

## PCB REMOVAL/REMEDIATION PROCEDURES

Buildings F, I, and G Malibu High School 30215 Morning View Drive Malibu, California 90265

#### Prepared for:

Santa Monica-Malibu Unified School District Facilities Improvements Projects 2828 4<sup>th</sup> Street Santa Monica, California 90405

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#### 1 INTRODUCTION

The Santa Monica-Malibu Unified School District (District) will undertake a project to remove and replace polychlorinated biphenyls (PCB) impacted door caulking, light colored wood varnish, and flooring materials and mastics from Buildings F, G, and I at Malibu High School, located at 30215 Morning View Drive, Malibu, California 90265.

The procedures included in this Plan shall be completed by a remediation contractor (Remediation Contractor) qualified to perform PCB removal/remediation work using Hazardous Waste Operations and Emergency Response (HAZWOPER) trained workers.

The PCB removal work may be completed concurrently and in conjunction the ACM and LBP removal work where necessary and if feasible and cost effective. All PCB related work shall be completed using proper worker protection including air purifying respirators, disposable clothing, hand, foot, eye and head protection as required.

If a specified minimum procedure described in this document cannot be utilized, a request shall be made in writing to Districts authorized representative providing details of the issues encountered and recommended alternatives.

It will be the responsibility of the Remediation Contractor to comply with all applicable regulatory requirements including, but not limited to, worker training, personal protection equipment and waste disposal. The selected Remediation Contractor will be required to provide a written work plan specifically addressing conditions specific to the Site included in this Plan.

By submitting a bid, the Remediation Contractor warrants its intent to conduct said work properly using qualified personnel.

The Remediation Contractor shall furnish all labor, materials, services, insurance specifically covering the handling and transportation of PCBs, and equipment which is specified, shown or reasonably implied for the removal, transport, and disposal of PCBs identified in the Table 1 Section 2.1 below.

#### 2 BACKGROUND

The District recently completed a project to remove and replace window and door frames impacted with PCB caulking from Buildings F, I, and G. In Building G, the removal of several doorframes was postponed due to schedule time restrictions and was rescheduled to be completed during the summer of 2018.

Additionally, the District recently completed source bulk sampling of flooring materials including: Vinyl floor tiles, sheet vinyl, and black mastic under carpet and wood flooring in affected buildings. Black mastic present under vinyl floor tiles and wood flooring was reported to contain PCBs greater than 50 parts per million (ppm). The results further defined in the "Source Bulk Sampling In Flooring Materials Report", prepared by Alta (SMSD-17-7327 prepared 2/19/18).

The District also completed source bulk sampling of varnish coatings applied on wood walls in Building G. A lighter colored varnish coating observed in the wood storage rooms in Classroom 505 and 506 was

reported with PCBs greater than 50 ppm. Results further defined in the "Source Bulk Sampling In Varnish Coatings", prepared by Alta (SMSD-17-7279 prepared 2/19/18).

Asbestos containing materials (ACM) and lead based paints (LBP) have also been identified within the limits of the PCB related work. Requirements for ACM and LBP remediation work are not included in this Plan. Results are further defined in the "Asbestos and Lead Survey Report-Revised", and the "Abatement Plan for Removal of Asbestos and Lead-Based Paint-Revised" prepared by Alta (SMSD-17-7327) for this project.

This work plan is to be used in conjunction with all previously completed reports.

#### 3 PCB REMOVAL/REMEDIATION PROCEDURES

Scope of Work

Table 1 Summary of PCB Scope of Work

Building	Component/Description	Scope of Impact	Current Classification		
F	Yellow glue with residual black mastic associated with 12" grey speckled floor tile, Room 303	Full removal of flooring- remove mastic from associated substrate and encapsulation	PCB Bulk Product Waste		
F	Black mastic associated with 9" brown floor tile, Rooms 303A  Full removal of flooring-remove mastic from associated substrate and encapsulation		PCB Bulk Product Waste		
I	Grey adhesive associated with grey sheet vinyl, dark room 402C, and 402D	Full removal of flooring- remove mastic from associated substrate and encapsulation	PCB Bulk Product Waste		
G	Black floor mastic located under hardwood floor, Room 505	Full removal of flooring- remove mastic from associated substrate and encapsulation	PCB Bulk Product Waste		
G	Wood Varnish Wall (light colored- unpainted plywood), in wood storage rooms 506E, 506A, 506B, 506D, 505B, 505C, 506B	Full Removal-Remove wood paneling in manageable sections using manual means.	PCB Bulk Product Waste		

