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Will We Lose the War Against Asbestos in Buildings?

Assembly Office of Research

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prepared by the
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ASSEMBLY OFFICE OF RESEARCH

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EXECUTIVE SUMMARY AND MAJOR RECOMMENDATIONS

Asbestos-containing buildings are significantly more hazardous to our economy than they are to our health. California building owners, including state government, will spend at least $1 billion this year to eliminate asbestos from their properties. Long range expenditures could exceed $20 billion, including $1.3 billion for state buildings and $1 billion for schools. But medical researchers consider nonoccupational exposure to asbestos in buildings to be a very minimal health risk. In fact, one study estimates that overall removal efforts cost $10 million-per-life saved.

The impetus behind asbestos abatement work in schools and state buildings is protection of health. But the driving force behind removal in the commercial marketplace is liability fears and uncertainties over future abatement costs which serve to devalue buildings as much as 25 percent. Lenders do not want to finance the purchase of a building with asbestos liabilities, consequently, the material is removed so that the building can again be "marketable".

Efforts to eliminate asbestos from our indoor environment are straining an already weak regulatory program which is ineffective in preventing unsafe removal jobs. Over 70 percent of the abatement work in California is not physically inspected by a regulatory agency. Other states inspect every job. Improper asbestos removal practices can endanger workers and, under certain conditions, building occupants.

Although current research minimizes health risks posed by undisturbed asbestos materials, health problems can occur when these materials release microscopic asbestos fibers into breathing areas. Conditions which individually or collectively trigger releases include fire and water damage, vandalism, material aging, maintenance and remodeling work, air flows and foot traffic. It is technologically difficult to know when or how much asbestos has been released. The degree of harm posed by episodic, nonoccupational exposure has not been medically documented.

Removal is too often the only option considered by building owners. Preventing exposure to asbestos should be a management function which matches building use and the material's condition with a wide variety of control responses. A sound management plan can include conducting general maintenance checks of asbestos materials; repairing damaged spots when feasible; encapsulating material with a sealant; constructing a barrier to prevent release into other building areas; closing the contaminated area down to building use or, as the last resort, complete removal. These options may range in cost from a few cents per-square-foot to $30 per-square-foot. When removal is tied in with renovation work, there is a significant cost savings over removal work that is conducted "prematurely"; i.e., prior to scheduled renovation work.

Assessing the potential for fiber releases and developing plans to control these releases is a professional skill that is in great demand, but in short supply. Other states regulate individuals who work as "asbestos consultants". Except for federal regulations which require asbestos consultants to be EPA-approved to work in schools, there are no regulations for asbestos consultants in California. Anyone may do the work.

It is assumed that workers, such as maintenance personnel, who come in frequent contact with asbestos materials are at risk if they disturb asbestos materials in a way which releases fibers. Training and labeling of asbestos materials are deemed important safeguards to preventing exposure.

Our public and private schools (K-12) are in the greatest jeopardy due to new federal mandates which put them on an unrealistic deadline for instituting comprehensive asbestos management controls. A new EPA regulation, effective December 14, 1987, requires California's 15,000 public and private schools to develop intricate plans for managing asbestos by October 12, 1988. Schools must begin removing, encapsulating or in some way controlling asbestos materials by July 9, 1989. Without funding and technical assistance, some schools may be victimized by inexperienced inspectors, planners and abatement contractors. The state must play an active, aggressive role in helping schools comply with the EPA regulation which empowers the Governor to intercede when schools fail to implement asbestos management programs.

The state, itself, needs to improve management of asbestos in its buildings. There is limited training for maintenance workers, no labeling of asbestos materials and no consistent policies for informing state employees about asbestos hazards and removal work. Furthermore, the state has employed contractors who were not legally registered to do asbestos work and has demonstrated an inability to understand its own asbestos laws and regulations.

Clearly, the state's highest priority is to quickly improve regulation of asbestos abatement activities to insure that public health and taxpayer dollars will not be endangered by unnecessary expenditures for work that is performed unsafely.

Major Recommendations

1. Strengthen our regulatory network before, or in conjunction with developing programs and regulations that could increase the amount of asbestos abatement work now underway in California. (Specific legislative proposals are on page 45).

2. Reorganize the state's program to control asbestos in its buildings. Centralize enforcement powers in one state agency. Lessen dependency on vendors--develop in-house expertise in hazard assessment. Expand authority to cover schools as well as state buildings. Use control language in the state budget to insure that asbestos expenditures will be spent wisely and safely. (Specific legislative proposals on page 82).

3. Provide immediate technical assistance to public and private schools attempting to comply with the EPA asbestos regulations and appropriate $40 million to public schools to help them meet the inspection and management plan requirements. (Specific legislative proposals on page 65).

CHAPTER I

THE UNWINNABLE WAR

In the Year 2001, a workman emerges from a cocoon-like structure inside the lobby of a large office building. He raises a plastic bag over his head and yells into the glare of television cameras: "This is it -- the last bag of asbestos in America."

While the "last bag" is fantasy at this point in time, the current war effort to remove asbestos-containing materials from our indoor environment, is anything but imagined. In 1988, building owners will spend over $1 billion[1] for the right to say their California properties are "asbestos-free." The battlelines will widen over the next three years. More removal. More expenditures. More mistakes. Yes, there will be hundreds of unreported cases of asbestos being removed improperly from buildings, acts which subject unsuspecting workers and building occupants to the risk of inhaling cancer-causing asbestos fibers.

