

**SITE SPECIFIC
OPERATIONS & MAINTENANCE PLAN**

FOR

DUNSMUIR JOINT UNION HIGH SCHOOL DISTRICT

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OPERATIONS & MAINTENANCE PLAN

INTRODUCTION

BACKGROUND

Asbestos is a generic term for a group of naturally occurring minerals, which share fiber forming, flame resistant, and indestructible qualities. The word asbestos is derived from a Greek word meaning unquenchable or indestructible.

Throughout history most asbestos has been mined from within the earth. However, where erosion (wind, rain, flowing water) has occurred, it may be found on the earth's surface. Asbestos mines are not limited to any one location or region; they are located worldwide.

Historical evidence has shown that asbestos has many uses. Archaeologists have found that asbestos was present in sod homes in Finland; it was used as lamp wicking, in plaster statues, and in burial clothes for kings. In medieval times, asbestos cloth was used for insulating suits of armor. King Charlemagne even had robes made of asbestos and Pope Pius IV attempted to develop an "everlasting" asbestos paper to record the written word.

It was not until the start of the 20th century and the advent of the industrial age that the benefits of asbestos gained significant strides in commercial applications. It was then that asbestos was found to be useful for electrical, acoustical and thermal insulation and for products that resist fire, friction and chemicals. It is these qualities that made asbestos such a desirable material to incorporate into building products.

PRESENT DAY USES

The industrial revolution, the advancement of technology, the influence of WWI and WWII, and the population "boom" all contributed to a sharp increase in the construction and production industries in the U.S. The low cost and abundance of asbestos coupled with its indestructible and insulating properties, made asbestos an ideal material for our country's building and production needs.

New school construction and renovations to existing schools relied heavily on the use of asbestos containing products. Applications varied greatly. Asbestos may be found on ceilings, walls and floors, in plasters, pre-formed tile, coverings on boilers, furnaces, ductwork and piping, woven cloth for curtains, gloves and aprons, in chemistry laboratories, in electrical wiring and cementitious products.

The benefits of asbestos containing products have been widely recognized in the work place in the 20th century. The work place takes many forms, from public and private buildings and schools, to offices and industry. Each work place had its own special asbestos needs. To fulfill these needs, many asbestos containing products were developed. Plasters, fireproofing, gaskets, transite pipelines, storage tank insulation, transite panels for water cooling towers, filters for liquid and gases, and power generator insulation are just a few.

Asbestos containing materials may be found in many products and devices in the home including hair dryers, toasters, ovens, refrigerators, irons, ironing board covers, dishwashers, electric blankets, light fixtures, house wiring, paints, and caulks, roofing materials, and heating ventilation and air conditioning system insulation.

HEALTH CONCERNS

Asbestos materials have been widely used in the construction trade for many years because of properties that make them strong, durable, and provide good insulation. These products became widely used before the health effects were fully understood. Asbestos was not seen as a hazard because it has no taste, no odor, often cannot be seen and causes no immediate adverse health effects. Health problems develop over time. The latency period is the time from exposure to the development of disease, and can be as long as 20-40 years. Historical evidence indicated that asbestos was long suspected of causing illness, but this evidence was not conclusive.

The application of modern medical technology has produced clinical evidence to support these early suspicions. The increase in use of asbestos and occupational exposures resulted in a dramatic rise in asbestos related illnesses. Medical studies have shown that there is a direct relationship between asbestos disease and the amount and length of exposure.

Asbestos fibers can enter the body two ways: by inhalation (breathing) or ingestion (swallowing). Asbestos can also enter the body through dermal absorption. The body's defenses have the ability to trap and expel many of the particles in the air we breathe. As the level of airborne asbestos fibers increases, so does the chance that asbestos fibers will bypass these defenses. Asbestos fibers are indestructible once inside the body.

Once past the body's defenses, there are a number of illnesses that may develop due to this exposure. Diseases include *asbestosis, mesothelioma, lung cancer, and other cancers*. In order to be a health risk, asbestos fibers must be released from the material and be present in the air for people to breathe. The composition of the asbestos containing material will influence fiber release. When a material is easy to crush or crumble with your hand when it is dry, it is referred to as friable. The greater the friability, the greater the likelihood that fibers will be released.

