waste transported from the site in accordance with the TWW offsite shipment requirements of 22 CCR Section 67386.7 disposed of properly in accordance with 22 CCR Section 67386.11.
 - 5. The Contractor shall track all TWW shipments in conformance with 22 CCR 67386.8 requirements.
 - 6. Copies of the landfill weight tickets shall be provided to the Owner to verify the amount of waste disposed of at the site.
 - 7. The Contractor is responsible for all costs associated with transportation and disposal of the waste.

3.07 STOP WORK ORDERS

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

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

END

Table 02121-1
Trellis/Canopy, Building Sunshade and Roof Equipment Screen Support Demolition
Piedmont High School - Auditorium Building (Building C)
800 Magnolia Avenue, Piedmont, CA
Treated Wood Waste (TWW) Quantity Summary

Component	Regulated Material	Building	Location	TWW Board Dimensions	Board Feet (per board)	Condition	Quantity ¹	Total Board Feet ¹
July 31, 2017								
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	4" x 16" x 28'	149	Good	14	2,091
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	4" x 16" x 13'	69	Good	9	624
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	4" x 16" x 25'	133	Good	6	800
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	4" x 16" x 8'	43	Good	23	981
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	3" x 10" x 20'	50	Good	28	1,400
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	3" x 10" x 15'	38	Good	38	1,425
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	3" x 10" x 10'	25	Good	8	200
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	2" x 4" x 20'	13	Good	107	1,427
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	2" x 4" x 6'	4	Good	63	252
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	2" x 10" x 12'	20	Good	42	840
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Tile Roof Support Structure	Exterior	Miscellaneous	----	----	----	6,000
							TOTAL	16,040

Notes:

1. Quantity and estimated board feet of pressure treated wood are approximate. Contractor to field verify.

APPENDIX A
HAZMAT ABATEMENT DRAWINGS

PIEDMONT UNIFIED SCHOOL DISTRICT

AUDITORIUM BUILDING (BLDG C), DEMOLITION

800 MAGNOLIA AVENUE, PIEDMONT, CA

HAZARDOUS MATERIALS ABATEMENT PROJECT

PROJECT INTENT:

THE PROJECT WILL INCLUDE DEMOLITION OF AN EXISTING TWO STORY SCHOOL BUILDING. AS PART OF THE DEMOLITION OF THE STRUCTURE EXISTING HAZARDOUS MATERIALS WILL BE REMOVED TO COMPLY WITH NESHAPS REQUIREMENTS. HAZARDOUS MATERIAL ABATEMENT WILL INCLUDE REMOVAL OF KNOWN ASBESTOS CONTAINING MATERIALS (ACM), ASBESTOS CONTAINING CONSTRUCTION MATERIALS (ACCM), ASBESTOS CONTAINING WASTE STREAMS (ASBESTOS <0.1%), LEAD CONTAINING BUILDING MATERIALS AND OTHER REGULATED MATERIALS (ORMS) INCLUDING THERMOSTATS, HVAC REFRIGERANTS/COMPRESSOR OIL AND PRESSURE TREATED WOOD (TWW).

GENERAL HAZARDOUS MATERIALS ABATEMENT, DEMOLITION, AND CONTRACTOR ASSIST NOTES

1. HAZARDOUS MATERIAL ABATEMENT PLANS AND SPECIFICATIONS HAVE BEEN PREPARED BASED ON EXISTING DOCUMENTS (WHERE AVAILABLE), ARCHITECT DRAWINGS AND SITE INSPECTIONS. LOCATION OF MATERIALS SCHEDULED FOR ABATEMENT AND DEMOLITION OR WILL BECOME DISTURBED BY PLANNED RENOVATIONS OR ALTERATIONS ARE GENERAL IN NATURE. THE HAZARDOUS MATERIAL DRAWINGS ARE INTENDED TO PROVIDE AN APPROXIMATE LOCATION OF HAZARDOUS MATERIALS TO BE REMOVED, INCLUDING ASBESTOS CONTAINING MATERIALS (ACM), ASBESTOS CONTAINING CONSTRUCTION MATERIALS (ACCM), LEAD-BASED AND LEAD-CONTAINING PAINTS, COATINGS AND BUILDING COMPONENTS, OTHER REGULATED MATERIALS (ORMS) AND UNIVERSAL WASTES. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND QUANTITIES OF MATERIALS TO BE REMOVED PRIOR TO BID.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING, ACCESSING, AND REMOVING ALL ASBESTOS CONTAINING MATERIALS, LEAD-BASED AND/OR LEAD CONTAINING COMPONENTS, PCB ELECTRICAL TRANSFORMERS, PCB LIGHT BALLASTS, FLUORESCENT LAMPS (TUBES AND CFLS) AND OTHER REGULATED MATERIALS TO SUPPORT THE PHS ADMINISTRATION BUILDING DEMOLITION PROJECT.
3. THE HAZARDOUS MATERIAL DRAWINGS ARE NOT TO BE CONSIDERED A STAND-ALONE DOCUMENT. CONTRACTOR SHALL COORDINATE ALL HAZARDOUS MATERIAL RELATED ABATEMENT WORK AND NECESSARY HAZARDOUS MATERIAL CONTRACTOR ASSIST SUPPORT WITH SCHEDULED DEMOLITION SHOWN ON THE CONTRACT DRAWINGS AND ALL WORK SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS.
4. HAZARDOUS MATERIALS INCLUDE ACM, ACCM, LEAD-CONTAINING SURFACE COATINGS, LEAD-BASED PAINT SURFACE COATINGS, PCB BALLASTS, FLUORESCENT LAMPS, MERCURY-CONTAINING HVAC COMPONENTS AND OTHER REGULATED MATERIALS HAVE BEEN IDENTIFIED. THESE MATERIALS WILL NEED TO BE HANDLED BY PROPERLY TRAINED PERSONNEL PRIOR TO ANY DEMOLITION OR RENOVATION ACTIVITIES. CONTRACTOR SHALL REFER TO SECTION 02010 HAZARDOUS MATERIALS SUMMARY OF WORK FOR LOCATIONS OF KNOWN OR ASSUMED HAZARDOUS MATERIALS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INVESTIGATING AND COORDINATING ALL WORK UNDER THIS CONTRACT TO DETERMINE THE EXTENT OF HAZARDOUS MATERIALS ABATEMENT, DEMOLITION AND NECESSARY CONTRACTOR ASSIST RELATED WORK. THE CONTRACTOR SHALL CAREFULLY COORDINATE ALL DEMOLITION ACTIVITIES NECESSARY TO ENABLE ACCESS TO HAZARDOUS MATERIALS FOR ABATEMENT. DEMOLITION ACTIVITIES SHALL NOT RESULT IN DAMAGE TO ASBESTOS CONTAINING MATERIALS SCHEDULED FOR ABATEMENT. THE CONTRACTOR SHALL LIMIT BUILDING AND PAVEMENT DEMOLITION (WHERE PERFORMED) TO THE LIMITS SHOWN ON THE DEMOLITION PLANS. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY DAMAGED OR REMOVED BUILDING COMPONENTS SCHEDULED TO REMAIN.
6. THE CONTRACTOR SHALL COORDINATE THE REMOVAL OF ALL FURNITURE, FIXTURES, CASEWORK, FIXED AND MOVEABLE OBJECTS, NON-HAZARDOUS PARTITION WALLS, BUILDING COMPONENTS, AND FINISHES, ETC., PRIOR TO HAZARDOUS MATERIAL ABATEMENT. REFER TO THE CONTRACT DOCUMENTS AND DRAWINGS FOR ITEMS SCHEDULED FOR SALVAGE AND REUSE.
7. TO THE EXTENT POSSIBLE, THE CONTRACTOR SHALL CONSTRUCT CONTAINMENT AREAS, INCLUDING NEGATIVE PRESSURE ENCLOSURES (NPE) TO THE FULL EXTENT OF EACH AREA OF WORK ON EACH FLOOR. WHERE ADDITIONAL CLEARANCE SAMPLES RESULTING FROM SEPARATION OF CONTAINMENT AREAS INTO MULTIPLE CONTAINMENTS THAT WERE NOT INCLUDED IN THE CONTRACTOR'S ABATEMENT WORK PLAN OR WERE NOT APPROVED IN ADVANCE OF INSTALLATION BY PUSD'S ENVIRONMENTAL CONSULTANT (MILANI & ASSOCIATES), THE CONTRACTOR WILL BE BACKCHARGED FOR THE ADDITIONAL LABOR AND EXPENSES INCURRED BY PUSD.
8. THE CONTRACTOR SHALL CAREFULLY SCHEDULE AND COORDINATE ALL PHASES OF HAZARDOUS MATERIAL RELATED WORK TO ENSURE THAT UNPROTECTED PERSONNEL AND WORK AREAS ARE NOT EXPOSED TO HAZARDOUS SUBSTANCES. THIS INCLUDES THE COORDINATION OF ALL DEBRIS CLEANUP, SOFT DEMOLITION, ABATEMENT AND SCHEDULED ALTERATION ACTIVITIES WHERE PERFORMED.
9. ALL HAZARDOUS MATERIAL SUBMITTALS REQUIRED BY THE PROJECT SPECIFICATIONS MUST BE APPROVED BY PUSD'S ENVIRONMENTAL CONSULTANT (MILANI & ASSOCIATES) PRIOR TO THE START OF ANY HAZARDOUS MATERIAL RELATED WORK. REFER TO THE HAZARDOUS MATERIAL SPECIFICATIONS FOR SPECIFIC HAZARDOUS MATERIAL SUBMITTALS.

