



straus systems inc INTEROFFICE MEMORANDUM

TO: Below Distribution

FROM: Earl Warner

SUBJECT: Asbestos Removal

DATE: May 1, 1986

In the future any jobs pertaining to the cutting or removal of asbestos, or asbestos related materials must be performed by a state approved asbestos removal contractor.



Earl Warner

Boo — Ray

Asbestos: menace in the boiler room

To avoid the tragedies from asbestos related diseases, HVAC workers should have a full understanding of asbestos and how to deal with it

By **DANIEL CULBERG**,
President,
Brand Asbestos Control Co.,
Park Ridge, Ill.

Since the mid 1970s, concern for asbestos related health problems has focused on those who worked directly with asbestos. More recently, however, the focus has shifted to people who work in any environment where asbestos may be present. HVAC workers fall into both categories.

The Environmental Protection Agency has reported that while cancer risk from asbestos for people in an urban environment is one in 10,000, the risk for highly exposed construction workers is one in 10.

The accuracy of such risk projections and what constitutes "high exposure" can of course be questioned, particularly since experts are far from agreement on what constitutes a dangerous level of exposure. There are documented cases of death resulting from only incidental exposure to asbestos. At the other end of the spectrum, research in an asbestos mining town where the air is laden with asbestos particles showed that this posed no significant health problem.

However, what is indisputable is

the fact that workers continue to die from asbestos related diseases. Currently, more than 8000 die each year, and by the year 2000, scientists believe that figure will reach 10,000 a year.

Unfortunately, HVAC workers find themselves full-square in the middle of this controversy. It has been over a decade since workers installed asbestos insulation on and around HVAC systems. But most of what they did install remains in place, endangering the health of those who now must repair and maintain those systems.

To avoid a repeat of the tragedy that befell those who installed asbestos containing materials, today's HVAC worker should have a full understanding of the issues surrounding asbestos, what it is, where it's found, when it is dangerous, and how it should be dealt with.

What is asbestos?

Asbestos is a generic term for a group of naturally occurring fibrous minerals. Asbestos is virtually indestructible. When separated or broken down, even to its molecular level, asbestos remains an extremely tough fiber. This characteristic is asbestos' greatest attribute—and its tragic flaw.

Asbestos is mined all over the world and is found primarily in Canada, the Soviet Union, Australia,

and South Africa. There are five major types of asbestos:

- Chrysotile (white asbestos).
- Crocidolite (blue asbestos).
- Amosite (brown asbestos).
- Anthrophyllite.
- Tremolite.

Historians trace the first use of asbestos back to the 5th century BC when it was used as lamp wick. Touted as the miracle fiber of the 20th century, its mechanical strength, fire resistance, flexibility, and good wear characteristics made asbestos the mineral of choice in a wide variety of products from construction materials to clothing.

Asbestos was used commercially as fireproofing as early as the 1890s. The use of asbestos in insulation materials began in England early in the 1900s and continued through the mid 1970s in the United States.

At the height of its popularity, more than 3000 commercial applications of asbestos were in use. Its low cost and the ease with which it can be mixed with binders and spray applied created applications for millions and millions of tons of the mineral.

Asbestos' ability to be woven into thread or cloth made asbestos popular in fire resistant clothing, curtains, and draperies. Its fire and heat resistant properties provided innumerable uses for asbestos as an extremely versatile building mate-

Asbestos menace

rial. It is believed that at least one asbestos containing product can be found in virtually every building constructed from 1900 to the mid 1970s.

Promise turns to disaster

The promise of this "miracle fiber" turned to disaster after nearly 100 years of modern use when in the

between asbestos and disease was also established by medical researchers in the United States. But again, the problem was considered an occupational hazard that could be controlled by controlling the levels of dust in the manufacturing environment.

This assessment of the problem was supported in a 1945 study of

been identified as one of only eight known naturally occurring cancer causing agents. All five types of asbestos can cause cancer. There is no "safe" type of asbestos.

The regulatory environment

By 1973, the government moved to ban asbestos containing materials from new construction. In that year, the EPA Clean Air Act prohibited spraying of asbestos containing materials. In 1975, all asbestos was banned from use in pipe, boiler, and other types of thermal insulation.

In 1976, Occupational Safety and Health Administration (OSHA) standards mandated removal for applications where asbestos fibers 5μ or longer were present in the atmosphere with a density of two fibers per cu cm or greater. Recently, allowable limits were reduced to 0.2 fibers per cu cm.