While heated debate over the dangers posed by asbestos in buildings is far from complete, the potential of asbestos as an economic burden is not questioned. Abatement experts claim $100 billion to $200 billion could be spent over the next 25 years for the removal of asbestos materials from our nation's buildings. It is becoming commonplace for the cost of asbestos removal to be a discount factor during commercial real estate negotiations. Pension adviser John McMahan calls asbestos "the biggest single problem facing U.S. real estate today."

Asbestos is already helping to bankrupt school districts. The U.S. Environmental Protection Agency estimates the cost of abating asbestos hazards in our nation's schools at $3.2 billion. California's share of the school clean-up could exceed $1 billion. But the documentation of asbestos problems in California schools is so unreliable that it may be premature to estimate how much it will cost to control asbestos exposure in our 15,000 public and private schools.

Aside from schools, the number of buildings containing asbestos materials is staggering. A 1984 EPA study estimated 20 percent of large buildings in this country had asbestos materials in potentially hazardous condition. Actual projections included 511,000 office buildings, 208,000 apartment complexes and 14,000 federal buildings -- schools and state and local government structures were not included in the study. EPA is expected to release an updated building survey in early 1988.

Mount Sinai School of Medicine researchers believe asbestos can be found in most buildings constructed between 1950 and 1970. Real estate experts contend that 60 percent of the commercial buildings in California contain asbestos.

The Consumer Product Safety Commission has been unable to project how many homes have asbestos materials.

Controversial Health Risks

Asbestos removal work is booming despite the fact that medical research has yet to provide a strong link between the occupational exposure conditions which have killed thousands of asbestos workers and the nonoccupational exposure risks inherent with living and working in a

building with asbestos materials. While asbestos' economic impact can be measured on a balance sheet, tracking its impact on the health of building occupants hinges on factors which researchers find difficult to quantify. This risk dilemma was expertly defined by Los Angeles Times reporter Barry Siegel in a front page article, "Managing Risks: Sense and Science" (7/5/87):

> "Many laws presume the possibility of zero risk and assign liability where that is not reached. But science's increasingly sophisticated ability to detect and finely measure dangers renders the world a mine field of risks, many unavoidable. Science cannot provide the certainty of protection demanded by the statues."

Asbestos is a classic case of science's inability to deliver the assurances of "zero risk" to policymakers. Consider that the EPA is the most vocal proponent of the "no threshold theory", or belief that there is no safe level of exposure to asbestos; i.e., technically, one fiber could kill. Also consider that recent technological advances have enabled industrial hygienists to detect minute levels of asbestos in buildings that only a few years ago would have escaped notice. Therefore, the "no threshold theory" coupled with new air monitoring capabilities have opened the door to what many perceive as a highly emotional, almost panicked, thinking that permeates asbestos policymaking.

California's Official Rock

There are several eye-opening asbestos facts that are generally omitted from policy dialogue. For one, researchers have found that most people in this country have asbestos fibers in their lungs. Like it or not, we live with asbestos, a commercial term for the well-developed and hairlike

long-fibered varieties of certain minerals that satisfy particular industrial needs. And we have a great deal of naturally occurring asbestos exposure in California. In fact, our official state rock is "serpentine", a mineral group which produces chrysotile, the most commonly used type of asbestos today. Currently the EPA is keeping a close watch on Coalinga which is near an area containing the largest serpentine deposit in North America. Two abandoned mines near Coalinga are on the EPA's National Priorities List which identifies serious hazardous waste sites for cleanup. The EPA contends that recent studies indicate that the erosion of serpentine deposits could adversely impact air and water quality. Asbestos exposure also occurs "naturally" in the Bay Area where serpentine deposits line the hills above Berkeley.

Asbestos, prized for its durability, resistance to heat and bonding capabilities has found its way into a multitude of products, each serving as a potential source of exposure. Fibers released from automotive brakes are a prime contributor to asbestos levels in urban areas. Until the early 1980's, hair dryers were a source of asbestos exposure. But this report focuses on the exposure from asbestos fibers released from building materials such as insulation around pipes, fireproofing on beams and acoustical material on ceilings and walls. More than 30 million tons of asbestos has found its way into our buildings during the last 70 years, with the prime application years running from 1950-1970.

Twenty years ago it cost 25 cents per-square-foot to spray asbestos on beams and ceilings; today building owners are paying $25 per-square-foot to have this same material removed. The lethal legacy of this one-time miracle mineral can spell financial doom for owners of high-rise buildings laden with asbestos.

This report acknowledges that a $200 billion war is not winnable. The task at hand is to manage a potential hazard. Controlling exposure conditions is a significantly different function than establishing unrealistic timetables for the total elimination of asbestos materials in buildings.

If asbestos is the enemy, then we need to do a better job understanding it.