SHEET INDEX	
SHEET NUMBER	DESCRIPTION
HM-1	COVER SHEET/PROJECT INTENT AND ABATEMENT NOTES
HM-2	ABATEMENT NOTES (CONT'D) / ABATEMENT KEY NOTES
HM-3	ABATEMENT KEY NOTES (CONT'D)
HM-4	HAZARDOUS MATERIALS ABATEMENT PLAN LOWER LEVEL
HM-5	HAZARDOUS MATERIALS ABATEMENT PLAN UPPER LEVEL
HM-6	HAZARDOUS MATERIALS LEAD ABATEMENT PLAN LOWER
HM-7	HAZARDOUS MATERIALS LEAD ABATEMENT PLAN UPPER
HM-8	HAZARDOUS MATERIALS ABATEMENT PLAN EXT. & ROOF

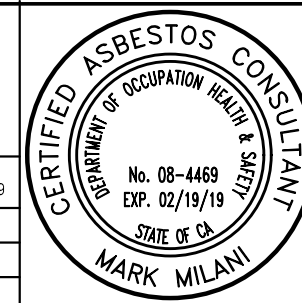
AUDITORIUM BLDG C, DEMOLITION
COVER SHEET/ PROJECT INTENT AND
GENERAL HAZARDOUS MATERIALS ABATEMENT NOTES
CITY OF PIEDMONT ALAMEDA COUNTY CALIFORNIA



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Concord, CA 94520
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Mark Milani
DESIGNED UNDER THE DIRECTION OF:
MARK M. MILANI DATE
C.A.C. No. 08-4469 REGISTRATION EXPIRES 02-19-19

DESIGN:	JOB NO: 1065
DRAWN:	DATE: 06-08-2018
CHECKED:	SCALE: N.T.S.



NO.	REVISIONS	BY	APP	DATE

HM-1

1 OF **8**

SHEETS

10. THE CONTRACTOR SHALL DE-ENERGIZE AND LOCK-OUT ELECTRICAL POWER TO THE WORK AREAS TO THE GREATEST EXTENT POSSIBLE. THE CONTRACTOR SHALL INSTALL TEMPORARY POWER FROM AN OUTSIDE SOURCE TO ALL WORK AREAS THAT HAVE BEEN DE-ENERGIZED. TEMPORARY POWER SHALL BE PROTECTED WITH GROUND FAULT INTERRUPTER CIRCUIT BREAKERS. THE CONTRACTOR SHALL ALSO SUPPLY ADEQUATE POWER TO EACH WORK AREA SOLELY DEDICATED FOR USE BY MILANI & ASSOCIATES FOR AIR MONITORING PURPOSES.
11. PROVIDE, OPERATE AND MAINTAIN MAGNAHELIC GAUGES OR RECORDERS OF APPROPRIATE RANGE AT THE ENTRANCE TO EACH WORK AREA (NPE) DURING ASBESTOS AND LEAD-RELATED ACTIVITIES. NO ASBESTOS OR LEAD WORK SHALL BE CONDUCTED UNLESS THE SYSTEM IS INSTALLED, OPERATING AND RECORDING CORRECTLY.
12. ALL DIFFERENTIAL AIR PRESSURE UNITS AND VACUUMS MUST BE DOP TESTED ON-SITE PRIOR TO USE.
13. ALL POLYETHYLENE SHEETING AND CONSTRUCTION MATERIALS USED TO CONSTRUCT CONTAINMENTS SHALL BE FIRE RETARDANT IN ACCORDANCE WITH THE CITY OF PIEDMONT FIRE DEPARTMENT REQUIREMENTS.
14. THE CONTRACTOR SHALL INSTALL AN ADEQUATE NUMBER OF CLEAR RECTANGULAR VIEW PORTS TO EACH WORK AREA. ALL VIEW PORTS SHALL HAVE A MINIMUM DIMENSION OF 18" X 18".
15. FINAL CLEARANCE FOR ASBESTOS WORK AREAS WILL BE CONDUCTED BY MILANI & ASSOCIATES IN ACCORDANCE WITH THE ASBESTOS HAZARD EMERGENCY RESPONSE ACT (AHERA) REQUIREMENTS. REFER TO SPECIFICATION SECTION 02080 "ASBESTOS ABATEMENT".
16. FINAL CLEARANCE FOR LEAD WORK AREAS WILL BE CONDUCTED BY MILANI & ASSOCIATES IN ACCORDANCE WITH THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENTAL PROTECTION AGENCY LEAD REGULATIONS. REFER TO SPECIFICATION SECTION 02090 "LEAD-RELATED CONSTRUCTION".
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH FAILURE TO MEET CLEARANCE REQUIREMENTS INCLUDING LABORATORY COSTS, CONSULTANT COSTS, AND ANY OTHER DIRECT OR INDIRECT COSTS INCURRED BY PUSD.
18. THE CONTRACTOR SHALL REMOVE AND DISPOSE, RECYCLE, OR RELOCATE ALL FLUORESCENT LAMPS AND BALLASTS FROM LIGHT FIXTURES IN WORK AREAS SCHEDULED FOR DEMOLITION OR WHERE SCHEDULED ALTERATIONS ACTIVITIES WILL BE PERFORMED. CONTRACTOR SHALL COORDINATE THIS WORK WITH WORK SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS.

19. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF BUILDING FINISHES AND COMPONENTS COATED WITH LEAD-BASED OR LEAD-CONTAINING PAINT TO THE EXTENT NECESSARY TO FACILITATE DEMOLITION ACCORDING TO THE PROJECT PLANS. THEY SHALL INCLUDE REMOVAL OF ALL LEAD BASED OR LEAD CONTAINING PAINT FROM INTERIOR AND EXTERIOR CONCRETE SURFACES TO BE RECYCLED.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WASTE CHARACTERIZATION OF LEAD-BASED AND LEAD-CONTAINING BUILDING COMPONENTS AND BUILDING COMPONENTS CONTAINING SUSPECT LEAD-BASED OR LEAD-CONTAINING PAINT OR COATING SYSTEMS FOR PROPER WASTE DISPOSAL (INCLUDING BUT NOT LIMITED TO HARDWOOD FLOORING, PAINTED WOOD, PLASTER, METAL, CERAMIC COMPONENTS, AND SOILS WITH REGULATED LEAD CONCENTRATIONS. REFER TO SECTION 02038 "EXISTING CONDITIONS: HAZARDOUS MATERIALS" FOR LOCATIONS OF KNOWN OR ASSUMED HAZARDOUS MATERIALS. CONTRACTOR WILL COORDINATE ALL WORK WITH WORK SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS.
21. CONTRACTOR TO ROUTE ALL AIR EXHAUST FROM NEGATIVE AIR MACHINES TO EXTERIOR OF BUILDING WITH DISCHARGE AT OR ABOVE MAIN BUILDING ROOF LINE AND AWAY FROM AIR INTAKES.

ABATEMENT KEYNOTES ASBESTOS-CONTAINING MATERIALS

- A1. REMOVE ACM RESILIENT FLOOR TILE (RFT) WITH ACM MASTIC, INCLUDING ALL LAYERS (WHERE PRESENT) ATTACHED UNDERNEATH, DOWN TO THE BARE SUBSTRATE FOR THE PURPOSE OF DEMOLITION OF CONCRETE SLAB ON GRADE FLOOR. REMOVED ACM RFT AND MASTIC SHALL BE DISPOSED OF AS A NESHAP CATEGORY I NON-FRIABLE ACM WHERE REMOVED BY MANUAL METHODS. WHERE ACM RFT AND MASTIC ARE REMOVED BY MECHANICAL MEANS, REMOVED ACM RFT AND MASTIC SHALL BE DISPOSED OF AS A CALIFORNIA REGULATED HAZARDOUS WASTE - FRIABLE ASBESTOS [NESHAP RACM].
- A2. REMOVE AND DISPOSE OF SINK WITH ACM SOUNDPROOF COATING AS A NESHAP CATEGORY I NON-FRIABLE ACM.
- A3. REMOVE AND DISPOSE OF SUSPECT ACM FIRE DOORS AS A CALIFORNIA REGULATED HAZARDOUS WASTE - FRIABLE ASBESTOS [RACM].
- A4. REMOVE AND DISPOSE OF ALL SUSPECT ACM SPOT LIGHT ELECTRICAL CORDS AS A CATEGORY I NON FRIABLE (CAT I NF ACM) ASBESTOS.
- A5. REMOVE AND DISPOSE OF ALL SUSPECT ACM VIBRATION DAMPERS ON VENTILATION SYSTEMS AS A CATEGORY I NON FRIABLE (CAT I NF ACM) ASBESTOS.

A6. REMOVE AND DISPOSE OF ACCM DRYWALL SYSTEM ON WALLS SCHEDULED FOR DEMOLITION OR ALTERATION AS ASBESTOS CONTAINING WASTE. CONTRACTOR SHALL REFER TO THE DEMOLITION PLANS FOR LOCATIONS OF WALLS TO BE DEMOLISHED.

LEAD-CONTAINING MATERIALS

- L1. REMOVE LEAD CONTAINING, AND OR LEAD-BASED PAINT COATING SYSTEMS FROM STUCCO OR CONCRETE SUBSTRATE WHERE CONCRETE WILL BE RECYCLED. WHERE CONCRETE WILL NOT BE RECYCLED CONTRACTOR TO PERFORM FULL WASTE CHARACTERIZATION ON FULL DEPTH SAMPLES. SEE KEYNOTE WC-1
- L2. REMOVE AND RECYCLE LEAD SHEETING WRAP ON ALL ROOF PENETRATIONS WHERE PRESENT.
- L3. REMOVE AND DISPOSE OF CERAMIC TILE WALL SYSTEMS TO FULL LIMITS WHERE PRESENT IN RESTROOMS AND BATHROOMS. DEMOLITION WASTE SUBJECT TO WASTE CHARACTERIZATION UNDER KEYNOTE WC-1.

