

**ASBESTOS MANAGEMENT PLAN
FOR
EISENHOWER JOHNSON MEMORIAL TUNNEL
EAST AND WEST PORTAL VENTILATION BUILDINGS**

1. INTRODUCTION:

The Colorado Department of Transportation (CDOT) Asbestos Management Program under the Office of the Chief Engineer, Property Management Section, has been developed to comply with the requirements of the Occupational Safety and Health Administration (OSHA) Asbestos Standards for General Industry (29 CFR 1910.1001) and Construction (29 CFR 1926.1101). The Environmental Protection Agency (EPA), Asbestos NESHAP 40 CFR (Part 61) and AHERA 40 CFR (Part 763, Subpart E), and the Colorado Department of Public Health and Environment (CDPHE) Regulation No. 8 (Part B-Asbestos).

CDOT is committed to the health and safety of the EJMT employees and contractors. The presence of asbestos-containing material (ACM) in some places within the East and West Portal Ventilation Buildings has been established through survey and inspection procedures. The objectives of this asbestos management plan include, but are not limited to, the inspection and identification of asbestos-containing materials (ACM), hazard communication, training, maintenance and repair or removal of ACM in EJMT Portal buildings. This plan is intended protect employees and contractors/subcontractors from potential health hazards associated with asbestos, and to ensure ACM will be handled in compliance with all applicable federal, state and local regulations. Although the plan may be appropriate and sufficient for managing asbestos in place and assuring compliance with construction and exposure regulations, in some cases the Plan is not enough and abatement will be necessary.

The Eisenhower Johnson Memorial Tunnel (EJMT) is located approximately 60 miles west of Denver on Interstate 70, just west of Mile Marker 216 in Clear Creek County (East Portal) and

Mile Marker 218 in Summit County (West Portal), Colorado. The tunnels are approximately 1.7 miles long and the ventilation portal buildings are located at the east and west entrances to the tunnels.

The ventilation buildings both are approximately 190 feet long, 250 feet wide and 60 feet tall; they are divided into two oversized stories. The east and west ventilation buildings are very similar in the design and layout, except that the east ventilation building includes a center basement, where the wastewater treatment plant for the tunnel complex is located. The ventilation building facilities include a control room (in the east building), offices, fan decks, utility rooms, storage areas, conference rooms, and restrooms. None of these are public access areas.

2. PURPOSE:

The primary objective of this Management plan is to control Eisenhower Johnson Memorial Tunnel (EJMT) Portal building employee and visitor exposure to asbestos fibers. In addition, the procedures in this plan attempt to minimize any potential hazard posed by ACM/presumed ACM (PACM) during cleaning, maintenance, and general operation activities.

This plan applies to employees, other building occupants, and contractors/subcontractors.

3. DEFINITIONS:

A. Asbestos. Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated or altered.

B. Asbestos Containing Material (ACM). Any material or product that contains more than 1% asbestos.

C. Category I Non-friable ACM. Material such as packing, gaskets, resilient floor covering, floor covering mastic, and asphalt roofing products containing more than 1% asbestos.

D. Category II Non-friable ACM. Any material containing more than 1% asbestos that is not category I non-friable ACM, and that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure. Category II ACM includes, but is not limited to, asbestos concrete, siding and shingles, transite panel boards, and asbestos cement pipe (asbestos cement pipe may not be limited to buildings).

E. Encapsulation. Application of a liquid material to asbestos-containing material 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).

F. Enclosure. An airtight, impermeable, permanent barrier around ACM to minimize the release of asbestos fibers into the air.

G. Friable ACM. Any material containing more than 1% asbestos that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure. The fireproofing material that is enclosed behind the ceiling panels in the EJMT Portal buildings is considered a friable material.

H. High-Efficiency Particulate Air (HEPA) Filter. A filter capable of trapping and retaining at least 99.97% of monodispersed particles of 0.3 micrometers or larger in diameter.