FOOTNOTES

Chapter 1

1. AOR independently conferred with four asbestos abatement experts who agreed that $1 billion was a reasonable estimate when secondary costs such as employee relocation and lost rental income due to building closure during removal were included in the building owner's total abatement bill. Using EPA and Cal-OSHA records for reported removal work, we estimated about 5,500 jobs will be performed in 1988 at an average costs of $200,000. We found removal costs running from $10 per square foot up to $89 per square foot. Long-term projections reflect estimates provided by industry analysts and hazard assessment consultants.

CHAPTER II

UNCERTAIN HEALTH RISKS

Asbestos-containing materials in buildings are hazards much like rocks are on a mountain. Under certain conditions these materials can release asbestos fibers just as rocks sometimes roll. But, for the most part, asbestos and rocks are static and, consequently, pose no threat to human health.

While no one argues against efforts to prevent rockslides, considerable controversy surrounds public policies aimed at controlling release of asbestos fibers in buildings, particularly in schools.

Without question, asbestos can kill. The sustained inhalation of asbestos fibers has been extensively documented as a cause of premature death among insulation and textile workers. But the notion that people can die simply from breathing asbestos fibers that escape from aging construction materials in buildings has not been substantiated through autopsies. Some critics, however, contend that by regulating asbestos materials in buildings, lawmaking agencies are institutionalizing the fear that building occupants will suffer the same consequences as WWII shipyard workers, who were often enveloped in asbestos dust. The critics say an unbridled asbestos panic promotes policies that are tantamount to removing all the rocks from a mountain, not just the ones likely to slide.

Since there are no medical reports of people dying strictly from low-level exposure to asbestos in buildings, researchers estimates of death

rates for occupants in buildings with asbestos are based on mortality data for occupations which involved sustained exposure to asbestos fibers. The projections assume risks are directly proportional to the level of fiber exposure. Researchers concede that the geometric descent from occupational asbestos levels to low building levels subjects findings to "considerable uncertainty." Insulation workers who died from asbestos-related diseases were often inhaling fiber concentrations 10,000 to 100,000 times greater than levels typically found in an asbestos-containing building today. The general disclaimer is "more research needed."

But researchers avoid endorsing an exposure threshold, or a point at which the amount of asbestos fibers in the air is no longer a threat to health. "There is no known safe level of exposure to asbestos" is a very popular phrase appearing in government documents. Technically, the EPA believes that one fiber could trigger death, but the EPA also contends that asbestos materials in good condition, left undisturbed, present a negligible risk to health.[1]

The no safe level or "one fiber could kill" theory is the backbone behind the argument that asbestos materials in buildings are always a potential health risk.

The EPA is now telling school administrators that a new federal regulation (December 1987) for schools will help officials determine <u>when</u> asbestos should be removed -- it is no longer a question of <u>if</u>. The EPA simply wants the "bad rocks" out first with all other "rocks" to follow when appropriate.

Asbestos-Related Diseases

There are three major asbestos-related diseases: asbestos, mesothelioma and lung cancer. The latency period can be as long as 40 years.

Asbestosis is caused exclusively by exposure to asbestos fibers and results in chronic, restrictive lung disease. The absence of recorded cases of asbestosis caused by low-level nonoccupational exposure and the fact that asbestosis is a progressive generalized condition would be consistent with a threshold below which fibrosis may not occur. In short, nonoccupational exposure studies do not include asbestosis.

Mesothelioma is a rare cancer of membrane cells lining the lung and abdomen and is usually fatal within a year of diagnosis.

Lung Cancer is caused by many factors, especially smoking. Asbestos fibers significantly increase the risk of contracting lung cancer.

Mesothelioma and lung cancer are the asbestos-related diseases of concern to researchers studying nonoccupational exposure risks. There is debate over the degree of risk posed by various types of "asbestos." There is some thought that chrysoltile, which accounts for 90 percent of the asbestos used today, may not be as health threatening as other commercially used fibrous asbestos types such as tremolite, amosite, anthrophyllite, actinolite and crocidolite. But, again, the "uncertain" label prevents researchers from unanimously declaring that one type of asbestos is safer than another.

Measuring Asbestos Levels:

Surviving that uncertain statistical crossover from the occupational to the nonoccupational exposure requires an understanding of the methodologies employed in the measurement of asbestos fibers present in our breathing space. The process involves using a pump to draw air through a filter and, then, using a microscope to count the fibers collected.

The fiber count definition is complicated by the varying sizes of fibers. Some studies support the theory that thin, long fibers are more dangerous than short, thick fibers because they penetrate the lung with less difficulty. The Occupational Safety and Health Administration's workplace standard only counts fibers of five microns in length with a length to width ratio of 3:1.

The fiber count is expressed in terms of the number of fibers in a given volume of air over a certain period of time. For example, OSHA has ruled that workers shall not be exposed to more than an estimated 200,000 fibers (200 fibers fit on the head of a pin), greater than five microns in length, over an eight hour-time weighted average. The OSHA standard is written as .2 fibers per cubic centimeter of air, or 0.2 f/cc ÷ 8 hr TWA. Exposure levels in this report are recorded as f/cc (the five micron length is assumed unless noted otherwise).

OSHA standard occupational readings are done with a phase contrast optical microscope which allows visualization of materials to two microns. Materials with a 3:1 aspect ratio, five microns or greater in length are recorded. This method does not distinguish among fibers of different origin. OSHA contends that a more accurate method is not needed for the

workplace since it is safe to assume that fibers collected where asbestos is handled are probably asbestos fibers. More accurate measurement methods require much more lab time (one day vs one week.) and cost more than the optical method ($25 vs $250).