OTHER REGULATED MATERIALS/UNIVERSAL WASTES

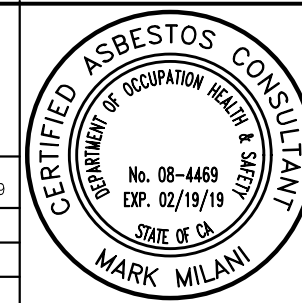
- ORM-1. REMOVE AND DISPOSE/RECYCLE ALL FLUORESCENT LAMPS FROM LIGHT FIXTURES AND MERCURY-CONTAINING THERMOSTATS (WHERE PRESENT) SCHEDULED FOR REMOVAL AS SHOWN ON PLANS.
- ORM-2. REMOVE AND DISPOSE OF ASSUMED PCB BALLASTS FROM LIGHT FIXTURES SCHEDULED FOR REMOVAL AS SHOWN ON DEMOLITION PLANS. DISPOSE OF BALLASTS CONFIRMED TO CONTAIN PCBs AS A HAZARDOUS WASTE IN CONFORMANCE WITH TSCA REQUIREMENTS.
- ORM-3. REMOVE AND DISPOSE OF HVAC REFRIGERANTS AND OILS, FOR THE PURPOSE OF DEMOLITION FOR HVAC SYSTEM COMPONENTS SCHEDULED FOR REMOVAL. REFER TO 02010 FOR DISPOSAL.
- ORM-4. REMOVE AND DISPOSE OF EXTERIOR TREATED WOOD FROM TILE ROOF SUPPORT STRUCTURE, TRELIS STRUCTURE AND BUILDING SUNSHADES. CONTRACTOR WILL PROPERLY CONTAINERIZE AND PREPARE TREATED WOOD FOR DISPOSAL IN CONFORMANCE WITH SPECIFICATION 02121 "TREATED WOOD WASTE REMOVAL, HANDLING, AND DISPOSAL".
- ORM-5. WHEN NOT SCHEDULED TO BE RECYCLED REMOVE AND DISPOSE OF FIRE ALARM COMPONENTS (SMOKE AND FIRE DETECTORS) WHERE SHOWN ON FIRE ALARM DRAWINGS IN CONFORMANCE WITH APPLICABLE REGULATIONS.

AUDITORIUM BLDG C, DEMOLITION
 GENERAL HAZARDOUS MATERIALS ABATEMENT NOTES
 ABATEMENT KEY NOTES
 CITY OF PIEDMONT ALAMEDA COUNTY CALIFORNIA



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 MARK M. MILANI DATE
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WASTE CHARACTERIZATION

WC-1. CONTRACTOR RESPONSIBLE FOR CHARACTERIZING THE FOLLOWING WASTE STREAMS FOR DETERMINATION OF PROPER DISPOSAL:

- PAINTED WOOD DOORS, DOOR FRAMES AND CASEWORK: FULL LEAD WASTE CHARACTERIZATION
 TOTAL LEAD - RUN TOTAL LEAD ON REPRESENTATIVE SAMPLE.
 SOLUBLE LEAD - RUN WET WHERE TOTAL LEAD EXCEEDS 50 PPM, WET NOT REQUIRED WHERE TOTAL LEAD EXCEEDS 1,000 PPM),
 SOLUBLE LEAD - RUN TCLP WHERE TOTAL LEAD EXCEEDS 100 PPM)

- CERAMIC TILE WALL SYSTEM: TESTING REQUIRED: SOLUBLE LEAD
 SOLUBLE LEAD - RUN WET WHERE TOTAL LEAD EXCEEDS 50 PPM, WET NOT REQUIRED WHERE TOTAL LEAD EXCEEDS 1,000 PPM),
 SOLUBLE LEAD - RUN TCLP WHERE TOTAL LEAD EXCEEDS 100 PPM)

- CONCRETE WITH LEAD CONTAINING OR LEAD BASED PAINT COATING SYSTEMS THAT WILL NOT BE RECYCLED. TESTING REQUIRED: TOTAL LEAD, SOLUBLE LEAD (STLC AND TCLP) NON FULL DEPTH SAMPLE.

SAMPLING TO BE PERFORMED IN CONFORMANCE WITH WASTE CHARACTERIZATION WORK PLAN TO BE SUBMITTED UNDER SPECIFICATION 02090 "LEAD IN CONSTRUCTION".

WC-2. CONTRACTOR TO PERFORM FULL WASTE CHARACTERIZATION ON PAINTED WOOD DEBRIS GENERATED FROM DEMOLITION OR SURFACE PREPARATION AND PAINTED WOOD COMPONENTS THAT WILL NOT BE RECYCLED TO DETERMINE PROPER DISPOSAL. TESTING REQUIRED: TOTAL LEAD, SOLUBLE LEAD (STLC AND TCLP). SEE WC-1 FOR ANALYTICAL.

WC-3. CONTRACTOR TO PERFORM FULL WASTE CHARACTERIZATION ON EXTERIOR TREATED WOOD FROM TRELLIS AND TILE ROOF STRUCTURE THAT WILL NOT BE RECLAIMED AND WILL BE DISPOSED OF TO A SOLID WASTE DISPOSAL FACILITY PERMITTED TO RECEIVE TREATED WOOD WASTE. SAMPLING TO BE PERFORMED IN CONFORMANCE WITH WASTE CHARACTERIZATION WORK PLAN TO BE SUBMITTED UNDER SPECIFICATION 02095 "HANDLING AND DISPOSAL OF TREATED WOOD WASTE".

Table 4
Piedmont High School - Building C Trellis, Sunshade and Tile Roof Support Demolition
800 Magnolia Avenue, Piedmont, CA
Treated Wood Waste (TWW) Quantity Summary

Component	Regulated Material	Building	Location	TWW Board Dimensions	Board Feet (per board)	Condition	Quantity ¹	Total Board Feet ¹
July 31, 2017								
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	4" x 16" x 28'	149	Good	14	2,091
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	4" x 16" x 13'	69	Good	9	624
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	4" x 16" x 25'	133	Good	6	800
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	4" x 16" x 8'	43	Good	23	981
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	3" x 10" x 20'	50	Good	28	1,400
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	3" x 10" x 15'	38	Good	38	1,425
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	3" x 10" x 10'	25	Good	8	200
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	2" x 4" x 20'	13	Good	107	1,427
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	2" x 4" x 6'	4	Good	63	252
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Trellis and Sun Shades	Exterior	2" x 10" x 12'	20	Good	42	840
Pressure Treated Wood	Pentachlorophenol (TWW)	Bldg C Tile Roof Support Structure	Exterior	Miscellaneous	-----	-----	-----	6,000
TOTAL								16,040

Notes:
 1. Quantity and estimated board feet of pressure treated wood are approximate. Contractor to field verify.

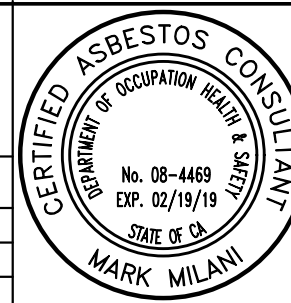
AUDITORIUM BLDG C, DEMOLITION
 ABATEMENT KEY NOTES CONTINUED

CITY OF PIEDMONT ALAMEDA COUNTY CALIFORNIA



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NO.	REVISIONS	BY	APP	DATE

HM-3
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8
 SHEETS

HAZMAT GENERAL NOTES



ABATEMENT KEY NOTES

A1. REMOVE ACM RESILIENT FLOOR TILE (RFT) WITH ACM MASTIC, INCLUDING ALL LAYERS (WHERE PRESENT) ATTACHED UNDERNEATH DOWN TO THE BARE SUBSTRATE FOR THE PURPOSE DEMOLITION OF CONCRETE SLAB ON GRADE FLOOR. REMOVED ACM RFT AND MASTIC SHALL BE DISPOSED OF AS A NESHAP CATEGORY I NON-FRIABLE ACM WHERE REMOVED BY MANUAL METHODS. WHERE ACM RFT AND MASTIC ARE REMOVED BY MECHANICAL MEANS, REMOVED ACM RFT AND MASTIC SHALL BE DISPOSED OF AS A CALIFORNIA REGULATED HAZARDOUS WASTE - FRIABLE ASBESTOS [NESHAP RACM].

