

Los Angeles ARTCC (ZLA)  
Palmdale, California

Control Wing Basement  
Renovation and  
Chillers/Cooling Tower  
Replacement (Major  
Mechanical) Project

Final Design Submittal  
Hazardous Materials Abatement  
and Demolition Work Plan

15 June, 2016



**HAZARDOUS MATERIALS  
ABATEMENT AND DEMOLITION  
WORK PLAN**

**For:**

**FEDERAL AVIATION ADMINISTRATION**

**Los Angeles ARTCC (ZLA)  
Palmdale, CA**

**Control Wing Basement Renovation  
and  
Major Mechanical Sustainment  
Final Design Package**

**June 15, 2016**

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## **SECTION A**

# **Hazardous Materials Abatement and Demolition Work Plan and Sequencing**

## **Hazardous Materials Abatement and Demolition Work Plan and Sequencing**

The Los Angeles Air Route Traffic Control Center (ARTCC) located in Palmdale, CA was originally constructed in 1959-1960 and is a 4 level structure subdivided into three wings: Administrative, Automation, and Control. Each wing has a basement, first floor, second floor and attic. This building is occupied by the Federal Aviation Administration. The objective of this work plan is to identify the procedures and sequencing required to perform asbestos, lead paint, and lead containing coating abatement and demolition in the Control Wing basement. The project involves coordination between asbestos abatement, lead paint, and lead containing coating abatement.

### **Control Wing Basement**

The sequence of operations to remove asbestos containing materials and lead paint in the Control Wing basement are described below. Prior to beginning new steps and on a daily basis, the work will be coordinated with the FAA to allow scheduling of FAA personnel and FAA third party monitoring contractor. The sequences of work activities are as follows:

#### **Step 1 - B120 Electronic Equipment Room**

Step 1a – Work Area Preparation

Step 1b - Temporary Utilities

Step 1c – Install Critical Barriers

Step 1d – Install Glove Bags

Step 1e– Abate Materials

Step 1f – Clean Containment

Step 1g – Visual and Air Clearance

#### **Step 2 – B119 Host Mechanical Room & B119A Maintenance Room**

Step 2a – Work Area Preparation

Step 2b - Temporary Utilities

Step 2c – Install Critical Barriers

Step 2d - Abate Materials

Step 2e – Clean Abatement Area

Step 2f – Visual Clearance

#### **Step 3 – B101 Office Suite**

Step 3a -Work Area Preparation

Step 3b –Temporary Utilities

Step 3c - I install Critical Barriers

Step 3d - Abate Materials

Step 3e – Clean Abatement Area

Step 3f – Visual Clearance

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Step 4 – Fire Door Removal

Step 5 – B116, Boiler Room, Boiler Stack Removal

Step 6– LCC and Lead Paint Management

Step 7 – Silica Dust Exposure Management

Step 8– Containment Teardown

Step 9 – Florescent Lamps and PCB Ballasts

Step 10 – Mercury Containing Devices

Step 11 - Demobilize

## **Control Wing Basement**

### **Step 1 - B120 Electronic Equipment Room, Utility Chase 1 and 2, Entry way to Freight Elevator Lobby**

There are 10 mudded TSI fittings; some door caulking and approximately 50SF of asbestos remnant tread mastic in B120 Electronic Equipment Room. Hard packed elbows on AHU 160 is presumed to be asbestos containing material (PACM). Yellow paint on the walls of B120 Electronic Equipment and Utility Chase 1 and 2 contains approximately 0.7% lead. One mudded TSI fitting was noted in Utility Chase #1 will remain in place. Fire Doors are presumed to contain asbestos unless otherwise labeled.

#### **Step 1a – Work Area Preparation**

FAA will remove their equipment and supplies from the B120 Electronic Equipment Room.

#### **Step 1b: Temporary Utilities**

FAA will not shutdown existing systems in B120 Electronic Equipment Room. Hot water, chilled water, steam and condensate lines will remain operational.

