

## **SECTION 4 ASBESTOS MANAGEMENT ALTERNATIVES**

### **OPERATIONS AND MAINTENANCE PLAN (O&M)**

The O&M Plan is meant to be an effective solution to reducing building occupant exposure to airborne asbestos fibers until all ACM can be removed. The O&M Plan is designed to be used for all situations where ACM are present inside buildings and airborne fiber exposure potential exists.

The O&M Plan addresses all ACM and any situation involving these materials, including routine cleaning and maintenance, as well as emergency and catastrophic procedures. Applicable provisions of the O&M Plan must remain fully in effect until all ACM is physically removed from the building.

The O&M Plan is the optimum asbestos management alternative for ACM that remains in place awaiting removal during building demolition and/or major renovations, where NESHAP regulations require removal of friable ACM.

When using the O&M Plan, it is critical that emergency cleanup procedures be implemented immediately after discovery of a problem. Cleanup procedures should follow state-of-the-art methodology and should include vacuuming with High Efficiency Particulate Air (HEPA) filtered vacuum equipment and wet cleaning. Area air samples should be taken during and immediately after emergency cleanup efforts and analyzed to verify the adequacy of the emergency cleanup effort.

### **ENCAPSULATION**

Encapsulation involves applying a sealant, coating, or bridging compound onto the ACM to prevent fiber release. Since it is generally recommended that the best solution to the presence of ACM in a building is removal, encapsulation then becomes only a temporary solution. Removal itself, should be determined prudently, and implemented when the building is renovated or demolished, or during maintenance. Encapsulation, therefore, becomes a good short-term solution for correcting minor damage to ACM.

### **ENCLOSURE**

enclosure involves construction of airtight walls or ceilings around surfaces coated with asbestos-containing materials. Since asbestos-containing material will need to be removed when the building is renovated or demolished, or when maintenance occurs, enclosure is only a temporary solution. It is generally expensive, it may result in fiber release or damage to the local ACM and worst still, it is only a temporary solution. There are generally few situations which lend themselves well to enclosure.

### **MATERIAL REMOVAL - ABATEMENT**

The removal of all ACM is considered the only final solution to the potential problem of asbestos exposure, If removal is performed properly, the potential for asbestos exposure is eliminated.

Removal of asbestos should only be performed by persons with proper training and credentials, abatement projects should only be designed by accredited response action designers, effective air monitoring should be done to verify the adequacy of any removal and inclusive documentation should be maintained for all removal conducted.

Removal that is generally performed properly is expensive. It is recommended that any abatement activities be well defined, a scope of work and a set of performance specifications be established, and that any work be put out for bid using these criteria. **The lowest bidder is not always the one that will do the best work.**

**COMPARISON OF ALTERNATIVE COURSES OF ACTION**

**LONG TERM USE OF OPERATIONS AND MAINTENANCE PLAN**

**ADVANTAGES**

1. Lowest initial cost.
2. Good interim plan until funding becomes available for removal.
3. Allows asbestos removal to occur over a period of years, thus spreading expenditure and allowing time for budgeting.
4. Allows deferral of removal cost until renovation activities necessitate corrective action

**DISADVANTAGES**

1. Asbestos source remains as does hazard.
2. Surveillance (O&M Plan) is required as is extensive record keeping.
3. Cost of training, maintenance, asbestos air monitoring, and surveillance is significant.
4. Long-term costs could be higher than short term removal.

**ENCAPSULATION**

**ADVANTAGES**

1. Reduces likelihood of fiber release.
2. Initial cost is likely to be lower than removal or enclosure.
3. Easy to implement and some work could be done by in-house personnel.

**DISADVANTAGES**

1. Asbestos source remains as does potential hazard and eventual cost of removal.
2. Since the material remains, it will likely cost more to remove it later, if for no reason other than inflation.

3. The process of encapsulation could itself result in fiber release and creation of a hazard and are usually implemented with much the same precautions as abatement.
4. O&M plan and all it's disadvantages must be continued.
5. Overall cost is typically greater than removal in the short term.

### **ENCLOSURE**

#### **ADVANTAGES**

1. Reduces day to day or short term exposure.
2. Initial cost is typically lower than removal.
3. Relatively quick to implement.

#### **DISADVANTAGES**

1. Asbestos source remains as does potential hazard and eventual cost of removal.
2. Normal maintenance activities may no be impeded and require not only more time to implement, but due to the extra effort required to get access behind enclosures, there is now a greater likelihood of exposure.
3. O&M plan and all it's disadvantages must be continued.
4. Overall cost is typically greater than removal in the short term.

### **REMOVAL**

#### **ADVANTAGES**

1. Eliminates material and ongoing potential hazard.
2. Eliminates need for a continued O&M plan and the encumbant expense.
3. Overall cost may be the lowest considering the added costs of dealing with the material while it is still there.

**DISADVANTAGES**

1. Insulation and fireproofing materials will need to be replaced.
2. Initial cost is high.
3. Improper removals may result in higher risk.
4. Building use may be affected depending on the amount and type of work to be done.