A2. REMOVE AND DISPOSE OF SINK WITH ACM SOUNDPROOF COATING AS A NESHAP CATEGORY I NON-FRIABLE ACM.

A3. REMOVE AND DISPOSE OF SUSPECT ACM FIRE DOORS AS A CALIFORNIA REGULATED HAZARDOUS WASTE - FRIABLE ASBESTOS [RACM] & CAT I NF SUSPECT ACM SPOT LIGHT ELECTRICAL CORDS.

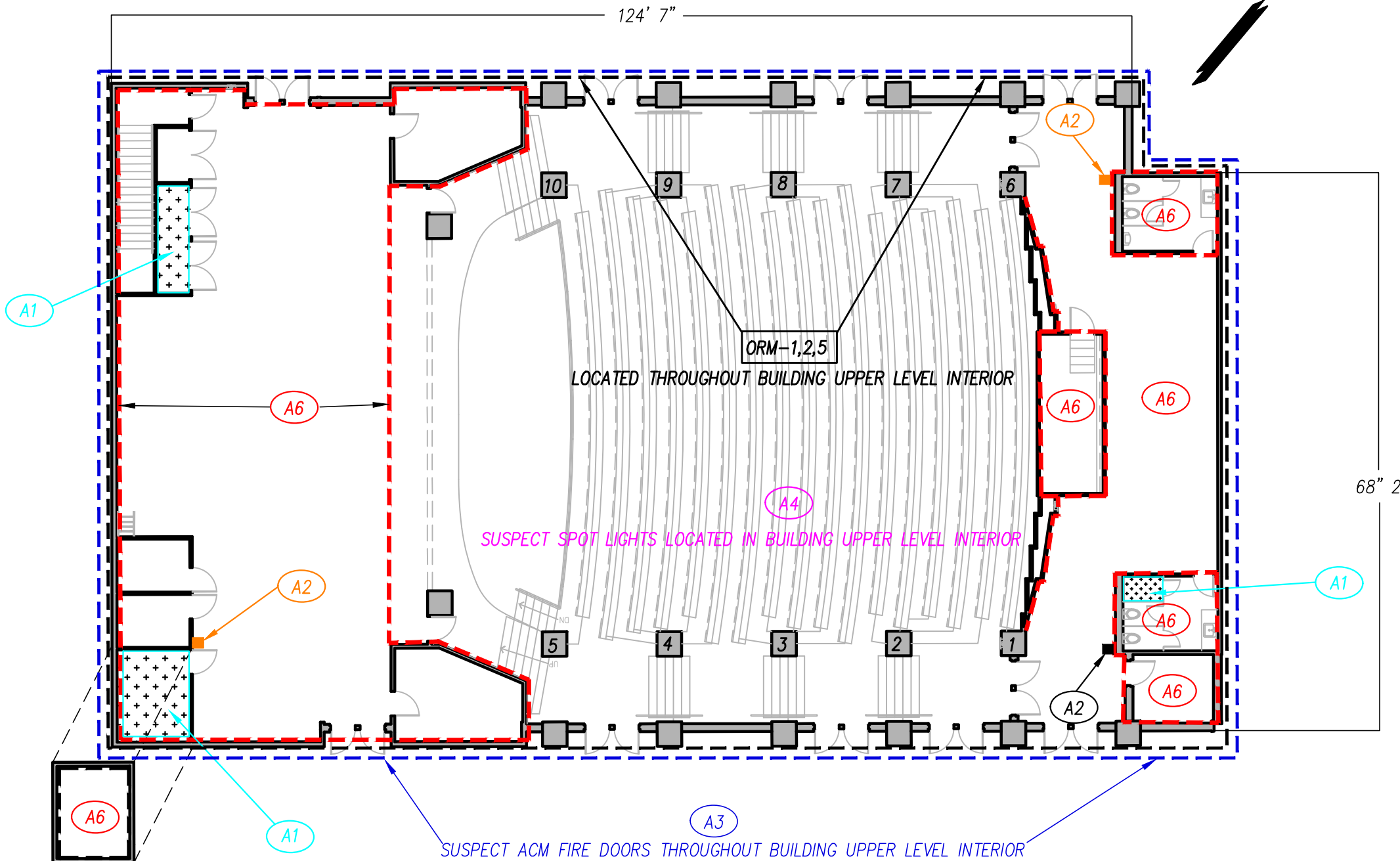
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ORM-1. REMOVE AND DISPOSE/RECYCLE ALL FLUORESCENT LAMPS FROM LIGHT FIXTURES AND MERCURY-CONTAINING THERMOSTATS (WHERE PRESENT) SCHEDULED FOR REMOVAL AS SHOWN ON PLANS.

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ORM-5. REMOVE AND DISPOSE OF FIRE ALARM COMPONENTS (SMOKE AND FIRE DETECTORS) WHERE SHOWN ON FIRE ALARM DRAWINGS IN CONFORMANCE WITH APPLICABLE REGULATIONS.