These two agencies, OSHA and the EPA, are in the forefront of regulation regarding asbestos control. OSHA regulates exposure to asbestos in the workplace, and the EPA regulates the use, removal, and disposal of materials containing asbestos under authority of the Clean Air Act and Toxic Substances Control Act.

EPA regulations focus primarily on applying and removing asbestos-containing materials in new or remodeled buildings and on identifying friable asbestos in schools.

There are no federal requirements mandating tests to determine asbestos levels in commercial buildings unless building renovation or asbestos removal is planned.

When renovation or removal is planned, EPA regulations call for filing notice with the agency's regional office and sometimes the state if more than 260 ft of asbestos pipe insulation or 160 sq ft of asbestos surfacing material will be removed. The notice must name the building's owners, location, and description; how the removal will be done; and where the asbestos will be disposed.

Table 1—Types of asbestos most commonly used.

Chrysotile	Amosite	Crocidolite
White asbestos	Brown asbestos	Blue asbestos
90% of usage	Coarse, good	High tensile strength
High tensile strength	Good acid resistance	Acid resistant
Good overall workability	Less flexible and workable than chrysotile	Low resistance to heat
Used in fireproofing and insulating materials	Used principally in high temperature products	Good flexibility and fair workability

mid 1970s asbestos was proved to be a cancer causing agent.

While the useful properties of asbestos were known for centuries, it was not until the early 1900s that asbestos became suspect as a potential health hazard. Early warnings of asbestos related health hazards in the workplace focused on the British textile industry where heavy concentrations of asbestos-laden airborne dust were common.

The first connection between asbestos dust and disease was published in a British medical journal in 1906, and in 1924 the first known case of asbestosis (a lung disease) was documented. In 1930, Dr. E. R. A. Merewether, a British government factory inspector, published a study that solidified the relationship between disease and heavy concentrations of asbestos dust in textile plants.

Heavy concentrations of dust, as opposed to asbestos itself, seemed to be the culprit. As a result, in 1931 regulations were put in place to increase ventilation and thereby decrease visually obvious dust in the environment. As yet, no direct connection between asbestos and cancer was made.

By the late 1930s, a correlation

pipe insulation/covering operations that concluded that this operation was relatively safe. However, subjects of the study had been at their jobs less than 10 years whereas asbestosis symptoms take 10 to 20 years to become apparent.

It was not until 1965 that a true link between asbestos and cancer was established. In that year, Dr. Irving Selikoff studied over 1500 insulation workers who had been at the trade for a significant length of time. Selikoff found that of workers with more than 40 years in the industry, more than 90 percent had asbestosis related medical problems. The real scope and magnitude of the problem were beginning to be recognized.

Since that time, asbestos has

Table 2—Categories of asbestos containing materials.

Friable materials are those that can be crumbled, pulverized, or reduced to powder in the hand, readily releasing fibers with minimal mechanical disturbance.

Friable	Nonfriable
Sprayed-on fireproofing	Cementitious products
Thermal insulation	Paper products
Textiles	Roofing felts

When problematic asbestos is identified in a building or renovation is planned, the federal standards governing asbestos control are lengthy, detailed, and quite specific. Also, many states are establishing or strengthening existing training and enforcement programs for asbestos removal. Fourteen states have certification programs, and 15 others have bills pending in their legislatures. A dozen states already have licensing and training requirements for asbestos removal contractors, although only four of these have been in force for over a year.

When it is dangerous

Asbestos is virtually everywhere: in auto brake linings, in electric hair dryers, and in nearly every building constructed from 1900 to the mid 1970s.

Asbestos-containing materials are found on ceilings, walls, and structural beams where they were sprayed or trowled on. Asbestos is also common as insulation around hot or cold pipes, ducts, boilers, and tanks. It is also found in many building materials such as tile and wallboard.

Sprayed-on asbestos and asbestos in pipe insulation are of greatest concern to the owners of commercial/industrial buildings and the people who service their HVAC systems. It is in these applications that asbestos is most often in a dangerous state.

Asbestos is dangerous only when it is "friable," that is, old and crumbling. In its friable state, asbestos can be crumbled, pulverized, and reduced to powder in the hand. Friable asbestos does not have to be visible as airborne dust to be dangerous. Minimal disturbance releases microscopic asbestos particles into the air that are so light they may take days to settle.