I. Maximum Allowable Asbestos Level (MAAL). If Polarized Contrast Microscopy (PCM) lab analysis is used the standard is 0.01 fibers per cubic centimeter of air (f/cc). PCM analysis does not identify asbestos specific fibers but all dust fibers of similar size. When Transmission Electron Microscopy (TEM) lab analysis is used the standard is 70 structures/millimeter squared. TEM does identify asbestos fibers specifically and is used when collecting air samples at EJMT.

J. Presumed Asbestos Containing Material (PACM). Thermal System Insulation (TSI) and surfacing material found in buildings constructed before 1981 and floor tile installed in buildings through 1981 may contain asbestos. Although it is unlikely, some flooring installed after 1981 may contain asbestos. Until sampling demonstrates that the material has 1% or less asbestos, we consider these materials PACM.

K. Regulated Asbestos Containing Material (RACM). RACM includes:

- (1) Friable asbestos material;
- (2) Category I non-friable ACM that has become friable, or has been subjected to sanding, grinding, cutting, or abrading; and
- (3) Category II non-friable ACM that has a high probability of becoming crumbled, pulverized, or reduced to powder during the course of demolition or renovation operations.

L. Transmission Electron Microscopy (TEM). An analytical technique used for the definitive identification of asbestos. This technique can be used for both air and bulk sample analyses.

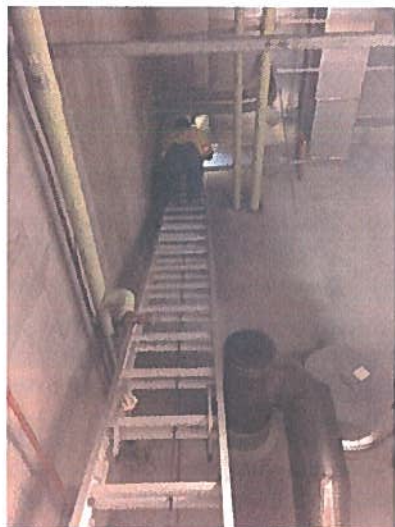
M. Vinyl Asbestos Floor Tile. When vinyl floor tile, and in some cases its mastic, contains more than 1% asbestos, it must be handled as ACM.

4. ASBESTOS LOCATIONS:

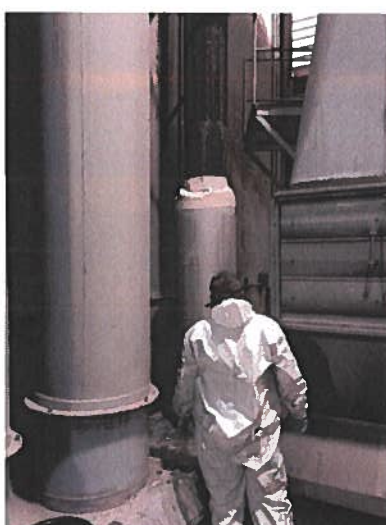
Actual survey results have confirmed the presence of ACM in the EJMT Portal buildings and locations listed in the asbestos inventory (see following ACM Components Summary Table). The asbestos in these materials does not constitute a health hazard if left undisturbed.

ACM Components Summary Table

Material Type	Location	Quantity	Condition/Accessibility	Control Method
1. White fibrous soft spray-on Fire Retardant	First floor ceilings (23' to 29' high) and second floor ceilings over the Control Room.	103,000 s.f.	Good/ Only accessible by ladder or man lift or in stairways open to main floor ceiling	Enclosure-behind foil laminated fiberglass board, labeled where easily accessible next to stairways to second level
2. HVAC Flex Connection	First floor air handlers in maintenance areas of east portal building.	100 s.f.	Good/not readily accessible	None, labeled
3. Generator Flue Insulation	Second level (west and east walls of fan deck 2 nd levels) of both east and west portal buildings respectively	50 s.f.	Good/not readily accessible	Enclosure-behind metal cover and encapsulated top, labeled
4. Fiberglass Insulation Sealant (white)	Older insulation on pipes throughout both portal buildings	400 s.f.	Good/not readily accessible	None, labeled
5. Hard Pack Pipe Insulation	Older insulation on elbows and pipe fittings, east portal building	50 l.f.	Good/not readily accessible	None, labeled



1. Aluminum foiled ceiling panels enclosing asbestos containing fireproofing material. O&M activity by abatement contractor taking place here to repair panel seams.
2. HVAC asbestos-containing vibration collar in NE portal building mechanical room.