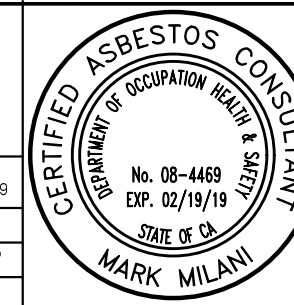


AUDITORIUM BLDG C, DEMOLITION
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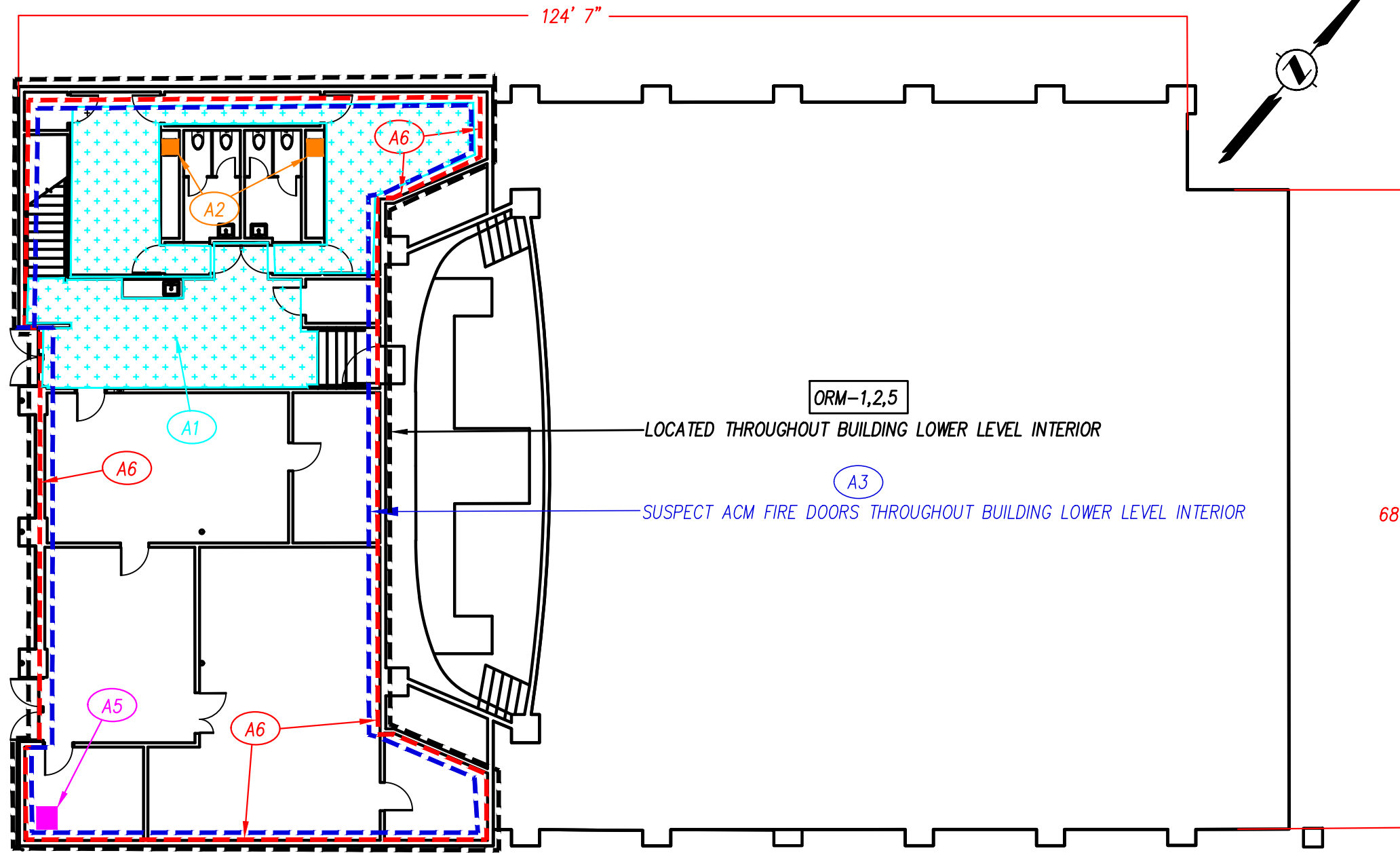
HM-4
4 OF **8**
SHEETS

HAZMAT GENERAL NOTES



ABATEMENT KEY NOTES

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- ORM-1. REMOVE AND DISPOSE/RECYCLE ALL FLUORESCENT LAMPS FROM LIGHT FIXTURES AND MERCURY-CONTAINING THERMOSTATS (WHERE PRESENT) SCHEDULED FOR REMOVAL AS SHOWN ON PLANS.
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- ORM-5. REMOVE AND DISPOSE OF FIRE ALARM COMPONENTS (SMOKE AND FIRE DETECTORS) WHERE SHOWN ON FIRE ALARM DRAWINGS IN CONFORMANCE WITH APPLICABLE REGULATIONS.



ORM-1,2,5

LOCATED THROUGHOUT BUILDING LOWER LEVEL INTERIOR

A3

SUSPECT ACM FIRE DOORS THROUGHOUT BUILDING LOWER LEVEL INTERIOR

68' 2"

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 HAZARDOUS MATERIALS ABATEMENT PLAN
 BUILDING INTERIOR LOWER LEVEL
 CITY OF PIEDMONT ALAMEDA COUNTY CALIFORNIA

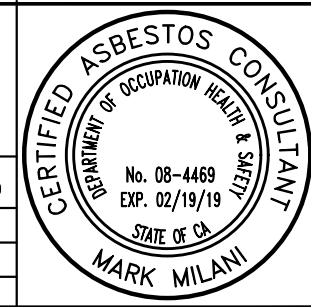
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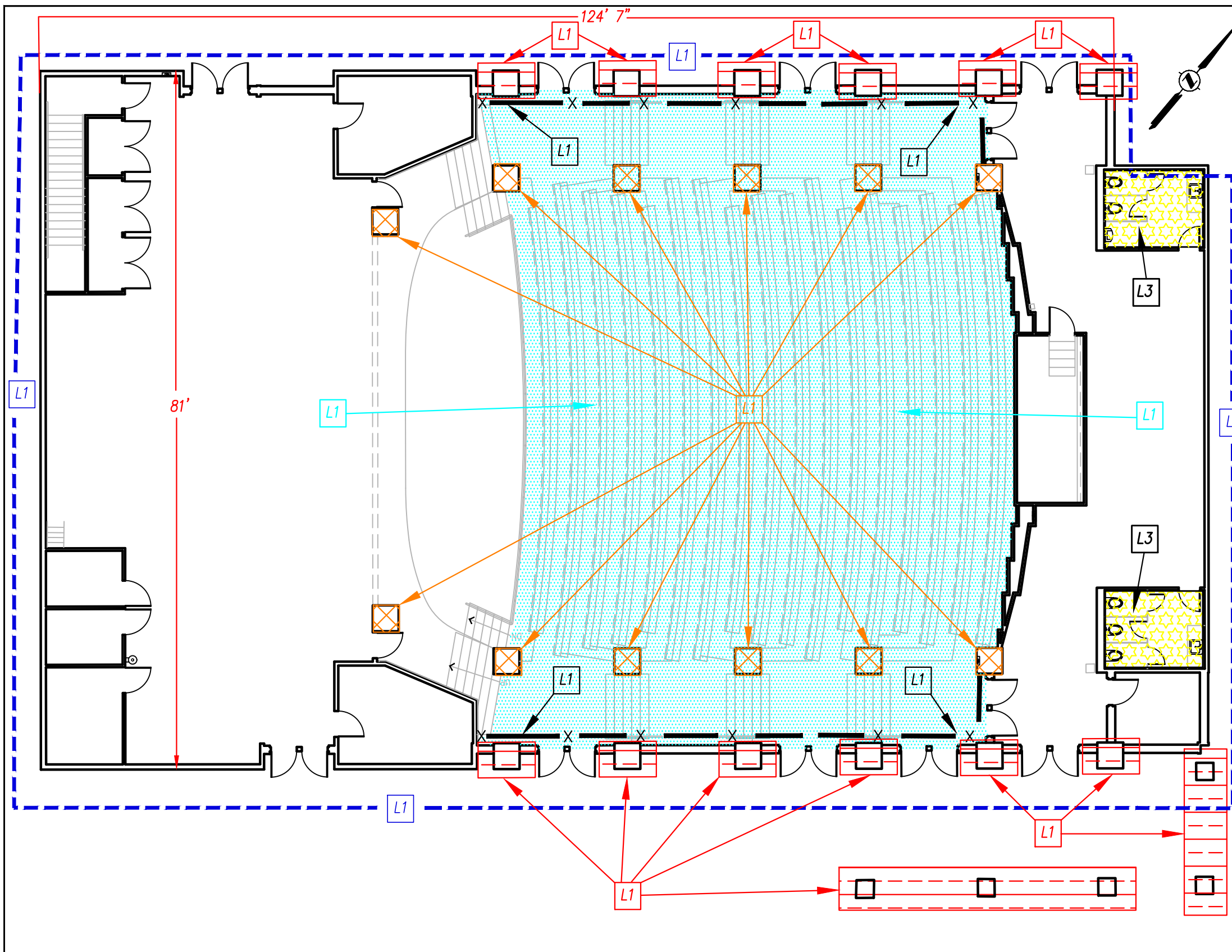
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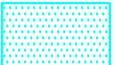