Building	Component/Description	Scope of Impact	Current Classification	
G	Door caulking and adjacent wood substrate, doorframes, 504, 505A, 505B, 505C, 506A, 506B, 506C, 506D, 506E.1	Full removal of doorframes and 16 inches of porous materials around each door frame	PCB Bulk Product Waste	

<sup>(1)</sup> According to Environmental Protection Agency (EPA), Memorandum, "PCB Bulk Product Waste Reinterpretation" dated October 24, 2012, building materials "Coated or serviced" with PCB bulk product waste (e.g., caulk, paint, mastic, sealants) at the time of designation for disposal to be manage as a PCB bulk product waste. The reinterpretation document allows for disposal of both PCB Bulk Product Waste and PCB Remediation Waste together as a single waste stream (PCB Bulk Product Waste) (https://www.epa.gov/pcbs/polychlorinated-biphenyl-pcb-guidance-reinterpretation).

#### 3.1 Waste Characterization

Waste generated during this project should be sorted and classified in the following categories as outlined in 40 CFR 761.3. Refer to Table 2 below.

Table 2-PCB Waste Categories

Waste Category	Materials
PCB Bulk Product Waste	Yellow glue and mastic associated with vinyl flooring materials, black mastic associated with wood and carpet flooring, lighter colored varnish materials, door caulking and adjacent porous wood substrates, and grey adhesive associated with grey sheet vinyl
PCB Remediation Waste	Personal protection equipment, polyethylene sheeting, rags, etc.

#### 3.2 Engineering Controls

The abatement contractor will be required to build a containment area at each location where removal/remediation work is completed in a manner to minimize airborne dust from migrating outside the abatement area. The containment area(s) will be maintained under constant negative air pressure by installing localized fan equipment equipped with a high efficiency particulate air filters (HEPA). The filtered exhaust from the fans will be routed outside the containment area and vented outside of the building. A minimum pressure differential of 0.02 inches water column shall be maintained at all times during the work and documented using a recording manometer.

The containment should include the following:

- 1. All polyethylene sheeting, spray-on strippable coatings and structural materials used shall be UL-certified as fire retardant or non-combustible.
- 2. A three-stage worker decontamination facility shall be provided to the containment work area.
- 3. Warning signs shall be posted at all entrances to the containment.

4. A sufficient quantity of HEPA vacuums and/or differential pressure air filtration devices equipped with HEPA filtration shall be used to during the removal/remediation work activities.

To calculate total air flow requirement:

Total ft<sup>3</sup>/min = Vol. of work area (in ft<sup>3</sup>)
15 min

To calculate the number of units needed for the abatement:

Number of units needed = [total ft<sup>3</sup>/min] [capacity of unit in ft<sup>3</sup>/min]

Additionally, all powered tools should be equipped with appropriate tool guards and dust/debris collection point of captures HEPA filtration systems.

#### 3.3 Air Monitoring

To verify the effectiveness of dust minimization and engineering controls, air monitoring for respirable airborne particulates will be conducted using data-logging, real-time monitors. The Remediation Contractor is required to document compliance with California Division of Occupational Safety and Health (Cal-OSHA) permissible exposure limits (PELs).

A total airborne particulate action limit for the areas outside of the exclusion zone has been established for the PCB remediation work to be conducted at the Site with consideration of the specific receptors, PCB concentrations, and work activities. The action limit applies only to air monitoring at the perimeter of the work zone; an action has not been set for the active work zones (exclusion zones) as engineering controls will be used within these zones.