Transmission Electron Microscopy (TEM) is the recognized method for measuring low concentration and smaller fibers of asbestos in buildings. With TEM it is possible to distinguish between fiber types.

Insulation workers, who later became victims of asbestos-related diseases, were often subjected to levels of asbestos fibers in the range of five to 15 f/cc ÷ 8 hr TWA. In sharp contrast to these occupational levels, building studies, using the TEM method, have reported levels of asbestos to be as low as 0.009 f/cc (1983, EPA). Surveys conducted in Britain and Canada, rarely detected levels in excess of 0.001 f/cc.

In 1985, California required that school districts seeking aid for asbestos removal, show need by proving that asbestos levels exceeded 0.01 f/cc. As of October 9, 1987, not a single school seeking state funds to abate indoor asbestos problems had surpassed the 0.01 level. The 0.01 standard was modified September 30, 1987, by urgency legislation(Chapter 1254) to allow more schools to qualify for state funding.[2]

Asbestos levels in our schools can be misleading in terms of a risk analysis. First, some researchers assign risk to low exposure levels, even those below .01 f/cc. Secondly, the record of no schools exceeding .01 f/cc is based on those schools applying for funds and does not take into account schools which may have higher levels, but have not applied for funds. For example, in 1987, a San Jose area school had asbestos materials

spill into a library after a construction mishap. The recorded level, according to school officials, was .018 f/cc. In this case the material was cleaned up before consideration could be given to applying for state aid.

Air Monitoring Controversy

Finally there is strong opposition to using air monitoring as a means of assessing potential asbestos risks. The EPA does not recommend the use of air monitoring to assess the condition of asbestos materials prior to abatement action. The EPA contends that air monitoring is simply a random snapshot, not indicative of the ability of the material to release fibers at any given point in time. The EPA recommends air monitoring be conducted during removal as well as after as a post-abatement clearance check.

Finally, on November 20, 1987, the State Department of Health Services released (11 months late) a study, mandated by 1985 state legislation (CH. 1587), which stated that it is "not reasonable to require air monitoring for deciding whether abatement is to be funded." Department researchers also concluded that abatement decisions "should be based upon visual inspection with bulk material analysis."

The EPA's detractors advocate the use of air monitoring to stabilize fears and decision making. For example, at a U.S. Senate hearing in 1987, Dr. John D. Spengler, Harvard University, testified, "To date, EPA's asbestos program has de-emphasized reliance on air measurements. As a result, there has been an irrational response of removing asbestos from schools and buildings based completely on its presence." This type of testimony has been echoed often since EPA issued its first asbestos regulations for schools in 1982.

The air monitoring controversy lingers on in the State Legislature where two, two year bills (AB 1348, Floyd and SB 894, Marks) are attempting to set conditions which would require a building owner to abate an asbestos hazard. In particular, the Floyd measure relies on visual assessment, not air monitoring to define the hazard. Opponents of AB 1348 say they would support the measure if abatement action were triggered by violation of a numerical air standard. The opponents argue that an air standard, determined by air monitoring, would clearly define a building owner's responsibility. But supporters of visual assessment contend that a numerical air standard would allow owners to claim their buildings were "safe" if the established air level was not exceeded and that such a claim contradicts the EPA's philosophy that there is no known "safe" level of exposure to asbestos--even low level exposure

Risk Assessments: More Dramatic Than Useful

Notwithstanding the imperfections of risk projections and weaknesses of air monitoring, here are the most current risk projections for nonoccupational mortality due to asbestos exposure in buildings:

(1) The risk to students exposed to an average concentration of 0.001 f/cc for six years in a school is estimated at five excess lifetime deaths (lung cancer and mesothelioma) per million students exposed. The number of deaths would triple if the level of asbestos increased to 0.003 f/cc, or an annual average rate of 0.25 deaths per million. By comparison this group would produce 32,000 lung cancer deaths not attributable to asbestos exposure. The annual death rate per million in the United States is ten for playing high school football and 14 for riding a bike (ages 10 to

14). Since the EPA has stated that about three million children are exposed to friable asbestos materials in schools, then the annual death rate of 0.25 per million would produce a total of 0.75 annual deaths (Hughes and Weill).[3] The authors of this study assume the mean fiber concentration in United States schools with asbestos materials is 0.001 f/cc, a figure based on data gathered by the Ontario Royal Commission.