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HAZMAT GENERAL NOTES

LEGEND:

-  L1 EXTERIOR BLDG & TRELLIS/PORTICO COLUMNS HAVE LEAD-CONTAINING PAINT COATING
-  L1 INTERIOR COLUMNS IN THEATER AREA HAVE LEAD-BASED PAINT COATING
-  L1 CONCRETE FLOOR WITH LEAD-CONTAINING PAINT COATING EXPOSED AND UNDER CARPET
-  L1 ALL EXTERIOR CONCRETE WALL FACES HAVE LEAD-CONTAINING PAINT COATING
-  L1 ALL INTERIOR CONCRETE WALL FACES HAVE LEAD-BASED PAINT COATING
-  L3 LEAD-BASED CERAMIC WALL TILE

ABATEMENT KEY NOTES

- L1. REMOVE LEAD CONTAINING, AND OR LEAD-BASED PAINT COATING SYSTEMS FROM STUCCO OR CONCRETE SUBSTRATE WHERE CONCRETE WILL BE RECYCLED. WHERE CONCRETE WILL NOT BE RECYCLED CONTRACTOR TO PERFORM FULL WASTE CHARACTERIZATION ON FULL DEPTH SAMPLES. SEE KEYNOTE WC-1
- L3. REMOVE AND DISPOSE OF CERAMIC TILE WALL SYSTEMS TO FULL LIMITS WHERE PRESENT IN RESTROOMS AND BATHROOMS. DEMOLITION WASTE SUBJECT TO WASTE CHARACTERIZATION UNDER KEYNOTE WC-1.

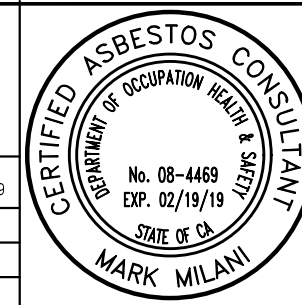
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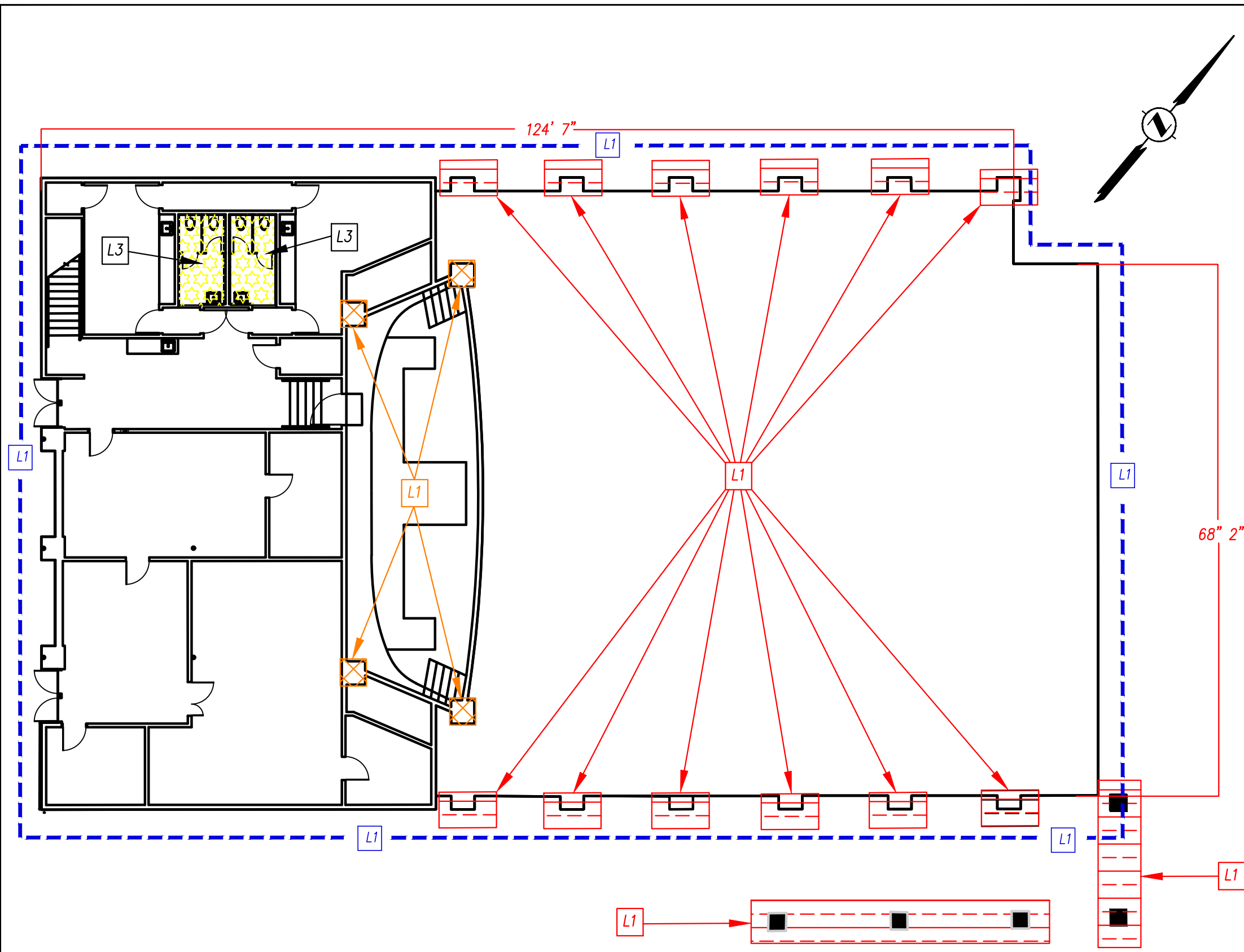
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HAZMAT GENERAL NOTES