Asbestos-containing materials that are usually considered non-friable include cementitious products, paper products, and roofing felts. Categories of materials that are likely to become friable with



Asbestos insulation on piping and ductwork is hazardous in a friable condition when it can be crumbled or reduced to powder by hand pressure alone.

time include sprayed-on fireproofing, textiles, and all types of asbestos-containing insulation.

Experts agree conservatively that 1 million tons of friable asbestos materials are in schools, shops, offices, and industrial buildings as thermal and acoustic insulation. It has been estimated that 21 million living Americans have been exposed to asbestos in the workplace.

Routine activity, including the installation of phone lines, HVAC system work, and general maintenance, can free asbestos into the air, endangering workers and building occupants. Dangerous amounts of asbestos can also be freed into the atmosphere in and around a building during renovation and related construction.

Asbestos fibers have the tensile strength of steel and are sharper than fine needles. Asbestos particles are microscopic in size; it would take as many as 1 million fibers laid side-by-side to measure just 1 in.

When these fibrils escape into the air, they are easily inhaled or swallowed. Asbestos fibers that are inhaled and enter the lungs stay there for life. They may also enter the blood stream or the lymphatic system where they are transported throughout the body.

Asbestos has been linked to asbestosis; cancers of the lung, esophagus, stomach, colon, and other organs; and mesothelioma, a cancer of the chest and abdominal lining that is extremely rare except when asbestos is involved.

Asbestos ranks second as the leading cause of cancer. Only cigarettes rank higher. Asbestos re-



Respiratory protection is standard equipment for workers to prevent the inhalation or ingestion of hazardous asbestos fibers.

lated cancer is usually inoperable as cancer cells cluster around microscopic asbestos fibers that lodge throughout the system. As a result, it is almost always incurable. More than 100,000 workers have died as a result of installing asbestos years ago. Leading experts on the subject project at least an additional 300,000 deaths from asbestos related cancer in the next 25 years.

The dilemma

The asbestos abatement industry is headed for increasing attention because of strict state and federal legislation on the books and in the wings. In addition, record court awarded settlements of asbestos re-

lated lawsuits and the documented health hazards of asbestos are creating greater public awareness of the problem.

Commercial buildings built before 1973 suffer an added penalty. Mortgage lenders, investors, insurers, and potential tenants are growing hesitant to become involved in buildings that contain asbestos. The result is potential economic liabilities for owners and managers of these buildings.

For commercial building owners and managers, the asbestos dilemma assumes two dimensions, safety and economics, both compounded by the lack of qualified people who can help. Up to 75 percent of all asbestos related projects are done improperly, according to estimates of industry experts and federal agencies. Federal and state agencies cited more than 1300 violations last year.

Most industry observers agree that the high incidence of poor workmanship in asbestos abatement stems from several factors. Among them are the lack of training, the "quick buck" artists who entered the business, and the tendency of building owners to accept the lowest bid for removal. This obviously has serious implications for the health and safety of the work crews but also for those surrounding the work area.

With large asbestos control contracts at stake for renovation of commercial and industrial buildings, many contracting firms are vying for success in asbestos abatement. While there are many reputable, experienced, and qualified firms in the business, the concern over asbestos related issues has spawned numerous "opportunistic" newcomers.

Many of these firms are undercapitalized, staffed with untrained people, uninsured or underinsured, and generally ill-equipped to do a safe, competent job of asbestos con-

trol or abatement.

For some of them, the path to contracts is the low bid. But for their clients, that path could lead to health dangers, lawsuits, and economic disaster. It's easy to take shortcuts on an asbestos removal project. Since health effects of shoddy practices may not show up for decades, it is sometimes difficult to know exactly when or how the poor work was done when it is less than obvious.

The work of unqualified contractors has given rise to many horror stories about inept and dangerous practices. For example, workers have been seen gathering up asbestos debris with brooms "the way you clean up your garage," an EPA official told the *Wall Street Journal*.

In another example, asbestos-coated workers tramped into a building cafeteria for lunch, exposing the diners, cafeteria personnel, and the food to significant hazard, not to mention the danger the asbestos workers themselves were courting.