3. Emergency generator flue insulation enclosed behind metal cover and subsequently sealed at the top.

5. Management Plan Personnel

The Asbestos Coordinator for EJMT is:

Phillip Kangas, CDOT Asbestos Program Manager, 2829 W. Howard Place, 4th Floor, Denver, CO, 303-325-6123. This individual shall be contacted for all concerns regarding ACM.

In addition to the Asbestos Coordinator, the following list outlines the administrative organization for this site:

Owner: Colorado Department of Transportation, 2829 W. Howard Place, Denver, CO

Property Manager: Jeff Tatkenhorst, Superintendent, 303-915-6228

Neal Retzer, Deputy Superintendent/Engineer, 720-497-6964

Maintenance Contact: Valerie Williams, LTC Ops I, 303-917-5090,

Marty Thompson, Str Trades III, 720-273-2278,

Aaron Fischer, Electronics Specialist IV, 303-519-0385

Jason Bonger, LTC Ops I, 303-419-2766

ACM Abatement Contractor Contacts: Custom Environmental Services, Henry Ramirez, 303-472-3793

Hudspeth, Primo Navarrete, 303-791-5562

OSHA Competent Person: Phil Kangas, 2829 W. Howard Place, Denver, CO 80204, 303-325-6123

Asbestos Inspection Consultant: CTL Thompson, Matt Wardlow, 303-825-0777; Foothills Environmental, Inc., Andre Gonzales, 303-808-2495

6. EMPLOYEE TRAINING:

All maintenance, custodial, and other employees who may disturb asbestos during their normal job duties must complete a minimum of 2 hours of asbestos awareness training BEFORE they begin duties where there is a potential for contact. This training is taken annually.

Awareness training should include such topics as:

- Background information on asbestos,
- Health effects of asbestos,
- Worker protection programs,
- Locations of ACM and PACM at the facility,
- Recognition of ACM and PACM damage and deterioration,
- The O&M plan for the facility, and
- Proper response to fiber release episodes.

A number of online asbestos awareness training courses provide certificates of completion and meet the requirements of OSHA 29 CFR 1910.1001(j)(7)(iv). The CDPHE has awareness training for school personnel on their website at <https://environmentalrecords.colorado.gov/HPRMWebDrawer/RecordHtml/1090672>. This training although geared for school building provides good information on the history of asbestos usage, types of asbestos and health effects.

7. NOTIFICATION:

The CDOT Asbestos Coordinator must:

- Notify the following personnel of the presence, location, and physical condition of the ACM, and stress the need to avoid disturbing the material:
 - Building employees,
 - Contractors bidding work in the building, and
 - Contractors working in adjacent rooms.
- Distribute written notices, post signs or labels on ACM where employees can see them, and make the Management plan available to anyone who might work on or disturb the ACM. All warning signs and labels posted on areas containing asbestos must comply with OSHA regulations in 29 CFR 1910.1001(j) (3) and (4).
- Make sure contractors who may come in contact with ACM or PACM are aware of this material by having them review the Management plan and sign the attached Contractor Notification Form for Asbestos.

8. MONITORING ACM:

The ACM identified in the inventory summary table is subject to deterioration with age, the effects of building occupancy, and accidental damage. To monitor the condition of the ACM, the CDOT Asbestos Program Manager will inspect or have inspected the materials at regular intervals (at least two times per year), and immediately report any ACM damage or deterioration. EJMT employees should report damage to the Asbestos Program Manager when seen during regular work schedules.

The CDOT Asbestos Coordinator keeps a written record of these periodic inspections. The record must include:

- Date of inspection;
- Inspector;
- Locations inspected, such as floor level, room names, or numbers, etc.;
- Nature of ACM (pipe wrap, transite board, etc.) and friability;
- Whether adequate labeling is still intact;
- Changes of status since last inspection (e.g., new damage, water damage, etc.); and
- Any recommended action(s).