#### **Electrical**

FAA will de-energize and lockout electric power to B120 Electronic Equipment Room and above noted interior rooms. FAA shall identify electric power sources for the project. The contractor will provide GFCI temporary electric power panels of sufficient capacity and quantity for equipment use during the work tasks. The contractor will not place temporary panels inside asbestos or lead containing coatings abatement enclosures. Electrical power for the work tasks will be supplied by the temporary power panels only.

#### **Fire Detection, Suppression, Warning Systems**

The automatic sprinkler system will remain functional. The abatement contractor will not disturb the fire detection, suppression and warning systems remaining in place.

#### **HVAC and Mechanical Piping**

Hot water, chilled water, steam and condensate lines will remain operational.

#### **Temporary Lighting**

Temporary lighting shall be provided by the contractor for abatement and demolition activities. Insulated stringer lights, if used, shall be equipped with UL listed safety cages. U.L. listed portable lighting (light stands) may be utilized during the work shift and shall be de-energized at the conclusion of each shift.

#### **Water Connection and Sanitary Sewer Connection**

The water source and wastewater discharge are located through adjacent corridors B135, Men's Toilet Area and B136, Women's Toilet Area. At the end of the work shift, water hose will be disconnected from the supply and hose capped at the supply.



Step 1c – Install Critical Barriers

Install critical barriers as required in B120 Electronic Equipment Room from concrete ceiling. Place 6 mil thick polyethylene sheeting on the floor along where paint removal will take place and under glove bag tasks.

Step 1d – Install Glove Bags

Asbestos containing material includes mudded TSI pipe fittings, hard packed elbows on AHU 160, remnant tread mastic, Fire doors and door caulking. The yellow wall paint contains lead.

The contractor is to coordinate with the FAA Resident Engineer to determine whether glove bags or multiple small containments will be required to abate the asbestos containing materials.

A Waste Out unit or door way shall be constructed in the critical barriers. Double bag debris. Utilize a Z-flaps to separate the work area and waste out exit. The entrance to the Waste Out unit shall be lockable.

Step 1e - Abate Materials (ACM and Lead Based Paint)

Thoroughly wet pipe fittings, HVAC elbows, and tread mastic prior to removal. Place the wetted material into labeled, clear disposal bags. Remove fire doors identified for disposal without damage to the doors that might expose the ACM cores, double wrap with polypropylene and label as ACM for waste disposal.

From the waste out unit, double bag the waste, wet wipe the disposal bag and then pass the double bagged debris to the clean area. Debris is to be placed into a cart, covered with polyethylene and rolled to an adjacent freight elevator and to the loading dock. Store the waste onsite in a truck, van or roll off. Storage unit shall be lined with one layer of polyethylene and lockable.

Yellow lead based paint is to be removed on the North wall to a height of approximately 10 ft and should include Utility chases and the entry way to the freight elevator lobby.

Abatement shall include wet scraping or wet planning of loose paint; dry scraping and sanding is prohibited. Dust suppression is critical. A flameless electric softener type heat gun, set at or below 700°F may be use to accelerate paint removal. If necessary, use a Peel Away® or similar product to remove residual paint. Both heat and chemical methods can produce fugitive emissions that must be controlled with local exhaust ventilation. A High Efficiency Particulate Air (HEPA) vacuum should be used to collect the paint/coating shavings with low impact tools at the point of operation if these are used. For example; a shrouded needle gun with HEPA filter local exhaust system may be use to spot remove accumulated paint layers on masonry or metal surfaces. Paint debris should be dampened and double bagged or shoveled into lined disposal drums and held for future waste testing (TCLP) prior to disposal. Wet wipe the disposal bag or containers and place debris into a cart, covered with polyethylene and roll to the closest available exit or adjacent freight elevator and to the loading dock.