The insurance environment

The hesitancy shown by many owners of older buildings to renovate, by lending institutions to finance, and by insurers to cover the work is due in no small part to the ever present possibility that some

How to identify asbestos

All sprayed-on fireproofing and insulation materials used prior to the early 1970s have a good chance of containing some type of asbestos. Sprayed-on fireproofing is usually found on ceilings and/or above suspended ceilings in all types of buildings. Thermal insulation products such as steam and cold water piping and boiler insulation are found in many commercial and industrial buildings.

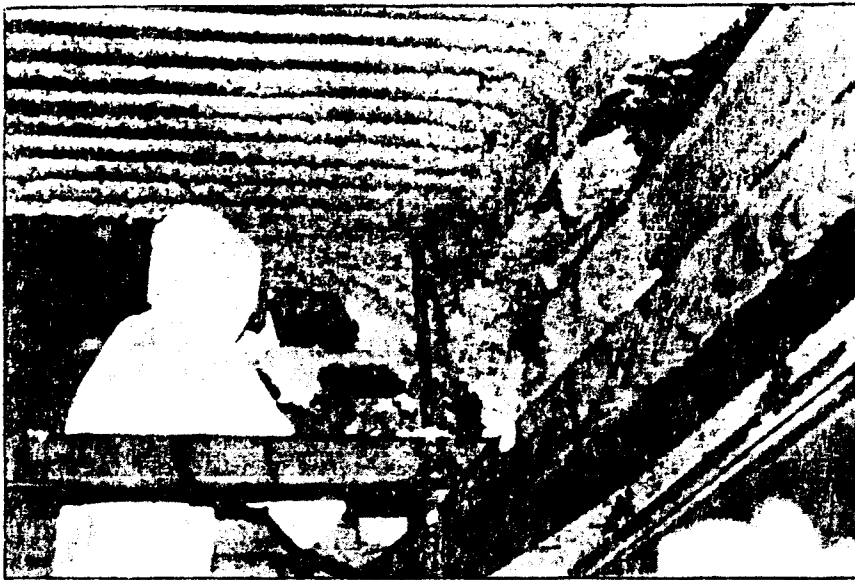
day liability claims for asbestos related illnesses may be filed.

Adding to that concern is the way all insurers are now writing liability policies. Major changes in the industry in recent years have been triggered by the hundreds of millions of dollars paid to settle asbestos related claims on policies 30 or 40 years old. By one estimate, asbestos related settlements could cost insurance companies up to \$87 billion in payouts over the next several decades.

This has led to a big difference in the types of policies insurers are now writing. The insurance industry is shifting from the long-term liability coverages of "occurrence" type policies to short-term "claims



Well protected, well trained technician applying wetting agent to asbestos prior to removal.



Scraping sprayed-on asbestos from walls and ceiling beams.

made" type policies.

The claims made policy has become the policy of choice for insurance companies because the insurers are responsible only for defense and payment of claims filed during the short-term period while the policy is in force. A claims made policy will not cover claims for injuries or damages filed after the policy has expired—even if the injury or damage took place during the policy period.

Under the terms of an occurrence policy, the insurer pays claims for all injuries and property damage occurring during the policy period. The big advantage to policy holders is that once the policy is written, claims can be made at any time afterward. These policies cover acts, errors, and omissions that occur during the policy period. The insurer is responsible for paying claims at any time in the future following an "occurrence"—even after the policy is no longer in force.

The difference between the two types of insurance coverage is of particular significance considering that asbestos related illnesses typically take up to 40 years or more to manifest themselves.

Simply put, insurance experts agree that occurrence type insurance affords adequate protection while claims made insurance does not.

As this whole issue becomes more volatile, additional changes will oc-

cur in the types and amounts of insurance available. The insurance industry will continue to minimize its long-term liability by decreasing coverages in policies. This will increase the asbestos removal contractors' (and their customers') future business related risks.

It is, therefore, of paramount importance for the customer to deal with large, well managed, financially stable asbestos abatement contractors. When there are only a few companies left who can obtain occurrence type insurance coverage, it will be this kind of firm that will have it.

Abatement, the first step

The first step in an asbestos abatement program is risk analysis. Whether the asbestos in a given building is contaminating the environment and posing a real danger can be determined only by an on-site audit.

While most HVAC workers can probably recognize and identify asbestos, this work is best performed by an experienced and qualified registered industrial hygienist or abatement professional. These people will collect samples of suspected asbestos in a manner that will not disturb surrounding materials and send them to an independent laboratory for analysis.

