

Oakland ARTCC (ZOA)  
Fremont, California

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

Final Design Submittal  
Hazardous Materials Abatement  
and Demolition Work Plan

July 8, 2015



**HAZARDOUS MATERIALS  
ABATEMENT AND DEMOLITION  
WORK PLAN**

**For:**

**FEDERAL AVIATION ADMINISTRATION**

**Oakland ARTCC (ZOA)  
Fremont, CA**

**Control Wing Basement Renovation  
and  
Chillers/Cooling Tower Replacement  
Final Design Submittal  
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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 Oakland Air Route Traffic Control Center (ARTCC) located in Fremont, 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, and Chillers/Cooling Towers. The project involves coordination between asbestos abatement, lead paint, and lead containing coating abatement.

In addition, any work involving jackhammering, cutting, sanding, sawing, grinding, drilling, and/or general demolition of concrete or masonry material will generate dust that may contain silica which is harmful when inhaled. These types of 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.

### **Control Wing Basement, Chiller/Cooling Tower Replacement**

The sequence of operations to remove asbestos containing materials in the Control Wing basement is described in detail. 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 and B134 Control Wing Basement**

- Step 1a – Work Area Preparation
- Step 1b - Temporary Utilities
- Step 1c – Install Critical Barriers
- Step 1d – Construct Containment
- Step 1e– Establish Negative Pressure
- Step 1f - Abate Materials
- Step 1g – Clean Containment
- Step 1h – Visual and Air Clearance

#### **Step 2 – LCC and Lead Paint Management**

#### **Step 3– Containment Teardown**

#### **Step 4 – Mercury Containing Devices**

#### **Step 5- Demobilize**

## **Control Wing Basement**

### **Step 1 - B120 and 134 Host Computer Room.**

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

FAA will remove their equipment and supplies from the B120 and 134 Host Computer Room

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

FAA will not shutdown existing systems in B120 or 134. Hot water, chilled water, steam and condensate lines will remain operational.

#### **Electrical**

FAA will de-energize and lockout electric power to B120 and 134.. 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; if such systems have to be disturbed to implement the work, the Contractor is to provide alternate fire protection methods to the FAA for approval including methods such as fire watch, additional fire extinguishers, etc., and will implement the same after FAA approval.

#### **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 in corridor B108, janitor storage. 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 concrete ceiling.

#### Step 1d – Construct Containment

Asbestos containing material includes pipe hangers, mudded TSI and fiberglass mud fittings, block insulation on straight run pipe, tar pipe wrap on valves and asbestos patches on piping systems in B120 North and South Asbestos straight run pipe insulation and mudded fittings were identified in Utility Chase #1 as well as baseboard mastic where baseboards are present in Utility Chase #3. All Fire Doors are presumed to contain asbestos. No asbestos tiles or mastic was identified as remaining in B120.

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

A Personnel Decontamination Unit shall be constructed and consist of an equipment room, airlock, shower, airlock and clean room. Z-flaps separate each chamber. Size the decontamination facility to support the anticipated quantity of personnel passing through it. Entrance to Personnel Decontamination Unit shall be lockable but shall not restrict air flow into the containment.

A Waste Out unit shall be constructed and consist of an equipment room, an air lock, a wash room, an air lock and clean room. Double bagged the debris. Z-flaps separate each air lock chamber. Entrance to the Waste Out unit shall be lockable.

Durable water hose, or better grade, shall be used to provide water to the shower units and a separate hose shall discharge water to a sanitary drain. Prior to discharging the water, it will be filtered down to 5 microns. A backflow valve shall be installed at the water supply to prevent backflow contamination. Water and drain is located in corridor B109 in the janitor storage.

#### Step 1e – Establish Negative Pressure

The containment will require air filtration device (AFD) units to adequately achieve the required negative pressure. The AFDs shall exhaust outside the building and be located remote from the decontamination units.. A supplemental exhaust unit or fan, located inside the building, may be needed to overcome the static pressure loss.

Establish project negative pressure and install manometer. Stabilize work area pressure differential to a negative 0.02 - 0.10 inches of water column. Expect to maintain negative pressure before abatement may begin. Following acceptance of the negative pressure by the FAA, proceed with abatement.

#### Step 1f - Abate Materials

Wet pipe insulation and wrappings, remove and place the wetted material into labeled, clear disposal bags. From the waste out equipment room, hand the bags into the wash room, double bag the waste, wet wipe the disposal bag and then pass the double bagged debris to the clean room. 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 on site in a truck, van or roll off. Storage unit shall be lined with one layer of polyethylene and lockable.



Place asbestos sign on 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 container 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 1g- Clean Containment

After the asbestos containing materials are removed, wet wipe and HEPA vacuum clean the containment. The contractor will visually inspect the containment to verify the asbestos containing materials have been removed.

#### Step 1h – 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- LCC and Lead Paint Management

Lead containing paints and coatings has been identified on walls, columns, duct work, door frames, and Air Handling Unit ( AHU 160) at the FAA Center. Lead paint has specifically been identified in B120 (yellow wasll paint) and B119. 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.

1. Shaving cream has been applied to a 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 a 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.  
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.
3. 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.

After the Asbestos 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. 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 3 – Containment Teardown

Seal air filtration devices. Disconnect AFDs. Disassemble decontamination facility. Filter any wastewater accumulations in the shower facilities. Remove waste and personnel decontamination units and containments. Dispose the containment and decontamination polyethylene and tape as contaminated materials.

#### Step 4 - 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 Contractor. 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 5 – Mercury Containing Devices

Mercury containing switches, fluorescent tubes and 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 6 - 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.

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### **Selective Demo Procedures for Specific Materials**

Any work involving the jackhammering, cutting, sanding, sawing, grinding, drilling or general demolition of concrete material or masonry will generate dust containing silica which is harmful when inhaled. These types of 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.