(2) If one million people were exposed to 0.001 f/cc in a building for ten years, beginning at age 22, then by the time everyone died, 16 deaths could be attributed to asbestos-related diseases. A commuter who drove five miles each way for ten years to this building would be 20 times more likely to die in a car accident while commuting than to succumb from an asbestos-related disease. Based on the low risk presented by asbestos materials in buildings, and the high cost of removal, expenditures to remove asbestos could very well cost over $10 million per-life-saved (Dewees).[4]

(3) If a person inhaled air with an average level of 0.0004 f/cc over a 73 year-lifetime, then the lifetime risk of mesothelioma would be nine in one million and lung cancer would be nine in one million for nonsmokers. Cancer deaths per million soar to 64 for men and 23 for women when the sample considers people who smoke. (National Research Council).[5]

On-The-Job Deaths

The "uncertainty" associated with building exposure dangers contrasts sharply with the documentation of annual deaths attributed to occupational asbestos exposure. Current research indicates that prior exposure to asbestos in the workplace will account for 2,000 mesothelioma and 4,000 to 6,000 annual lung cancer deaths. Noted researcher, Doctor Irving J. Selikoff, has estimated that industrial asbestos exposure has killed about 100,000 workers as of 1980. A 1983 study projects that occupational asbestos deaths in the United States will decrease to 1,500 annually by the year 2000 (Hughes and Weill).[6]

Asbestos fibers can remain airborne for 24 hours or more. Their ability to cling to objects was dramatically underscored by a 1981 study of Los Angeles area shipyard workers which revealed that family members had a much higher rate of radiologic signs of asbestos diseases than other control groups. In fact, 11.3 percent of the 274 shipyard worker's wives studied had asbestos problems, compared to no similar problems in a group of women whose husbands did not handle asbestos. The researchers concluded that exposure resulted from workers bringing home fibers on their clothes.[7] Current OSHA practices call for special cleaning of clothes. Many asbestos workers wear disposable uniforms to avoid spreading fibers outside the work area.

In February 1987, EPA career staffers issued a little-read report on what they perceived to be the priority issues for the agency. Asbestos exposure in the workplace received a "number one ranking."

Occupational asbestos deaths have been subjected to some controversy. Dr. Selikoff, now retired, said in 1985 that asbestos exposure claims a life every 58 minutes while the Asbestos Victims of America, a worker activist group, has circulated literature claiming that three people die every hour from asbestos exposure. In June 1987, a team of medical researchers from Temple University concluded that "nearly half of all reported cases of asbestosis may have been incorrectly diagnosed due to the detection limits of the typical chest X-ray." One of the researchers, Dr. Arnold Friedman, told AOR, "I don't think people should be compensated for having asbestos-related diseases unless they have a computerized tomography scan." Dr. Friedman said computerized tomography will often reveal that a patient suffering breathing difficulties has emphysema rather than asbestosis.

The final word on asbestos risks in the workplace belongs to the Fed-OSHA which has overhauled its asbestos regulations four times in 17 years. The most recent revision, June 20, 1986, included a substantial reduction in the amount of asbestos fibers which a worker could be subjected to during the work day (the permissible exposure level, or PEL). OSHA concluded, "Reducing the permissible exposure level from 2.0 fibers/cc to 0.2 fibers/cc reduces the risk (death) from lifetime exposure (45 years) from 64 per 1,000 (workers) to 6.7 per 1,000."[8] OSHA also contended in issuing the new PEL that for a 20-year exposure, the reduction from 2.0 fibers to 0.2 fibers represented a 90 percent reduction in risk.

Finally, OSHA, which estimates that 746,228 workers in the construction industry and 541,998 workers involved in automotive clutch and brake repair are exposed to asbestos, offered the following justification for its current PEL reduction:

> "Given that a significant risk of harm persists even at very low levels of lifetime exposure to asbestos, OSHA's decision to promulgate a PEL of 0.2 f/cc is based on a determination that this level is the lowest level that can feasibly be attained in operations in the workplace in both general industry and construction."

Removal Is A Known Risk

The greatest threat to health comes from the improper removal of asbestos materials. Noted researcher, Donald N. Dewees, has estimated the dry removal of asbestos insulation could today easily recreate the breathing conditions which insulation workers were subjected to more than a quarter-century ago.

In 1986, a team of researchers studying the impact of environmental fibers on respiratory cancer had this to say about the act of taking asbestos materials from a building: "Asbestos removal is difficult to control, however, and in buildings in which average levels are low, the exposure to both workers and occupants caused by asbestos removal may actually increase the health hazard."[9]

The Ontario Royal Commission on Asbestos, a Canadian government study effort headed by Dewees, concluded in 1984, that "while the presence of asbestos-containing friable material in buildings does not in general cause significant health risks for building occupants, it may cause significant risks for building workers, including custodial, maintenance, renovation, removal and demolition workers."

Therefore, asbestos fibers released during a work disturbance, could adversely affect the health of one individual, a janitor for example, or even office workers who were adjacent to an area in which asbestos materials were being removed.

As will be detailed in Chapter Four, "Flaws In The Laws," there is a considerable amount of improperly performed asbestos removal work in California. Therefore, while risk projections tend to categorize asbestos in buildings as a "minimal risk," there is concern that removal work may raise exposure potential to dangerous levels.

The next chapter focuses on what triggers asbestos spills and why asbestos is removed from buildings.

Conclusion

In producing death projections for low-level nonoccupational asbestos exposure, researchers issue this disclaimer: "more research needed." But no one disputes the fact that improper removal creates a health risk by releasing fibers. Maintenance workers may be at risk. Meanwhile the EPA believes one fiber could kill and that air monitoring is not an accurate hazard assessment tool. The Department of Health Services agrees that air monitoring can be be misleading in judging an asbestos problem.

Recommendation

Eliminate the use of air monitoring in qualifying schools for funding from the State Asbestos Abatement Fund (Section 49410.7 of the Education Code) due to the large body of research which minimizes air monitoring's accuracy in detecting potential asbestos hazards..