An action limit of 0.1 milligrams per cubic meter (mg/m³) above background will be maintained during site work. Air monitoring at a location representative of background air conducted (i.e. a location upwind of the work area) will be conducted at the same frequency as the monitoring to obtain date representative of real-time background conditions. The action limit will be used to determine when additional engineering controls and/or work stoppages will be necessary.

Should the action level be exceeded during remediation, work procedures will be evaluated for recommendations for possible additional engineering controls or modified work practices to control dust generations. Any recommended changes to work practices will be documented.

Air monitoring stations will be established at the work area perimeter in upwind and downwind locations, and within, the designated work area, if feasible. Air monitoring will be conducted at all times during demolition activities. Alta will review monitoring data a minimum of once per hour during the work. The logged data will be continuously reviewed daily so that changes to the work practices can be recommended based on observable trends in airborne dust concentrations. Logged data will be downloaded on a regular basis and archived.

If monitoring indicates that particulate matter concentrations are not maintained below the action level, remediation activities shall cease until work practices can be evaluated and adjusted.

Air monitoring equipment will be calibrated per manufacturer's specifications.

#### 3.4 Worker Protection

The Remediation Contractor shall select the most appropriate respirators for tasks being performed. At a minimum, the workers should wear an air purifying respirator equipped with High Efficiently Particulate Air (HEPA) P100 filter. Disposable Tyvek suits (non-porous full-body), and appropriate hand (chemical resistant), foot, eye and hear protection should be worn at all times. Based on the Remediation Contractor's air sampling data PPE should be evaluated.

#### 3.5 Worker Decontamination Systems

Worker decontamination enclosure systems shall be provided at all locations where workers will enter or exit PCBs impacted work areas.

Worker decontamination enclosure systems constructed at the Project site shall utilize six-mil, fire-retardant polyethylene sheeting, or other approved materials for privacy.

Personnel Decontamination Units shall not be located inside the work area(s) unless specifically authorized by the Project Environmental Consultant.

Alternate methods of providing Decontamination facilities may be submitted to the Project Environmental Consultant for approval. Do not proceed with any such method(s) without the written authorization.

The worker decontamination enclosure system shall consist of at least a cleansing station in accordance with the requirements of 8 CCR 1527, equipped with adequate water, towels and cleansing agents to accommodate the entire crew and visitors.

#### 3.6 Equipment Decontamination

Equipment used for the removal/remediation of PCB Bulk Product Waste materials included in this work plan must be properly decontaminated by wet-wiping and HEPA vacuuming techniques.

Prior to removing equipment from the impacted work area, the HEPA filters should be removed and disposed of in accordance all applicable regulations at an approved licensed to accept PCB waste facility. The filter compartment should be thoroughly wet-wiped and HEPA vacuums.

#### 3.7 Removal / Remediation Work Activities

The removal/remediation scope of work included in this section includes the removal and off-site disposal of materials identified in Table 1, Section 3.1 of this report. The work should be completed as follows:

- Pre-clean all surfaces within the proposed work area by HEPA vacuuming and wet-wiping.
- Establish a containment work area including negative pressure enclosure as described in Section 3.3 above.
- Removal will be conducted using hand tools or tools equipped with a HEPA capture system to achieve removal to the maximum extent practicable while minimizing dust or other airborne particulates generated from the removal.

- Surface preparation for removal will include surficial wetting of visibly dry and/or deterioration material to minimized dust generation.
- During the project, equipment and tools used in the process will be decontaminated through spraying and wet wiping. At the completion of the project, any non-disposable equipment and tools that handled PCBs material will be decontaminated following the procedures described in 40 CFR 761.79.
- Waste generated during this project will be immediately collected in waste bags or similar container and stored in a labeled PCB Bulk Product Waste container at the end of each work shift. Waste shall be disposed of according to all applicable regulatory requirements.
- After used, disposable PPE and polyethylene sheering generated during this project will be collected and stored in a labeled PCB Remediation Waste container. Waste shall be disposed of according to all applicable regulatory requirements.
- All removed waste materials will be stored on site in lined, marked, and covered roll-off containers (or similar containers) or Department of Transportation (DOT) 55-gallon drums prior to off-site.