Personal and family health history and lifestyle must be considered when evaluating the risk of the development of asbestos related illnesses. For example, asbestos exposure and cigarette smoking together have been shown to greatly increase the risk of lung cancer than each do separately.

When asbestos exposure is possible or unavoidable, respirators should be used, and may be required, depending on the level of airborne fibers. The chance of breathing asbestos fibers is greatly reduced (or eliminated) by using appropriate respiratory protection. Some respirators use special filters to trap fibers; others supply the user with clean air from tanks or from outside the work area. Some work situations may call for additional protective equipment, such as coveralls, gloves, goggles and foot coverings.

FIBER RELEASE

Asbestos containing products may be identified by content labels from the manufacturer, distributor or installer. If these labels are not available, laboratory analysis should be performed on samples of the material in question. Facilities governed by regulatory requirements, such as schools, must locate and identify asbestos containing materials. Once identified, a plan for managing the asbestos materials (the Management Plan) must be developed.

Asbestos fiber release may result from either day-to-day natural breakdown or accidental or intentional physical damage. Asbestos regulations established by the federal government provide guidelines that control responses to fiber release situations. This general awareness training is designed to inform school employees, building occupants, and others, of hazards associated with asbestos and steps to avoid exposure.

POTENTIAL EXPOSURE IN PUBLIC BUILDINGS

In buildings with friable and non-friable material (ACM), fibers can be released from these materials and enter the air in several ways. Disturbance of the materials by mechanical means such as cutting, sawing or drilling will release fibers locally. Air currents disperse the fibers and raise the airborne fiber content. Activities such as dry sweeping or other maintenance work can re-suspend fibers into the air.

To ensure that disturbance of ACM is avoided, unless such disturbance is necessary and planned, with special controls in place, *Dunsmuir Joint Union High School District* has implemented this O&M Plan, which will continue to provide an acceptable environment for all persons who will work in or visit the campus.

PROGRAM GOALS & CONTENTS

The goal of this Operations and Maintenance (O&M) Plan is to systematically control the asbestos containing materials present in Dunsmuir Joint Union High School District. This O&M Plan shall remain in effect until all asbestos containing materials have been removed.

This O&M Plan includes a written plan that serves two functions:

Occupant Protection:

The O&M Plan serves as a systematic, standard, and comprehensive approach to minimize exposure to the maintenance personnel and others who must work around the remaining materials on a routine basis.

Legal Document:

The O&M Plan serves as a legal document. As a written procedural manual, the plan documents the interest of Dunsmuir Joint Union High School District in protecting its employees, students and visitors and serves as a recordkeeping document.

Dunsmuir Joint Union High School District addresses the Operations & Maintenance Plan by utilizing the following:

- a. Written Emergency Procedures:
The written O&M Plan includes step-by-step procedures outlining the exact course of action recommended in the event of an accidental disturbance of asbestos containing materials.
- b. Warning and Notification System:
The O&M Plan includes instructions for placing warning labels at all locations of asbestos containing materials. The plan contains procedures for formally notifying employees of the status of an asbestos abatement project. These two functions create an integrated, well-planned publications program.
- c. Recordkeeping System:
A thorough recordkeeping system accurately documents the actions in the plan and the status of the program.
- d. In-House Materials Monitoring:
All asbestos materials should be routinely monitored and inspected for changes in material condition. Any changes in the use of the ACM area will also be noted with appropriate control measures utilized.
- e. Employee Training:
The O&M Program provides for awareness training of all employee groups who may come into contact with asbestos materials.
- f. Workers Notification
- g. Asbestos Control Procedures

CONCLUSIONS/ACTION ITEMS

If asbestos containing materials located at Dunsmuir Joint Union High School District are to be removed and/or disturbed by HVAC contractors, plumbers, electricians, etc., the action items below should be followed:

The Environmental Health and Occupational Safety Manager shall be notified of the impending work to ensure that:

- proper notification, and,
- proper procedures are utilized;

Air Monitoring by Dunsmuir Joint Union High School District Environmental Consultant is to be done before, during and after any asbestos abatement activities;

Employee disclosure meetings may need to be conducted. Dunsmuir Joint Union High School District Human Resources/Safety Department to be contacted;

If MJP's are to be removed, the glove bag technique will be utilized as well as the procedure identified in the Periodic and Employee Exposure Air Monitoring Results;

If the vinyl floor is to be disturbed, the procedure identified in the Periodic and Employee Exposure Air Monitoring Results will be followed;

The wallboard in some locations contains asbestos and has the potential to be disturbed. The procedure identified in the Periodic and Employee Exposure Air Monitoring Results will be utilized if it may be disturbed; and

An annual inspection of the vinyl asbestos tile (VAT), wallboard and MJP will be conducted by Dunsmuir Joint Union High School District or designee.