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All paint debris is to be characterized by TCLP. The lead debris will be stored in drums while characterization occurs. When the laboratory data indicates the debris leaches less than 5 ppm lead, the waste will be disposed as construction debris. If the lead leachate concentration exceeds 5 ppm, the debris will be properly disposed as a lead containing waste.

Place asbestos sign on ACM waste storage container. Expect the freight elevator and loading dock access during the second or third shift, as directed by the FAA. Complete the waste manifest and transmit the manifest to the FAA for generator signature.

The waste storage containers will be located in the lay down area, not adjacent to the building. Move the debris from the facility daily. Expect freight elevator and loading dock access during the second or third shift, as directed by the FAA.

Step 1f– Clean Containment

After the asbestos containing materials and lead paints are removed, wet wipe and HEPA vacuum clean the containments or critical barrier walls. The contractor will visually inspect the work area to verify the asbestos containing materials and lead paint have been removed.

Step 1g – Visual and Air Clearance

After FAA visual clearance, encapsulant will be applied to the containment floor, walls, ceiling. Clearance air sampling will be performed by the FAA. After air clearance, remove containment, decontamination unit and waste out unit.

Step 2 – B119 Host Mechanical Room & B119A Maintenance Room

Asbestos containing floor tile was identified at the entry way of B119 and B119A. A low concentration of lead was identified in the blue paint on the floor in B119A.

Step 2a – Work Area Preparation

FAA will remove their equipment and supplies from B119 and the entry area of B119A.

Step 2b: Temporary Utilities

Coordinate with the FAA to establish temporary utilities within the work area.

Demolition

All Floor tile at the entry ways of B119 and B119A is to be abated.

Electrical

The FAA shall identify electric power sources for the project. The contractor will provide GFCI temporary electric power panels of sufficient capacity and quantity for equipment use during the work tasks. Electrical power for the work tasks will be supplied by the temporary power panels only.

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Fire Detection, Suppression, Warning Systems

Automatic sprinkler system in B119 will remain functional. The abatement contractor will protect the fire detection, suppression and warning systems remaining in place.

HVAC and Mechanical Piping

FAA personnel will shut down or redirect the HVAC system or any mechanical air movement system.

Temporary Lighting

Temporary lighting shall be provided by the contractor for abatement and demolition activities. Insulated stringer lights, if used, shall be equipped with UL listed safety cages. UL listed portable lighting (light stands) may be utilized during the work shift and shall be de-energized at the conclusion of each shift.

Water Connection and Sanitary Sewer Connection

The water source and wastewater discharge are located in the boiler room B116. At the end of the work shift, water hose will be disconnected from the supply and hose capped at the supply.

Step 2c – Install Critical Barriers

Isolate the HVAC system, stair access door, pipe chases, and other floor penetrations. Place 6 mil thick polyethylene sheeting on raised floors and seal openings between B119 and adjacent corridors and Motor Control Centers with polyethylene and tape.

Step 2d - Abate Materials (ACM Floor Tile and Lead Paint)

Remove asbestos containing floor tile identified and place the wetted material into labeled, clear disposal bags. Remove lead based floor paint and hold debris for further testing as noted in Step 1e (above).

Step 2e – Clean Abatement Area

After impacted materials are removed, wet wipe and HEPA vacuum the critical barriers. The contractor will visually inspect the room to verify area is clean. Equipment shall be cleaned using HEPA vacuums and damp wiping techniques. Cover and protect cleaned equipment with 6-mil polyethylene sheeting.

Step 2f – Visual Clearance

After FAA visual clearance, encapsulant will be applied to the barrier floors, walls, ceiling. Once area is deemed clear, remove barriers.

Step 3 – B101 Office Suite

Asbestos containing floor tile, floor tile mastic and carpet mastic has been identified throughout the B101 office suite area. In addition, a low concentration of lead was noted in the west wall, off white skim coating in B101A. Black waterproofing material, which is presumed to contain asbestos, was found, partially abated, on previous exterior walls on the East and South side of the

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B101 office suite behind plaster walls. Specific ACM and lead containing materials concentrations, and locations have been identified in specification section 02 82 00.