While any HVAC worker can collect samples, the danger of the worker being exposed or unneces-

sarily releasing asbestos fibers into the air while collecting samples is great. Also, a hygienist or other competent professional will know of the best independent laboratories for testing.

Once it has been determined that asbestos is present, four factors should be considered prior to deciding what, if anything, should be done about it. These four factors are damage, friability, location, and air movement.

Asbestos causes little concern if it is in perfect condition. If asbestos is found in good condition, leave it alone! However, if the asbestos has been frayed or damaged, it should be either removed or contained.

Asbestos also poses a problem when it is located where it may be disturbed by building occupants, maintenance personnel, or the vibration of machinery or building activity. Air movement around friable asbestos is extremely problematic. Microscopic particles of asbestos are easily transported by the slightest draft or air movement.

Considering that significant amounts of asbestos were originally installed as insulation for HVAC components, the danger of friable asbestos entering the HVAC system and circulating throughout an entire building is great.

When asbestos is determined to be problematic by virtue of damage, friability, location, or air movement, an abatement program is in order. Asbestos abatement can constitute one or more of three basic abatement methods: removal, enclosure, or encapsulation.

The choice among all three techniques depends on the condition of the asbestos-containing material; i.e., whether it is rated as good, showing minor damage, or poor. Removal is generally perceived to be the most desirable choice since the other alternatives are considered temporary.

Removal can cost anywhere from \$10 to \$25 per sq ft, a high price in a multi-million sq ft building. Two somewhat lower priced alternatives for asbestos abatement are en-

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closure and encapsulation.

Enclosure involves construction of airtight drywalls around the material. Encapsulation is achieved by spraying the material with a sealant. Neither is recommended when dealing with highly friable asbestos. In this case, proper and safe removal is the preferred method for eliminating this imminent health hazard.

Selecting an abatement firm

Once a decision is reached that asbestos abatement—removal, enclosure, or encapsulation—is needed, the next step is to select a qualified firm to do the work. That is not as simple as it may seem.

It's not just a matter of looking in the *Yellow Pages*, asking a few firms for bids, and then choosing the lowest. In fact, that may be the worst way.

There are, unfortunately, some firms that will low ball a job, bidding their work at break even or below, merely to gain experience and to train people. Too often, however, they find the project quickly becomes unprofitable. So they seek additional contracts, again low balling their bids. Then, to make up for unsatisfactory profit margins, the shortcuts and slipshod and unsafe work begin.

To avoid this scenario, an approach in pricing asbestos abatement projects that is growing in popularity is price negotiation as opposed to contract bidding.

Larger, more reputable firms are willing to work at a negotiated price. The privacy of negotiations also preserves the confidentiality of a project if necessary. Letting out bids, on the other hand, is a good way to tell the world that a building may have an asbestos related problem.

The key is to identify a competent organization with a successful track record in asbestos abatement—one that has mastered practices approved by regulatory agencies to ensure the safety of tenants, the workers on the job site, and the surrounding environment.



Cleanup of asbestos debris. All work is carried out within containment to prevent the release of asbestos fibers to the surrounding environment.



Preliminary packaging of asbestos debris prior to final packaging and shipment to EPA approved waste sites.

The movement toward increasingly sophisticated and expensive asbestos abatement equipment is expected to knock smaller, less reputable firms out of the business. OSHA and industry leaders, for example, are backing more routine use of Type C equipment, which through a remote air system continually creates a negative air pressure in the containment area, thereby preventing breaches and providing maximum protection to workers inside.

Compared to half-masks and personal battery powered air packs,

this type of equipment is the cream of the crop and an expensive investment. Asbestos control firms must be well capitalized and intend to stay in the business to purchase this equipment. And operators must be extremely well trained to use it.

Weeding out the less than competent contractors can still be tricky business. There are several screening criteria that can be applied to find the good ones.

- **Insurance**—With the changes taking place in the insurance industry concerning liability

coverage (i.e., the trend toward writing short-term claims made vs. long-term occurrence policies), a copy of the contractor's certificate of insurance should be part of the bid package. Sharp building owners and managers have also begun asking for a notarized letter from the contractor's insurance broker stating that the contents of the insurance certificate are in fact authentic and current.

The client should ask how much and what kind of insurance the contractor carries. Since occurrence type policies offer the best protection and since they are hard to get, only the large, well managed, and financially stable companies can qualify.