INSPECTION MONITORING THE ACM

The following inspections are carried out to insure that all outlined cleaning techniques are being employed and to monitor changing building conditions. Inspections ensure that all identified materials remain in good conditions and that potential for exposure is minimized.

A. ANNUAL INSPECTION

A thorough annual inspection will be conducted. Consideration will be given to having an independent environmental consulting firm conduct this inspection. This will allow for a review/inspection for conformity to the Operations and Maintenance Plan. (See attached Inspection Form.)

B. CHANGE IN STATUS COMPLETION FORM

The Manager of Environmental Health & Safety will insure that all "Change in Status" forms include a synopsis of the condition of any ACM that may have been encountered during the maintenance activity. This report will be included in the on-going O & M file.

C. MAINTENANCE/CUSTODIAL INSPECTION

Maintenance and Custodial personnel utilized by Dunsmuir Joint Union High School District will be apprised of any changes having occurred in regard to the building materials (e.g. vinyl tiles, thermal system insulation). Maintenance and Custodial personnel utilized for inspections shall be properly trained to conduct such inspections.

D. TRAINING AND QUALIFICATIONS

Any person engaged in the inspection of a facility for ACM shall have successfully completed an EPA-approved three-day Building Inspector course of study, provided by an EPA approved training school.

All personnel who are likely to encounter ACM's in the course of their normal duties shall be given formal asbestos awareness training. Such training should include, but not limited to, topics on the health effects of asbestos, the proper procedures when working around ACM, types of materials that typically can contain asbestos, etc.

Any person that is required to work with, or disturb, materials during their normal duties shall be properly trained and provided with appropriate respiratory protection to conduct such work. As minimum such training shall include:

- 1) Successful completion of a four-day EPA approved worker-training course for asbestos abatement workers. This course shall be approved by an EPA approved training school.
- 2) Enrollment in a program of medical surveillance.
- 3) Being properly fitted and instructed in the use and care of a respiratory protection device. The worker must be tested for the respirator upon initial use and thereafter every six months or when significant facial alterations occur such as dental surgery, jaw injuries or significant weight gain or loss.

E. INSPECTION PROCEDURES

Only properly trained personnel shall be utilized for conducting periodic inspection of the ACM's identified in the various buildings. These personnel shall be trained as specified above. The personnel should be familiar with and be able to recognize the materials that typically contain asbestos. They should also be able to determine when a material is considered damaged or significantly damaged.

The inspector(s) should have the proper forms required for the inspection as well as copies of any previous surveys conducted, identifying ACM's in the area to be inspected. During the course of the inspections, the inspector is required to visually inspect the area to determine if any other suspect materials are present that were not previously identified or sampled. If such materials are found a note should be made on the inspection form to sample such material prior to disturbance.

All suspect materials must be assessed by physically touching to determine the friability of the material. If a powder or dust from the material is observed on the fingers after touching the material, then the material is considered friable. It is important to note that a non-friable covering or coating may be present on the material that may give it the appearance of non-friability, but the suspect material may itself be friable. Such conditions must be noted on the inspection form. Also, settled dust should not be confused with dust from the material itself.

If sampling needs to be conducted prior to disturbance of the material, the following guidelines should be followed.

F. SAMPLE EXTRACTION PROCEDURES

Prior to conducting any renovation, remodeling or demolition, materials that were previously assumed to be or not previously sampled must be sampled and analyzed. Samples shall be extracted utilizing the following procedure and must be submitted to a state certified laboratory for analysis.