FOOTNOTES

Chapter 2

1. U.S. EPA, Airborne Asbestos Health Assessment Update, Environmental Criteria and Assessment Office, Research Triangle Park; U.S. EPA Doc. No. EPA-600/8/84-003A, December 1985.

2. This legislation by State Assemblywoman Jackie Speier allowed a larger number of fibers to be counted by lowering the fiber length from five to one microns, consequently, more fibers were included in a sample test since the majority of fibers collected are typically below five microns in length. Proponents of the measures testified that the increased fiber count will allow schools which had barely failed to pass the old five micron standard to qualify under the revised standard.

3. Hughes, J; Weill, H.; "Asbestos Exposure -- Quantitative Assessment of Risk;" AM REV RESPIR DIS, 1986; 133:5 - 13.

4. Dewees, D., Controlling Asbestos In Buildings; Resources For The Future, 1986.

5. National Research Council, Committee on Nonoccupational Health Risk, Asbestiform fibers -- nonoccupational health risks." Washington, D.C.; National Academy Press, 1984.

6. Hughes, J; Weill, H.; "Asbestos Exposure -- Quantitative Assessment of Risk;" AM REV RESPIR DIS, 1986; 133:5 - 13.

7. Kilburn, K.MD., et. al., "Asbestos Disease in Family Contacts of Shipyard Workers," AJPH, June 1985, p. 615.

8. OSHA, 29 CFR Parts 1910 and 1926, Vol. 51, No. 119, p. 22644, June 20, 1986.

9. Omenn, G., et. al., "Contribution of Environmental Fibers to Respiratory Cancer," Environmental Health Perspectives, Vol. 70, p. 56, 1986.

CHAPTER III

THE FIBER RELEASE FACTORS

In a future year an alarm may sound whenever materials in a building release asbestos fibers into a breathing area. The Contamination Alert! If such detection systems were available today, we might be provided with answers to the following key questions concerning fiber releases in buildings:

(1) How often do they occur?

(2) Does each release constitute a genuine health threat?

But, until a system is invented, or until asbestos is eliminated from buildings, health regulators, let by the EPA, recommend that building owners take appropriate action to prevent conditions which can cause a fiber release, also called "an asbestos spill."

As detailed in the EPA's "Guidance for Controlling Asbestos-Containing Materials In Buildings" (June, 1985), a fiber release can be triggered by one, or a combination of any of the following conditions:

- change in building use (movement of occupants, air conditioning system kicks on, other building vibrations);
- routine cleaning (mop hits wall, vacuum cleaner stirs dust);
- deterioration (water damage, fire damage, aging);
- vandalism (sticking pencils in ceilings, throwing hard objects against walls);
- renovation or repair work.

The asbestos spill is episodic in nature. There may be no detectable fibers in the air until the air conditioning system is activated at the same time children change classes in a school. The combination of foot traffic, increased air flow and the presence of already brittle asbestos-containing material may be sufficient to trigger a release which might last less than one minute. A more likely scenario would involve workers who tear down a ceiling, unaware that they are releasing asbestos dust throughout the room.

Not Covered by Law

There is no state law which specifically defines what constitutes a fiber release condition in a building. AB 1348 (Floyd) and SB 894 (Marks) are current two-year bills which seek to add a definition of an asbestos hazard to Section 17920.3 of the Health and Safety Code (the section for conditions which warrant abatement by the building owner; i.e. substandard housing).

There is no federal law which defines what constitutes an asbestos hazard in a building other than the EPA regulation covering asbestos materials in public and private schools (K-12).

While the law may be vague in defining an indoor asbestos hazard, it has been quite explicit in its intent to control fiber releases during renovation or demolition of a building. The potential harm of a fiber release associated with increased air flow in a building cannot match the exposure dangers posed by removing thousands of square-feet of asbestos-containing materials from a building. Currently the large scale disturbance of asbestos materials in California is motivated by one of the following four "conditions:"

(1) Required by Law. Since 1973, the EPA, under the National Emissions Standards for Hazardous Air Pollutants (authorized by Section 112 of the Clean Air Act), has required that asbestos-containing materials be removed from a building prior to its demolition. Furthermore, asbestos must be removed in a specified manner prior to demolition or when large amounts of asbestos materials are involved in renovation work (details of asbestos regulations are on page 40. This federal requirement is intended to reduce, if not eliminate, the release of asbestos fibers into the ambient air during major reconstruction work. About 3,300 demolition and major asbestos renovation jobs were reported in 1986 in California, based on Cal-OSHA and EPA records. About 85 percent of the work occurred in commercial buildings.

(2) Accelerated Renovation. The investment community is beginning to shy away from buildings with asbestos. Tenants squawk when they discover their offices are laden with asbestos. The marketplace reluctance to "touch" buildings with asbestos has, in some cases, prompted owners to accelerate renovation plans. Therefore, while these owners are complying with federal law by having asbestos removed prior to renovation, they are, nonetheless, initiating the work, to some degree, out of marketplace pressures.

(3) Health Hazard. Schools have been in the forefront of efforts to abate asbestos hazards without timing removal with reconstruction. Chapter Five is devoted entirely to examining the triumphs and tragedies of EPA's Asbestos-In-Schools program.