#### 3.7.1 Interim Procedures for Encapsulation of Concrete Floor Surfaces

Upon passing of the final visual inspection conducted as per 4.1 below, the Remediation Contactor will encapsulate the remaining concrete floors in Buildings F, I, and G, in rooms 303, 303A, 402C, 402D, and 505. The encapsulant should be applied as follows:

- Prior to application of the encapsulant, all surfaces must be prepared so that they are dry, clean, and sound.
- It is anticipated that the abated surfaces, as part of the surface preparation for re-installation of the new flooring, will required an inspection and possible moisture testing by the Flooring Contractor to verify that the surfaces are adequate. The containment area will be accessible to the Flooring Contractor with the following conditions:
  - Upon successful completion of the identified PCB Bulk Product material, and passing of a thorough visual inspection conducted as per section 4.1 below and the passing of any required clearance testing following asbestos abatement, where applicable;
  - Workers must wear personal protection equipment such as nitrile gloves, foot coveralls, etc. will be required.
  - All inspection and testing conducted by the Flooring contractor must be non-destructive conducted by visual or on the surface. No destructive testing where a disturbance to the concrete floors may occur.
  - Any remaining surfaces on the concrete which are deem inadequate such as loose concrete edges, stress pop-ups, cracks etc which may require addition stabilization or removal will be identified by the Flooring contractor to be repaired by the Remediation Contactor.
- Any areas identified to be inadequate by the Flooring contractor, will be repaired by the Remediation Contactor.

- Upon acceptance by the Flooring contractor that the surfaces are adequate, the Remediation Contactor will apply two coats of the epoxy based, with no solvent encapsulant such as a Sikaguard 62 (or equivalent material). The encapsulant will be applied with different colors for the two layers. The application of the Sikaguard 62 encapsulant (or similar material) must be installed strictly as per the manufacturer recommendations including surface preparation.
- After the two layers of encapsulant has cured, the containment area may be removed.

Any alternative procedure must be reviewed and approved by the District prior to implementation of the work by the contractor.

The above procedures are to be used as interim for bidding purposes. The procedures are contingent to USEPA approval.

#### 4 POST-REMEDIATION/CONTAINMENT AREA CLEARANCE REQUIREMENTS

Table 3

Building	Component/Description	escription Containment Clearance Requirements		
F	Yellow glue with residual black mastic associated with 12" grey speckled floor tile, Room 303, Building F	Final visual per 4.1 below, and Concrete floor encapsulation per 3.7.2. above	Surface wipe and air per 5.1 and 5.2	
F	Black mastic associated with 9" brown floor tile, Rooms 303A, Building F	Final visual per 4.1 below, and Concrete floor encapsulation per 3.7.2. above	Surface wipe and air per 5.1 and 5.2	
G	Black floor mastic located under hardwood floor, Room 505	Final visual per 4.1 below, and Concrete floor encapsulation per 3.7.2. above	Surface wipe and air per 5.1 and 5.2	
G	Wood Varnish Wall (light colored- unpainted plywood), in wood storage rooms 506E, 506A, 506B, 506D, 505B, 505C, 506B	Final visual per 4.1 below Surface wipe per 4.3 below	Surface wipe and air per 5.1 and 5.2	
G	Door caulking and adjacent wood substrate, doorframes, 504, 505A, 505B, 505C, 506A, 506B, 506C, 506D, 506E.1	Final visual per 4.1 below Surface wipe per 4.3 below	Surface wipe and air per 5.1 and 5.2	
I	Grey adhesive associated with grey sheet vinyl	Final visual per 4.1 below, and concrete floor encapsulation per 3.7.2. above	Surface wipe and air per 5.1 and 5.2	

#### 4.1 Confirmation final visual inspection

Upon completion of the PCB related work in each containment work area, the Project Environmental Consultant and the Remediation Contractor will conduct a post-remediation visual inspection. If any material designated for removal, including loose dust and debris, is observed, the Contractor will be required to re-clean the area until the area is deemed to be acceptably clean.

Concrete floors where PCB bulk product waste has been removed, must be encapsulated as per 3.7.1 above.