The team conducting the sampling shall obtain the necessary equipment for the process. This equipment shall include, but not be limited to: respirators, eyes protection, disposable suits, water spray bottle, wet wipes, a razor knife (similar to a "Stanley" knife), HEPA vacuum, properly labeled disposal bags, polyethylene sheeting, duct tape, sample containers, labels, Chain of Custody forms from laboratory, site/area drawings, marker pen for labeling sample locations and a writing pen for completing paperwork.

- 1) Unauthorized personnel shall be removed from the area and access shall be restricted to authorized personnel only.
- 2) Personnel who will be extracting the sample shall wear a suitable half-face respirator equipped with HEPA filters. Eye protection and disposable suits may also be worn if deemed necessary. Fit test respirator.
- 3) The item to be sampled shall have a sheet of polyethylene sheeting spread under it extending approximately three feet in all directions beyond the area to be sampled. If item to be sampled is against a wall, such as a pipe, then the sheeting shall extend approximately three feet up the wall.

- 4) The item/material to be sampled shall be misted with clean water from the spray bottle. If pipe insulation is being sampled, the outer covering shall be cut using the razor knife. The outer covering shall be carefully lifted and the insulation itself shall be sprayed with water. Sufficient water shall be sprayed to ensure saturation of the insulation. The insulation shall then be scraped directly into the sample container. If a surfacing material is being sampled, the surface shall be misted and the material shall then be scraped directly into the sample container. If a floor tile is being sampled, it is important to ensure that the mastic is also obtained on the sample for analysis. It is important to ensure that when sampling material, the knife is used to fully penetrate the material.
- 5) The container shall be sealed and a unique sample number shall be assigned to the sample. The Chain of Custody, COC, shall have all required information entered onto it and the sample and the COC shall be placed inside a sealed bag, such as a "Ziploc" bag.
- 6) The appropriate number of samples to be extracted are specified below:

Size of Area	Number of Samples
Less than 1000 square or linear feet	3
1000-5000 square or linear feet	5
Above 5000 square or linear feet	7

Samples shall be collected using the random manner grid system as described in the EPA publication No. 560/5-85-030a, "Asbestos in Buildings Simplified Sampling Scheme for Friable Surfacing Materials;" this publication is also known as the "Pink Book."

- 7) Once all required sampling has been completed, all samples and the accompanying COC should be inside the sealed bag. This bag shall be delivered to the laboratory for analysis.
- 8) If piping has been sampled, a strip of duct tape shall be applied over the area sampled. The strip of tape shall extend sufficiently to properly seal the cut and provide proper adhesion to the jacketing/covering. The sample number shall be written on the tape for reference purposes. Other materials sampled may or may not be suitable for application of duct tape. The sample location must be adequately referenced on the COC or site drawings or other suitable documents.
- 9) Any debris generated during sample extraction shall be HEPA vacuumed from the sheeting. The sheeting shall be folded inward onto itself and then placed into a properly labeled disposal bag. All materials such as disposable coveralls shall also be placed into the disposal bag. The disposal bag shall be placed inside a secured area, for future disposal.
- 10) Sample results shall be made a permanent part of the schools' asbestos record.

ANNUAL INSPECTION FORM

DATE: _____
ROOM: _____
INSPECTOR: _____



******* STATUS *******

<u>ASBESTOS MATERIALS</u>	<u>CONTACT DAMAGE</u>	<u>UNCHANGED</u>	<u>WATER DAMAGE</u>
Mudded Joint Fittings	Y/N	Y/N	Y/N
Vinyl Tile	Y/N	Y/N	Y/N
Wallboard	Y/N	Y/N	Y/N
Rubber Cove Baseboard	Y/N	Y/N	Y/N
_____	Y/N	Y/N	Y/N
_____	Y/N	Y/N	Y/N

COMMENTS: _____

ACTION TAKEN: _____

ACTION APPROVED BY: _____ **DATE:** _____

CHANGE IN STATUS FORM

DATE: _____
ROOM: _____
INSPECTOR: _____
ASBESTOS MATERIAL: _____

STATUS:	CONTACT DAMAGE	Y/N
	WATER DAMAGE	Y/N
	OTHER: _____	Y/N

COMMENTS: _____

ACTION TAKEN: _____

ACTION APPROVED BY: _____ **DATE:** _____

OPERATIONS & MAINTENANCE PROCEDURES

PROCEDURES:

These procedures are to be utilized by qualified and approved Dunsmuir Joint Union High School District subcontractors or designees.