The State Department of General Services has embarked on an extensive campaign to eliminate "priority asbestos hazards" from state buildings.

Asbestos policies of various state institutions are covered in Chapter Six.

Abatement of an asbestos hazard can be achieved by means other than removal. Materials can be repaired or encapsulated with a sealant; a barrier can be erected to prevent release of fibers into a breathing area; or the asbestos area in question can be eliminated from normal building use.

As this report emphasizes, there are no federal or state laws, outside of the EPA school regulation, which specifically define the responsibilities of owners of buildings containing damaged or deteriorating asbestos materials which are releasing fibers. To date, removal of asbestos strictly for health reasons is a voluntary action, even in our schools where the EPA still does not mandate removal.

(4) Intentional/Unintentional Abuses. A common abuse of safe asbestos removal practices occurs when an electrician or plumber, for example, encounters asbestos materials on the job. He does not want to slow the project down by "subbing out" to an abatement contractor, so he removes the material himself -- and he does the work improperly. Or, a contractor may engage in unsafe, underground removal practices to avoid notice by his insurer who would certainly raise the contractor's rates if he were known to handle carcinogenic materials on the job. In other cases, the contractor may be unaware that he is handling asbestos; or the building owner, sensing he has an expensive asbestos problem on his hands, hires cheap, unskilled labor to rip out "old pipe insulation" in the middle of the night. No state or federal agency is effectively policing these abuses in California. In fact, state and federal officials believe that "at least half" of all asbestos removal work is done improperly. There is great

cause for concern here since improper removal practices endanger building occupants as well as workers.

The next chapter examines "Flaws In The Laws,", i.e., the reasons why improper asbestos removal work is allowed to occur.

CHAPTER IV

FLAWS IN THE LAWS

The evidence is mounting. A significant portion of asbestos removal work in California involves unsafe handling practices. Some officials believe as much as half of the asbestos materials taken from buildings is either removed improperly and/or dumped illegally. Officials conclude that unsafe handling practices may expose workers to high concentrations of asbestos fibers, and, that, in some instances, "innocent" building occupants could be exposed to fibers left over from sloppy removal jobs.

Removal abuses occur despite the fact that state and federal code books are thick with laws and regulations covering asbestos work practices. Simply put, there are flaws in the laws that hurt, not help, enforcement activities.

First, the EPA and Cal-OSHA both require that contractors, and in some cases building owners, notify them before a specified amount of asbestos material is removed from a building. The logic is sound. Asbestos removal generally occurs at the start of a demolition or renovation project. In fact, the EPA requires that asbestos materials be removed before a building demolition, or major renovation work can be initiated. If inspectors are not on the job "early," they miss the worm. Consequently, if notification is given late, or not at all, inspections generally do not occur.

In testimony presented to the EPA in January 1987 on proposed changes to asbestos regulations, the National Association of Demolition Contractors issued the following statement:

> "Most contractors believe that there is little potential for being cited if notification is not tendered in accordance with the regulation. Many feel that notification substantially increases the chance of citation. If a contractor elects to defy the notification requirement . . . his chief objective becomes quick completion of the work. Little attention is given to expensive work practices prescribed by the regulation. This course of action can result in profits much larger than the total job cost."

Janet Crawford, an enforcement officer for the EPA's Air Management Division, Region IX, notes that the federal reporting regulation allows written notification to be mailed to the EPA as long as the letter is postmarked prior to the start of removal. She adds that small removal jobs will be completed before an inspector has any realistic chance to be on the job site. In essence, the U.S. Postal Service aids some abatement contractors to escape the law.

Even though Cal-OSHA does not provide inspectors to check removal work conducted by private contractors, it still requires notification (this enigma explained later in Chapter). Cal-OSHA informs contractors that notification information is turned over to Fed-OSHA inspectors. Christopher Lee, Fed-OSHA Audit Supervisor in California, says that Cal-OSHA's notifications are generally received too late to be of use on small removal jobs.

Fed-OSHA does not require contractors to give asbestos notifications. The EPA does not share its notification information with Fed-OSHA which, in turn, has not asked for it, according to officials from both federal agencies.

EPA, Fed-OSHA, and Cal-OSHA officials agree that unreported work probably involves safety violations. Aside from cutting costs, other reasons behind unreported asbestos work include the following:

-- A plumbing contractor, for example, may encounter asbestos materials periodically -- he does not want his insurance carrier to know he handles asbestos materials; consequently, he does not obtain a state certificate (required by California law) to work with asbestos. Since he is not properly credentialed, he cannot legally give notification (proof of certification is required).

-- Some contractors or maintenance personnel are unaware that they are removing asbestos materials during a reconstruction or repair job. Many asbestos-containing materials are not easily identifiable except through laboratory analyses.

-- A building owner does not want tenants to know asbestos is in the building, so materials are quietly removed during the weekend without regulatory intrusion. In some cases owners are not willing to pay up to $30 per square-foot for removal work done correctly, so they turn to unlicensed contractors.