#### 4.2 Wipe Sampling

Wipe samples will be collected on gauze pads (or similar sampling media) using the Standard Wipe Test described in 40 CFR 761.123 and will be analysed using USEPA Method 8082 for Aroclors.

In the containment work area, at least two PCB wipe samples will be collected, one from a window sill (if feasible) and one from an interior smooth floor.

A comparison threshold of 1 microgram per 100 square centimeters ( $1\mu g/100 \text{ cm}^2$ ) must be met for wipe samples collected at the Site. Clearance will be issued when all samples results have met these levels.

If these conditions are not met, decontamination shall be deemed incomplete and the cleaning procedures shall be repeated. The area shall be re-cleaned and re-tested at no additional cost to Owner until satisfactory levels are obtained.

The contractor is advised that wipe sample analysis may be delayed as long as 48 hours. The containment areas must be maintained until the samples are received from the laboratory.

### 5 POST-REMEDIATION CONFIRMATORY AIR AND WIPE SAMPLING PRIOR TO RE-OCCUPANCY

Following the completion of the project, after the containment has been removed, and the areas have been restored for normal occupancy, additional air and wipe samples will be collected from the renovated rooms.

#### 5.1 Air Sampling

Air samples will be collected prior to re-occupancy.

The air samples will be collected without a pre-filter and will be analysed for Aroclors using USEPA Method TO-10A. Each air sample will be collected on a polyurethane foam cartridge with a constant flow rate of approximately 5 liters per minute.

In each room, one air sample will be collected over 24 hours with the doors and windows closed, the HVAC system turned off, and the lights turned on.

Air sample results shall meet the criteria as outlined in the USEPA's document Exposure Levels for Evaluating Polychlorinated Biphenyls (PCBs) in Indoor School Air . <a href="https://www.epa.gov/pcbs/exposure-levels-evaluating-polychlorinated-biphenyls-pcbs-indoor-school-air">https://www.epa.gov/pcbs/exposure-levels-evaluating-polychlorinated-biphenyls-pcbs-indoor-school-air</a>. The criteria are as follows:

Age in Years Range	1 to <2	2 to <3	3 to <6	6 to <12	12 to <15	15to <19	19 +
PCBs ng/m <sup>3</sup>	100	100	200	300	500	600	500

If these conditions are not met, decontamination shall be deemed incomplete and the cleaning procedures shall be repeated. The area shall be re-cleaned and re-tested at no additional cost to Owner until satisfactory levels are obtained.

The contractor is advised that air sample analysis may be delayed as long as two weeks. The containment areas must be maintained until the samples are received from the laboratory.

#### 5.2 Wipe Sampling

Wipe samples will be collected prior to re-occupancy.

Wipe samples will be collected on gauze pads (or similar sampling media) using the Standard Wipe Test described in 40 CFR 761.123 and will be analysed using USEPA Method 8082 for Aroclors.

Also, in each room, at least two PCB wipe samples will be collected, one from a window sill and one from an interior floor tile.

A comparison threshold of 1 microgram per 100 square centimeters ( $1\mu g/100 \text{ cm}^2$ ) must be met for wipe samples collected at the Site.

If these conditions are not met, decontamination shall be deemed incomplete and the cleaning procedures shall be repeated. The area shall be re-cleaned and re-tested at no additional cost to Owner until satisfactory levels are obtained.

#### 6 CONTINGENCY PLAN

If unanticipated higher PCB concentrations or wider distribution of PCB impacted materials are found, or other obstacles force changes in the clean-up approach, remediation contingencies will be developed in and included in the remediation Plan.

#### 7 QUALITY CONTROL

A quality control (QC) assessment of all samples will be completed. This assessment will include a complete check of field documentation including sample collection and preservation methods, a completeness check of the laboratory data and documentation, a review of the internal laboratory QA/QC procedure and results including surrogate recoveries, MS/MSD results, blank results, and laboratory control standard results, and an evaluation of sample holding times, and field duplicate results, as necessary.