Work area preparation and cleaning shall be in accordance with the following requirements and are only to be performed by properly trained and equipped personnel whether they are on staff or an outside contractor.

- 1) Remove uninvolved personnel from the affected area(s) and restrict entry to authorized personnel only.
- 2) Shut down HVAC system.
- 3) Don proper respiratory protection equipped with high efficiency particulate air (HEPA) filters, eye protection and disposable protective clothing. Fit test respirator.
- 4) HEPA vacuum and wet wipe all affected items and areas. Pick up large pieces of debris and place them carefully in the bottom of a properly labeled disposal bag.
- 5) After clean up, place all contaminated materials carefully inside a properly labeled disposal bag. Workers should still be wearing respiratory protection. Disposable suits may be removed and disposed of in the same disposal bag. The bag shall have its neck twisted and tightly taped using duct tape.
- 6) Remove eye respiratory protection. Wet-wipe respirator and place in an airtight bag for proper storage.
- 7) Remove disposal bag(s) from the work area and store in a properly labeled, secured and designated "Hazardous Waste Storage Area." Storage area shall be secured at all times with a suitable lock and key. Waste materials must be removed from the facility prior to 90 days.
- 8) Re-inspect area to ensure all debris has been properly removed from the affected area(s). Restart HVAC system.

OMA – Pipe Insulations and Mudded Joint Fittings

Work area preparation and cleaning shall be in accordance with the requirements previously listed in this section.

Repair minor dents and tears in the protective jacket with duct tape or bridging encapsulant with glass cloth reinforcement. Duct tape should only be used for temporary control until a bridging encapsulant is applied.

If glove bag removal is not feasible, wrap uncovered pipe insulations with protective jackets consisting of a bridging encapsulant with glass cloth reinforcement.

Wrap moderately water damaged or contact damaged pipe insulations with new protective jackets, or replace affected areas. Eliminate the source of the water damage. More severely damaged pipe insulations may require removal by glove bag or gross containment techniques.

Monitor the condition of the asbestos containing materials. Color-coding a system of asbestos containing materials and non-asbestos containing materials will greatly assist in routine monitoring and detection of problems.

OMI - Miscellaneous/ Cementitious Materials

Fiber release from non-friable materials is normally extremely low, unless these materials are broken, drilled, sanded or otherwise disturbed. During disturbance, the material should be thoroughly dampened and a HEPA vacuum used to collect fibers being released. Follow the work area preparation and cleanup requirements previously listed in this section. Some examples of miscellaneous non-friable materials that may contain asbestos are:

- Floor Tiles—Tile Underlay
- Linoleum
- Transite Pipes
- Transite Paneling
- Exterior Siding
- Roofing Felts

Vinyl Asbestos Floor Tiles (VAT) When damaged, vinyl asbestos floor tiles can become friable and could present a problem. If spot removal becomes necessary, the following method should be utilized. Turn off the HVAC system as a safety precaution. Seal all doors and HVAC grills. Mix amended water to a slightly stronger than normal strength. Spray the entire surface of the tiles to be removed, wait six to eight hours and repeat the spraying. Most vinyl asbestos tile glues are water-soluble and the tiles will loosen so that they may be physically removed, placed in a properly labeled plastic bag, and disposed of as asbestos waste. When the tiles are loose, the ends will curl up or down. As a further safety precaution, wear respirator and disposable coveralls. After completion of the project, wet-wipe all surfaces in the area. (Note: Dispose of the paper-like underlay with the vinyl asbestos tile, as it usually contains asbestos).

OMZ – Other Materials

This code applies to miscellaneous ACM that rarely creates a significant problem but can pose an exposure risk when being damaged or removed. Listed are some of the asbestos containing materials that fall into this classification. If an asbestos containing material is not directly addressed in the operations and maintenance codes, and operations and maintenance procedure may be applied using one or more of the codes that involve similar materials.

Carpet. Carpets normally do not contain asbestos but can become contaminated if located in a room with damaged ceiling plaster or fireproofing. Carpets should have large pieces picked up by hand and placed directly into the bottom of a properly labeled disposal bag. The carpet should then be HEPA vacuumed followed by steam cleaning. The waste liquid from the steam cleaning and the rinsate from cleaning the steam machine should be disposed of as contaminated waste.