- **Performance bonding**—Because of the enormous risk that asbestos lawsuits pose, asbestos abatement firms should be bondable for large projects, and the bond should be backed by the U.S. Treasury. Large, well capitalized, stable firms with a minimum net worth of at least \$5 million are the safest partners when undertaking an asbestos abatement program. These are the companies that will remain solvent and continue in business should liabilities arise.

- **Training**—The contractor's asbestos removal personnel must be thoroughly trained, with dangers clearly outlined to them, protective and safety measures presented and explained, and workers tested as to how well they learned. Moreover, on-the-job training and retraining should take place as well as classroom instruction.

- **Safety of contractor employees**—In addition, the responsible firm does not employ smokers or permit bearded workers on asbestos jobs. Studies have proved that a smoker's chances of developing lung cancer are many times greater than a nonsmoker's. Beards prevent proper respirator fit. Respirators should be approved by the National Institute of Occupational Safety and Health, and full body protective clothing, eye protection, head-

gear, and footwear should also be used.

- **Referrals**—References should be checked for all prospective contractors. Some things to ask: How big a job was it? Was it done professionally, on time, and within budget? What kind of air and bulk sampling were done? Were proper authorities involved as required? Were project management and worker safety and training satisfactory?

Other criteria include the use of insured waste haulers and EPA approved dump sites, the ability to render 24 hr emergency services, third party verification of compliance with federal and other guidelines, and the contractor's ability to perform confidentially.

The hitch

Where problematic asbestos is identified, it must be dealt with; that's the law. However, there is as yet no federal directive requiring asbestos audits, monitoring, or testing in commercial or industrial buildings unless renovation is planned. For that matter, it is not even required that owners determine whether a building has asbestos-containing materials.

How then can HVAC workers, or any employee, protect themselves from this menace? The answer is found in OSHA's Occupational Safety and Health Act.

OSHA's Occupational Safety and Health Act includes a general clause that mandates that employers must provide a safe workplace for all employees. In addition to this general clause, OSHA has a number of specific standards for particular toxic substances, including asbestos.

An employee may not be exposed to over 0.2 fibers of asbestos per cu cm of air averaged over an 8 hr day. In addition, OSHA has specified an "action level" of 0.1 fibers per cu cm of air averaged over 8 hr. If this level is exceeded, employers must begin air monitoring, employee training, and medical surveillance.

Wetdown procedures and ventilation methods can be attempted to comply with the limit. If these fail to reduce the exposure level to within the standard, respirators must be worn. Employees must also be provided with protective clothing and a changing room.

OSHA also stipulates that warning signs and labels must be used in asbestos work areas and on waste disposal containers. In addition, employers must monitor the exposure level and maintain records.

Protecting yourself

Asbestos abatement is serious and dangerous work—too serious and too dangerous to ever be considered as part of HVAC work. Once asbestos enters the lungs, it stays there forever. While no minimum dangerous exposure to asbestos has been established, once may be enough.

HVAC workers who smoke should never work around asbestos. Smoking and asbestos have a synergistic effect on increasing the risk of cancer. Experienced asbestos abatement contractors have a policy of not hiring smokers because it has been shown that smokers are 50 to 90 times more susceptible to asbestos related lung cancer than nonsmokers. The message to others who work in areas where asbestos may be present is clear.

In addition, HVAC workers with beards should not attempt to work near asbestos even while wearing respirators. Beards prevent proper fitting of respirators.

As a final caution, it is an unfortunate fact that many years ago HVAC workers installed asbestos, worked near the installation of asbestos, or handled asbestos in the course of routine work and thus were exposed to its dangerous effects. Do not repeat this exposure by working on or around asbestos removal.

First line of defense

The first line of defense in preventing asbestos related health

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problems is awareness—awareness of the issues, of what asbestos is, where it's found, when it is dangerous, and how it should be dealt with.

Other than building owners and managers themselves, HVAC engineers, supervisors, and workers are in the forefront of asbestos detection. While building owners and managers have a moral, ethical, and legal obligation to protect employees, it is HVAC engineers, supervisors, and workers who are coming into contact with asbestos in the course of day-to-day operations. It therefore rests to a great extent upon these people to develop awareness and bring potentially problematic asbestos situations to the attention of management.