#### Step 3a – Work Area Preparation

The work area impacted by the renovation is to be identified prior to abatement. The entire suite area has been identified for demolition.

#### Step 3b - Temporary Utilities

See Step 1b (above).

#### Step 3c – Install Critical Barriers

Using 6 mil thick polyethylene sheeting, install critical barriers isolating access doors.

#### Step 3d- 3f - Abate, Clean, Clearance

Repeat Steps 2d through 2f (above).

#### Step 4 – Fire Door Removal

Fire doors identified for removal should be considered as asbestos containing material (ACM) unless otherwise indicated. Remove fire doors without damage to the doors that might expose the asbestos cores, double wrap with polypropylene and label as ACM for waste disposal.

#### Step 5 – B116 -Boiler Stack Removal

In B116, Boiler Room, two boiler stacks will be removed along with boiler replacements. Boiler stacks are approximately 20 -22 inches in diameter and 35ft in height. The stacks are bolted together at approximately 3-4foot intervals. The stacks are presumed to contain asbestos which may be exposed during dismantling. Both stacks extend from a red and off white platform in the Boiler Room and extend up through the Boiler Room roof. The platform paint is presumed to be lead.

Upon demolition, stack sections should be removed with as little damage as possible to prevent release of potential asbestos fibers. Double wrap sections with polypropylene and label as ACM for waste disposal.

When dismantling painted sections of the platform and stack coverings, refer to Step 6 (below) for guidance on LCC and Lead Paint Management.

#### Step 6- LCC and Lead Paint Management

Lead containing paints and coatings has been identified on window and door frames of B117, internal hand rails (Stair #3), wall and ceilings paint in B115, Chiller Room, and on the Chiller Unit platform paint at the FAA Center. Painted surfaces on the boiler stack platform in B116, Boiler Room, are presumed to be leaded as well. To control potential exposure to lead, engineering controls are to be incorporated into the construction processes. Specific lead containing materials concentrations have been identified in specification section 02 82 00.

When holes are drilled through a paint/coating with a lead component, there are four engineering controls may be employed. Each contractor is to incorporate a task specific control for their tasks.

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1. Shaving cream has been applied to paint or coating, the shaving cream collects the paint or coating residue. The shaving cream and generated dust is placed in a bag for disposal.
2. Grease/heavy lubricant has been applied to paint or coating, the grease/heavy lubricant collects the paint or coating residue. The grease/heavy lubricant and generated dust is placed in a bag for disposal.
3. A High Efficiency Particulate Air (HEPA) vacuum has been used to collect the paint/coating cuttings at the point of operation.  
Chemical stripping the paint/coating with Peel Away® or equivalent has been used to prepare the surface prior to drilling or cutting.
4. For each of the engineering controls, 6-mil polyethylene sheeting is placed on the floor or ground under the work to protect the surface from potential contamination.

When abating lead paint from office walls, floors, or ceilings refer to protocol in item 1e (above).

After the Abatement Contractor identifies the engineering control for their LCC and lead paint tasks, personal breathing zone monitoring is performed to characterize the task. Area monitoring is usually performed by the FAA Third Party Monitoring Contractor. This should be considered where a large portion of wall, ceiling, or platform paint is abated. The sampling plan includes sampling train calibration, collection of breathing zone samples onto a 0.8 micrometer pore size mixed cellulose membrane filter with the sampling train operating at 1 to 4 lpm for the duration of the task. The sampling train is calibrated again at the end of the sampling. A chain of custody form is completed, and media is sent to an American Industrial Hygiene Association (AIHA) accredited laboratory participating in the Environmental Lead Laboratory Accreditation Program (ELLAP). Sample results are communicated to the Abatement Contractor employees participating in the sampling strategy and the FAA.