ASBESTOS WASTE DISPOSAL

The Lead Maintenance Employee will ensure that provisions for disposal of asbestos are in accordance with applicable EPA, state and local regulations. Waste materials shall be stored inside a locked storage area. Hazardous waste materials must be removed from the site prior to 90 days from the date of initial accumulation regardless of the amount of waste accumulated.

EMERGENCY RESPONSE ASSISTANCE

When assistance with asbestos related emergencies is required, the Lead Maintenance Employee shall be contacted.

RECORDKEEPING

Departments with specific asbestos related responsibilities shall prepare and maintain appropriate records to document that prescribed activities are conducted in accordance with this O&M Plan. These records include, but are not limited to, the following:

RECORD	REQUIRED RETENTION TIME
Medical Records	Duration of employment plus thirty years
Training Records	Duration of employment plus one year
Respirator fit test	Three years
Asbestos bulk survey results	At least thirty years
Asbestos air monitoring results	At least thirty years
Personal exposure results	At least thirty years
Employee notification records	Duration of employment

WARNING NOTICE AND NOTIFICATIONS

Warning notices shall be posted at entrance to areas where materials are known to exist. All persons who will be entering areas where ACM is known to exist shall also be notified individually, by means of a notice of indicating the ACM present and types of activities that are prohibited which could disturb the ACM. If ACM's are located in areas where only limited access is available to authorized personnel, only those authorized personnel need to be notified. This notice shall be given annually until such time that all ACM's have been removed from those areas.

In addition, any outside contractors required to work on, around, or with materials shall also be provided with a copy of this notice.

The Superintendent shall ensure that outside contractors notify all appropriate agencies prior to commencing any asbestos related work. Such notices shall be submitted to the appropriate agencies within the prescribed time period prior to the work commencing. Copies of all notifications shall be submitted to Superintendent prior to commencing the work.

**PERIODIC AND EMPLOYEE
EXPOSURE AIR MONITORING
RESULTS**

CONTRACTOR & EMPLOYEE NOTIFICATIONS

ASBESTOS IN BUILDINGS
“Guidance for Service and Maintenance Personnel”

GLOSSARY

Acoustical plaster	A wall and ceiling plaster having sound absorbing characteristics.
Acoustical sprayed-on material	A fibrous material with acoustical properties applied to a surface by spraying through a nozzle.
Asbestos	A generic name given to a number of naturally occurring hydrated mineral silicates that possess a unique crystalline structure, are incombustible in air, and are separable into fibers. Asbestos includes the asbestiform varieties of chrysotile (serpentine); crocidolite (riebeckite); amosite (cummingtonite-grunerite); anthophyllite; and actinolite.
Asbestos felt	A building product made by saturating asbestos felt material with asphalt or some other binder. This material is used extensively in roofing and sheathing systems.
Asbestos plaster	A fireproofing plaster with high insulating properties made from asbestos fibers and bentonite.
Cement-asbestos board	A stiff, hard, non-combustible board fabricated from asbestos fibers impregnated and bonded with cement and used as roofing slates and wall shingles.
Fireproofing	Material applied to structural members to increase their resistance to the effect of fire.
Friable asbestos	Any material that contains more than 1% asbestos by weight and can be crumbled, pulverized, or reduced to powder by hand pressure.
Mudded Joint Packing (MJP)	Asbestos containing mud around pipe elbows for hot water, steam, etc. (used for insulation purposes).
Operations and Maintenance (O&M) Plan	Specific procedures and practices developed for the interim control of asbestos containing materials in buildings until it is removed.
Surfacing asbestos containing materials	Asbestos-containing material (ACM) that is sprayed on, trowled on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

TSI: Thermal System Insulation

Asbestos containing material applied to pipes, fittings, boilers, breechings, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.

Vinyl Asbestos Tile (VAT)

A resilient, semi-flexible floor tile, composed of ground limestone, plasticizer, pigments, poly-vinyl chloride binder, and asbestos fiber reinforcing. This product has been replaced by vinyl composition tile.

Vinyl composition tile

A floor tile similar to vinyl asbestos floor tile except the asbestos has been replaced by glass fiber reinforcing.