HVAC engineers and supervisors in particular should seek the knowledge and information necessary to become well educated on all issues related to asbestos. Building owners and managers must take the initiative to protect employees, but they depend on their HVAC engineers and supervisors to recognize that a problem may exist that must be dealt with.

Where obviously problematic asbestos exists, HVAC engineers and supervisors must work with management to find competent people to bring the situation under control. Where asbestos is identified but apparently in a good nonfriable state, HVAC engineers should work with management to develop a systematic program of monitoring the situation.

In either case, any and all physical contact with asbestos should be performed only by competent professionals in the asbestos control industry.

The asbestos problem did not develop overnight, and it is likely to be with us for generations to come. Whether the future of the asbestos problem is to be defined in terms of sensible, clear headed action or by more needless human tragedy depends on how willing we are to educate ourselves and act responsibly based on that knowledge. □



SPECIAL NOTICE

ALERT

New Penalty for Asbestos Violation
As of September 1, 1985

TO: All AGC General Contractors and Affected Associate Members

Gentlemen:

This is a reminder that effective September 1, 1985, the maximum penalty for violation of the EPA Asbestos Standards will increase from \$1000 per day to \$25,000 per day! This increase was authorized by the state legislature with passage of SB 725. Mr. Dallas Evans, Chief of the Air Quality Control Bureau in Houston, said recently an automatic fine will be issued in every case, which appears to be consistent with the firm approach the Bureau has taken in all cases to date.

General Contractors who have experience in dealing with Asbestos have found the following steps to be helpful. We offer them as general guidelines only.

- Attempt to determine early in any job involving demolition or remodeling whether there is any asbestos in the structure (attached is a list of common areas where asbestos can be found).
- Take samples of suspicious materials to a commercial lab for testing. Normally results can be obtained from these labs in 24 hours.

If there is asbestos, notify the building owner immediately. It is preferable that the owner then make arrangements directly with a competent "asbestos abatement contractor". However, if he insists that you handle it, the key is to select a qualified asbestos abatement contractor who is thoroughly familiar with the EPA requirements. The AGC can assist you with a list of such contractors that you can provide to the building owner or use yourself.



- The asbestos abatement contractor will need to notify Mr. Evans' office (645-5316) at Air Quality Control Bureau, describing the amount of asbestos and what they need to do with it (remove or capsulate). The Bureau requires at least 10 days notice before abatement work can begin in the case of large amounts and 20 days notice in the case of routine or small amounts.. Hence the importance of determining early in the job if you are dealing with asbestos.
- Along with all the standard documents involved in subcontracting it is recommended that both the owner and the general contractor also receive from the asbestos abatement contractor the following:
 - a. Copies of the results of air sample tests that show the number of fibers, taken immediately before the abatement process begins.
 - b. Copies of the results of air sample tests that show the number of fibers, taken during the job.
 - c. Copies of the results of air sample tests that show the number of fibers, taken immediately after the job is completed, and
 - d. In the case of removal, copies of the certificate of disposal from a dump site approved by the EPA.

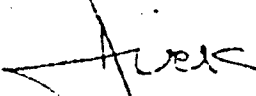
These should be kept as permanent job records.

- If superintendents or foremen open up a suspicious area during demolition or remodeling, they should cease work immediately until the materials can be analyzed.

The Chapter Safety Committee is planning a seminar with Mr. Evans and abatement experts for early October. The purpose will be to help superintendents, foremen and field engineers avoid the potentially staggering penalties of the law.

Again, the purpose of this bulletin is only as an alert, and these suggestions are as guidelines only, not as advice in any sense. As this is a new area and the potential consequences are so severe we recommend you check directly with Mr. Evans' office at the Air Quality Bureau (645-5316).

Best regards,


Dick Lewis
Executive Director

DL:jg

COMMON AREAS WHERE ASBESTOS CAN BE FOUND

A) Fireproofing

1. Steel columns
2. Steel beams
3. Steel decking (underside)

B) Lagging & Insulation

1. Boiler breeching & flue
2. Domestic hot water heater
3. Domestic hot water storage tank
4. Hot water piping

C) Acoustical tile & wallboard

D) Cement asbestos panels

E) Transit roofing

F) Transite pipe, primarily water & sewer

G) Asbestos siding

H) Vinyl asbestos tile

I) Asphalt asbestos tile

J) Chemical laboratory tops (usually black)

K) Roofing felts

L) Auditorium curtains