#### 8 WASTE MANAGEMENT AND DISPOSAL

Waste management and disposal incudes on-site handling, accumulation, containerizing, and labelling, and off-site transporting (including providing and preparing manifest, bills of lading, etc.) and disposing of PCB waste streams. The PCB waste streams will be transported by a licensed waste hauler to a permitted hazardous waste disposal facility.

Secured, lined, and covered waste containers (roll-off containers or equivalent) or 55-gallon DOT-approved containers will be staged for the collection of PCB wastes generated during the work activities in accordance with applicable requirements in 40 CFR 761.65 and 40 CFR 761, Subpart K. All containers will be properly labelled and marked in accordance with 40 CFR 761.40 and 22 CCR 66262.34.

The Remediation Contractor will be required to develop and submit for review a Waste Sampling and Management Plan to the Owner and the Project Environmental Consultant for review and approval prior to commencement of the project. At a minimum, this plan shall include: name, location and contact information for the Disposal Facility, Certification by the Disposal Facility that the PCB waste will be accepted, approved hazardous waste transporter information, a plan for disposal of PCB waste streams, a description of the sampling procedures and sample frequencies, etc. for acceptance by the Disposal Facility.

Upon completion of waste profiling and acceptance at the respective facilities, PCB waste will be loaded in to transportation vehicles for shipment to the disposal facility.

PCB Bulk Product Waste and adjacent porous materials will be segregated for disposal and transported under a manifest to a disposal facility in accordance with 40 CFR 761.62 and 22 CCR 66262.23.

PCB Remediation Waste (PPE, polyethylene sheeting) will be segregated for disposal and transported under a hazardous waste manifest to a hazardous waste landfill in accordance with 40 CFR 761.61 and 22 CCR 66262.23.

Water generated during decontamination activities (or as part of dust suppression) that is collected on polyethylene sheeting will be containerized onsite, sampled for PCBs other potential constituents, and designated for off-site disposal in accordance with 40 CFR 761.79 and/or California hazardous waste regulations, as applicable. Polyethylene sheering, PPE, and non-liquid cleaning materials will be managed and disposed of offsite in accordance with 40 CFR 761.61 (a)(5)(v).

Note-Waste generated as a result of the renovation work as described herein may also be considered a mixed hazardous waste due to regulated concentrations of asbestos and lead being present.

#### 9 RECORDKEEPING AND DOCUMENTATION

Following completion of the work activities, applicable records and documents will be generated and maintained at one location. A post-remediation report will be prepared which will contain a detailed description of the remediation activities, post clean up samples, appropriate figures and drawings, and analytical date tables presenting results and post-clean-up samples. In addition, the report will include volumes and disposed materials, and all waste disposal records. The post-remediation report will be prepared to provide a full accounting of all activities preformed and documentation necessary to support the conclusion that the remedial activities met the objective of the project.