The most recent inspection/risk assessment should be used as the basis for this survey. You may use the attached Asbestos Inspection Form for this inspection.

Air Monitoring

The Asbestos Coordinator shall ensure that appropriate air monitoring is performed in accordance with regulatory requirements. The Asbestos Coordinator shall contract the services of an asbestos consulting firm to perform all air monitoring in accordance with applicable regulations and this O&M plan.

Following all O&M activities performed under this plan, clearance sampling must be performed. The final airborne fiber concentration(s) in an affected area shall be less than 0.010 f/cc when analyzed by phase contrast microscopy (PCM), or less than 70 structures per square millimeter (s/mm²) when analyzed by transmission electron microscopy (TEM).

Annual ambient air monitoring has occurred in both Portal Building work areas since 2013. To date there have been no or very minor amounts of asbestos structures detected in air samples collected and analyzed by TEM. Annual air samples are collected to document that the ceiling panels are providing adequate enclosure to the asbestos containing ceiling fireproofing material. Air monitoring reports are kept in electronic format by the Asbestos Coordinator and are available for review.

9. RECORDKEEPING:

The CDOT Asbestos Coordinator must ensure that the EJMT staff retains all facility asbestos management documents, including:

- Copies of CDPHE certified inspection and assessment reports (PDF copy on file with Asbestos Coordinator);
- Written Asbestos Management Plan;
- Semiannual ACM/PACM visual inspection records (see CDOT Form VIR);
- Awareness training records (see CDOT Form AATR); and
- Changes to location, condition, or quantity of the ACM/PACM.

10. JOB SITE CONTROLS FOR WORK INVOLVING ACM:

Whenever maintenance, custodial, or other employees perform work in areas where ACM or PACM is present, they must use appropriate work practices and protective measures to minimize the potential to disturb the ACM/PACM.

This includes:

- Use of wet methods (such as applying water to ACM with a low pressure sprayer);
- Avoidance of certain activities such as sawing, sanding, or drilling around ACM/PACM;

11. SAFE WORK PRACTICES:

It is important to minimize the disturbance of ACM and the subsequent release of asbestos fibers. You can accomplish this by staying out of physical contact with materials that contain, or are presumed to contain, asbestos.

All personnel at EJMT must observe the following work practices to avoid or minimize fiber release during activities that may affect ACM/PACM:

- **Do not** drill holes into material containing asbestos;
- **Do not** hang pictures, signs (except asbestos warning signs), clothing, plants, or any other articles from structures covered with materials containing asbestos;
- **Do not** remove ventilation system filters in a dry state; and
- **Do not** shake ventilation system filters.

12. WORKER PROTECTION:

Service or contract employees must not participate in asbestos abatement activities unless they are in full compliance with CDPHE certification and licensing standards and follow OSHA and EPA Worker Protection Rule requirements. In all instances, CDOT employees will NOT perform Management activities for removing, maintaining or cleaning up ACM.

Contractor Notification Form for Asbestos

Date: _____

Address: _____

Dear Contractor Representative:

This letter serves as notice that the Asbestos Management Plan has been updated. Any work that has the potential to disturb asbestos, must be performed by CDOT's designated abatement contractor.

Although the implementation of an Asbestos Management Plan is not a regulatory obligation, it is CDOT's policy to properly manage asbestos in their buildings. A general description of the locations or asbestos containing materials common in buildings is as follows:

ACM Fireproofing behind ceiling panels

ACM vibration collars

Note : Please review Asbestos Management Plan for all identified ACM

The return of one signed copy of this letter constitutes your receipt of the above referenced information, and certification of your compliance with OSHA /CDPHE Regulation No. 8 requirements.

The Asbestos Management Plan is available for your review. Please contact me if you have any questions.

Sincerely yours,

COOT Asbestos Coordinator/ Program Manager

RECEIPT ACKNOWLEDGED BY _____

SIGNATURE _____ DATE RETURNED _____

TITLE _____

COMPANY _____