LEGEND:

-  **L1** EXTERIOR BLDG & TRELLIS/PORTICO COLUMNS HAVE LEAD-CONTAINING PAINT COATING
-  **L1** INTERIOR COLUMNS IN THEATER AREA HAVE LEAD-BASED PAINT COATING
-  **L1** ALL EXTERIOR CONCRETE WALL FACES HAVE LEAD-CONTAINING PAINT COATING
-  **L3** LEAD-BASED CERAMIC WALL TILE

ABATEMENT KEY NOTES

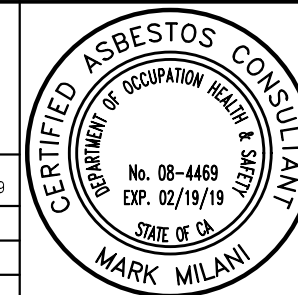
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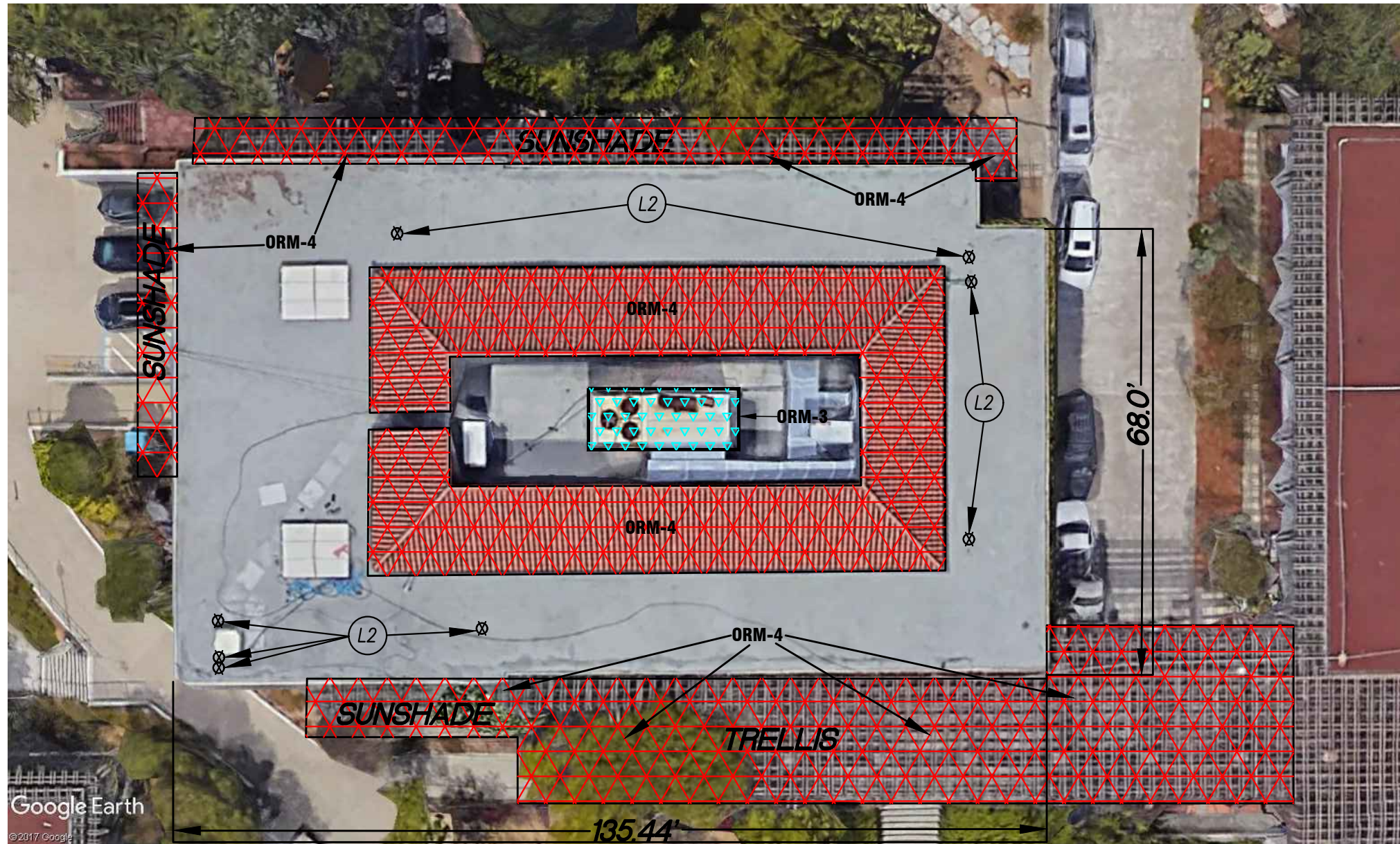
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 7 OF 8 SHEETS

HAZMAT GENERAL NOTES

⊗ (L2)

 **ORM-3**

 **ORM-4**



ABATEMENT KEY NOTES

L2. REMOVE AND RECYCLE LEAD SHEETING WRAP ON ALL ROOF PENETRATIONS WHERE PRESENT.

ORM-3. REMOVE AND DISPOSE OF HVAC REFRIGERANTS AND OILS, FOR THE PURPOSE OF DEMOLITION FOR HVAC SYSTEM COMPONENTS SCHEDULED FOR REMOVAL. REFER TO 02010 FOR DISPOSAL.

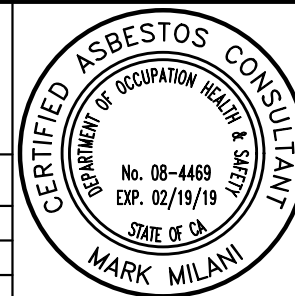
ORM-4. REMOVE AND DISPOSE OF EXTERIOR TREATED WOOD FROM TILE ROOF SUPPORT STRUCTURE, TRELIS STRUCTURE AND BUILDING SUNSHADES. CONTRACTOR WILL PROPERLY CONTAINERIZE AND PREPARE TREATED WOOD FOR DISPOSAL IN CONFORMANCE WITH SPECIFICATION 02121 "TREATED WOOD WASTE REMOVAL, HANDLING, AND DISPOSAL".

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8 OF 8 SHEETS

R:\jobs\1065\WORKING DRAWINGS\1065 Bldg C Haz Mat Abatement-1.dwg HM-8 9-07-18 10:18:09 AM JerryLee