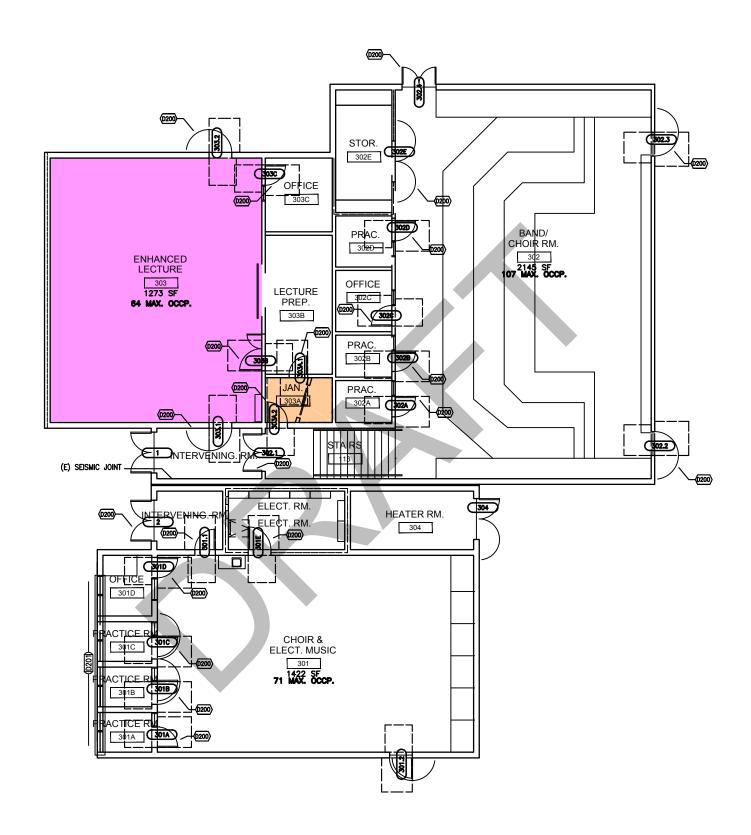
#### 10 CERTIFICATION

As required by 40 CFR 761.61 (a)(3)(i), a written certification is provided as an attachment to this workplan. This certification is signed by both the owner of the property where the clean-up site is located, and the party conducting the clean-up, and states that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the clean-up site are on file at a location designated in the certificate, and are available for USEPA inspection.