All LCC and paint debris is to be characterized by TCLP. The lead debris will be stored in drums while characterization occurs. When the laboratory data indicates the debris leaches less than 5 ppm lead, the waste will be disposed as construction debris. If the lead leachate concentration exceeds 5 ppm, the debris will be properly disposed as a lead containing waste.

#### Step 7 – Silica Dust Exposure Management

All concrete, masonry, stucco, ceramic, or stone material that will be cut, drilled or demolished will create dust that contains respirable crystalline silica. This will include concrete walls, floors, steps, equipment pads, and ceilings in the Control Wing Basement and Administrative Wing, and equipment pad and walkways identified for demolition in the Cooling Tower Yard. Any demolition activities should be performed wet, when possible, with a localized water misting system, or with the use of local exhaust ventilation (LEV). Ventilation can be achieved with either a portable local exhaust unit or with tools fitted with a vacuum dust collection (VDC) system. The use of fans for circulation of general room air should be avoided as well as the use of compressed air to clean clothing, tools, or work material. Appropriate eye and respiratory protection should also be considered to prevent exposure. All dust should be strictly controlled in accordance with current applicable California State and Federal OSHA regulations.

#### Step 8 – Containment Teardown

Seal any air filtration devices used and disconnect. Remove and waste units and containments. Dispose the critical barrier and containment polyethylene and tape as contaminated materials.

Step 9 - Fluorescent Lamps and Polychlorinated Biphenyl (PCB) Ballast Removal

**The FAA reports that there are currently no fluorescent lamps containing PCB ballasts however, in the event that ballasts are identified as not PCB- free and for liquid ballasts without non-PCB labels treat as PCB containing ballasts and follow the procedures described below:**

Disconnect power to the fluorescent lamps and ballasts. Verify by electrical testing power has been disconnected and locked out. The FAA Resident Engineer (RE) will coordinate the electrical lock out.

Inspect the fluorescent lamps and ballasts identified on the architectural and electrical demolition drawing to be removed. PPE will include disposable coverall, cut resistant hand protection, head and eye protection. Remove and place the fluorescent lamps in cardboard boxes to be recycled by the Abatement Contactor. There are metals in the lamps, avoid breakage. If lamp breakage occurs, place all debris in the corrugated cardboard box for transport to the fluorescent lamp recycler.

Liquid ballasts without non-PCB labels are to be treated as PCB containing ballasts. Remove ballasts that are not wet or have not previously leaked, place the ballasts into 6-mil polyethylene lined 18-gauge open top drums for transport. Affix a caution label to each drum identifying the ballasts as PCB contaminated material.

Place 6-mil polyethylene sheeting on the floor under the areas where ballasts that are wet or have leakage have been identified. Place the ballasts into 6-mil polyethylene lined 18-gauge top opening drums for transport. Wet wipe the PCB liquid from the fixture with a soap solution. Affix a caution label to each drum identifying the ballasts as PCB contaminated material.

The Abatement Contractor will use a licensed shipper to transport the ballasts, a licensed recycler or disposal company and obtain a certificate of recycling or disposal. The Abatement Contractor will submit, for approval by the FAA, the name, location, and EPA identification number of the waste facility to be utilized.

Step 10 – Mercury Containing Devices

Mercury containing switches, fluorescent tubes, and other mercury containing devices identified on the architectural and electrical demolition drawing to be removed are to be properly recycled as mercury containing material. Mercury is not to be disposed in a construction/demolition landfill.

Employees handling intact switches, fluorescent tubes and devices will don head, hand, eye and foot protection.

A waste profile is to be assembled by the abatement contractor. The profile will be submitted to the recycling facility for Mercury containing materials. The recycled materials are to be placed in metal drums, characterized, properly labeled and recycled. The waste profile and manifest will be transmitted to FAA for record.

Step 11 - Demobilize

The abatement contractor will verify the containments and debris have been properly removed, and the abatement equipment and supplies have been removed from the FAA facility.