PCB REMOVAL/REMEDIATION PROCEDURES

## Appendix A

PCB Component Location Maps



# PCB Impacted Area Map - Building F Malibu High School

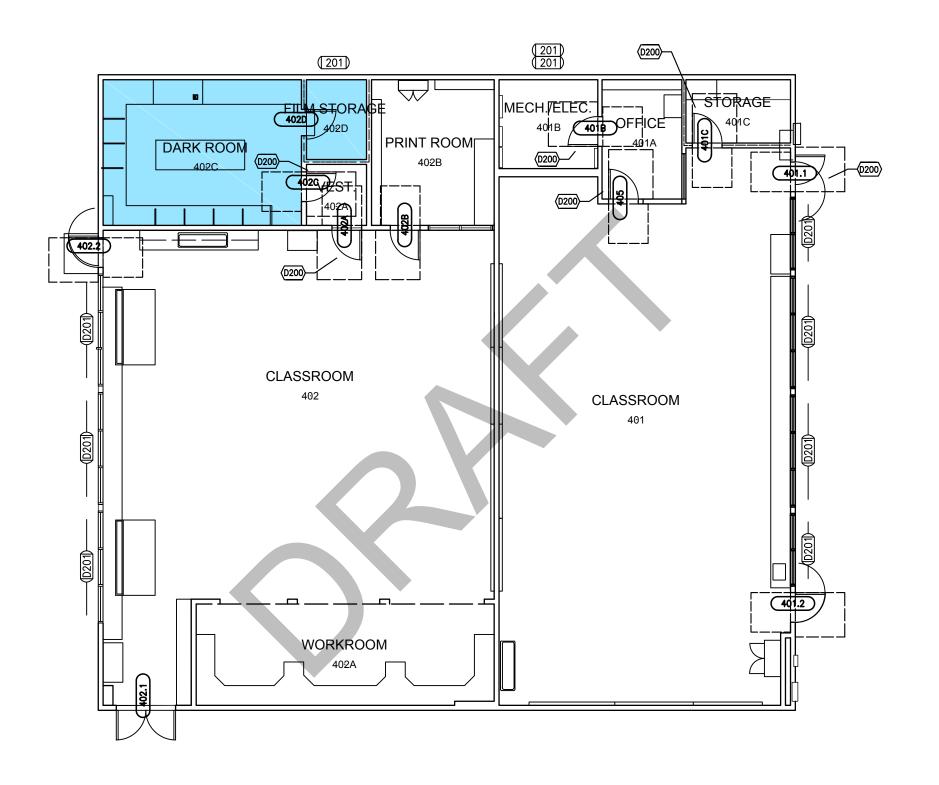
§ Black Mastic

II Residual Black Mastic & Yellow Glue

30215 Morning View Drive Malibu, California





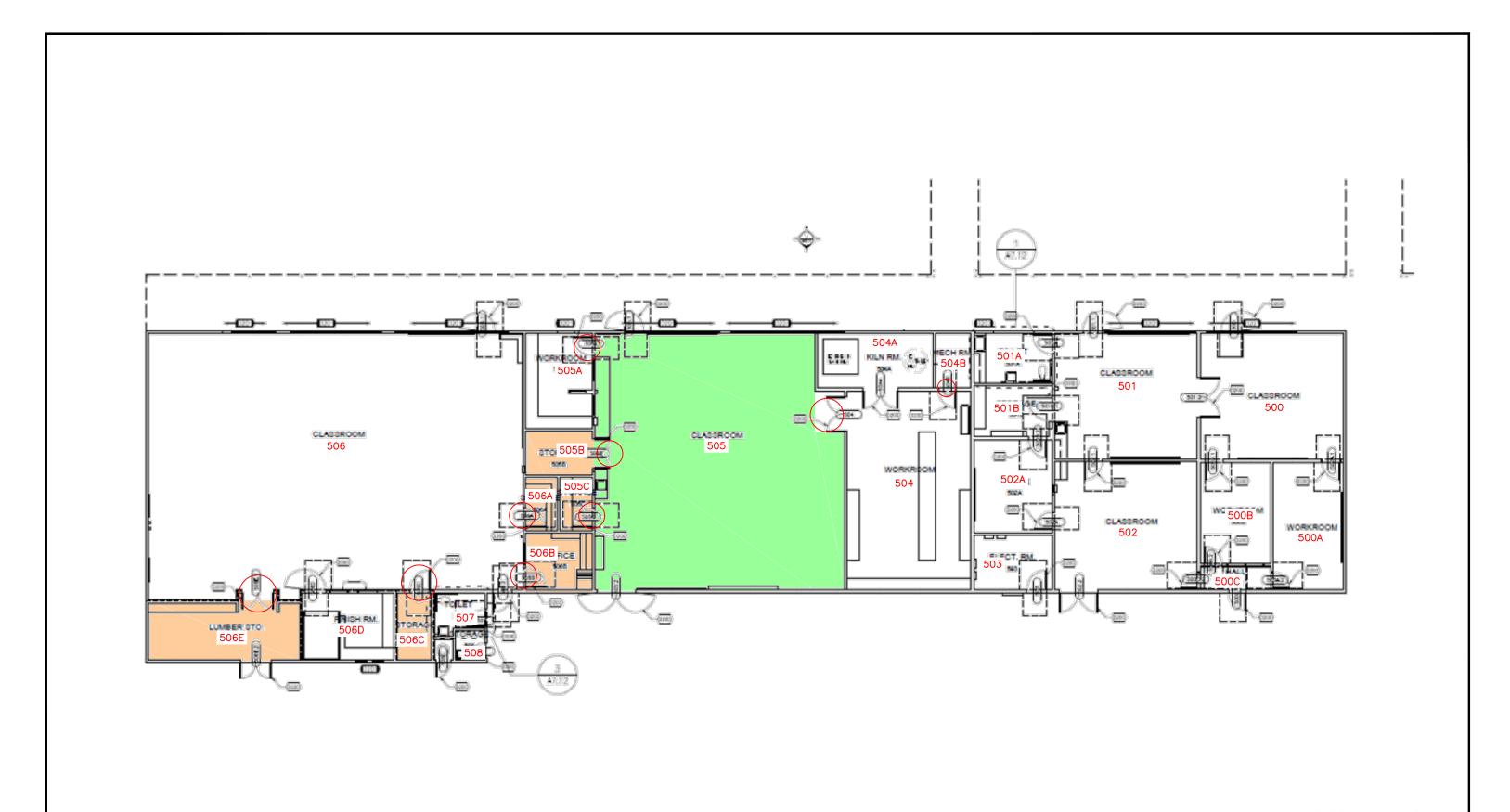


# PCB Impacted Area Map - Building I Malibu High School

Malibu High School 30215 Morning View Drive Malibu, California







### LEGEND

## PCB Impacted Area Map - Building G Malibu High School

PCB Impacted Black Mastic

PCB Impacted Lighter Colored Wood Varnish

O PCB Impacted Door Frames & 16" Wood Substrate

Malibu High School 30215 Morning View Drive Malibu, California