On September 29, 1987, Governor Deukmejian vetoed the State Legislature's first effort (SB 895, Marks) specifically aimed at policing illegal asbestos work. This measure would have established a special investigative unit within the Contractors' State License Board to track down removal violators. In his veto message the Governor indicated the need for a crackdown on illegal asbestos work had not been adequately demonstrated. Indeed, the board had only five complaints on record relative to improper asbestos work. In addition the Department of Justice was not actively pursuing any asbestos contractors. A few days prior to the veto, however, Board Deputy Robert Berrigan, in an address to 300 contractors and consultants at the National Asbestos Council's trade convention in Oakland, made the following observation:

"The Governor will veto SB 895 for the wrong reasons. We do not have the ability to react in a timely manner. And because our response is slow and the industry knows it, contractors don't bother telling us about illegal asbestos work. We need some people to snoop around."

As of November 30, 1987, the board had a backlog of 13,000 complaints regarding all types of construction work.

Berrigan also offered two other explanations behind the handful of complaints on asbestos contractors:

-- The board accepts only complaints that are signed by an individual. Many people, especially employees, do not want to put their name on paper. Also, the board has no jurisdiction over employer-employee relations, a matter now in the hands of Fed-OSHA.

-- Asbestos removal is the first phase of reconstruction. The abatement contractor is usually finished before other contractors begin work; i.e., there are no witnesses around to complain.

There are other "signs" which suggest that asbestos removal work deserves closer watch by the regulators:

° In 1984 Cal-OSHA conducted 47 random health and safety inspections at construction sites. Asbestos violations were reported at 22 of the 47 sites, even though inspectors had not targeted asbestos work.

° In 1985 Cal-OSHA issued 109 citations to companies for failing to register as asbestos handlers. In the same year Fed-OSHA reported that 25 percent of reported asbestos removal jobs in the nation had to be cited for safety violations.

- From January 1986 through June 1987, Cal-OSHA issued 103 "serious" violations involving asbestos work in addition to shutting down 12 jobs for safety violations that posed an imminent threat to health.

- Cal-OSHA was able to inspect about only two percent of all reported asbestos removal work from 1983 through 1986. The amount of reported work more than doubled from 1985 to 1986, jumping from 1,500 to 3,379 jobs. Therefore, thousands of legally reported removal jobs were not checked by state inspectors while an unknown, but potentially significant, amount of work was never reported or inspected. We estimate that currently 70 percent of the abatement work in California is not inspected by any regulatory body.

As will be detailed later in the chapter, EPA and local air management districts send inspectors to asbestos jobs, but their concerns center around the release of asbestos fibers outside the work area. These inspectors have no jurisdiction over employer-employee relations and, consequently, often do not enter the work area where serious work violations occur.

- In 1986 Cal-OSHA checked 51 school asbestos removal jobs and found serious violations at three projects while a fourth removal job had to be stopped on the spot due to imminent health risks caused by sloppy abatement work. While the presence of any serious violation is not acceptable, the small number of botched school removal jobs was much lower than other state or national inspection results. Robert Turkington, former head of Cal-OSHA's Occupational Carcinogen Control Unit, offered this explanation:

> "Contractors were ready for us -- they expected a surprise inspection. The school inspections were completed in about one-third the time of normal asbestos checks because everyone had things in order."

California's low rate of asbestos inspections contrasts sharply with Oklahoma, for example, where each asbestos removal job is inspected an average of seven times before completion.

Fed-OSHA conducted 2,325 inspections and issued two asbestos citations in California from July 1, 1987 through October 23, 1987; however, OSHA does not know how many inspections involved asbestos work since, an official explained, the checks are not targeted in advance for asbestos removal work.

In January 1986 Turkington commented on the rate of unreported removal work:

> "We have our hands full dealing with what we know -- the reported work. The unknown could be worse. Asbestos is being ripped out all over the state without proper notification. I am afraid we are looking at the shadow and not at what is casting the shadow."

- In April 1987 the Contractors' State License Board, responding to a request by Assemblywoman Jackie Speier, confirmed that in a sampling of companies advertising in the Yellow Pages under "Asbestos Removal," 16 of 31 companies were not legally certified to perform asbestos work. Turkington said his Cal-OSHA unit would typically find a dozen contractors per year who were not registered to work with asbestos, but who advertised in the telephone book.

- Some building owners require that an industrial hygienist oversee the work of an abatement contractor to insure there are no fiber

releases outside the work area, or improper work practices inside the removal area. Current federal law allows a contractor to monitor his own work. Several hygienists informed AOR that abatement contractors in the Los Angeles area will raise their bid prices 30 to 35 percent when they learn that they will have their work "watched" by an industrial hygienist functioning as a project manager. The increased bids reflect the need to use more expensive safety equipment and time-consuming safety procedures during removal.

Thomas E. Veratti, a certified chemical engineer, and Christopher Eident, a certified industrial hygienist, made the following observation in "Practical Consideration In The Monitoring Of Abatement Projects":

> "Approximately 50 percent of asbestos removal work performed by removal contractors is done without a specification, without independent supervision and without certified or trained workers. Removal companies often take their own air samples with questionable value. In the laboratory, we have received obviously tampered with pre-tests and post-tests that are blanks."

Abatement contractors informed AOR of other questionable business practices such as:

-- A contractor will have six work crews, four of which are comprised of well-trained, well-equipped workers. Due to increasing business, he has added two crews, but, for a variety of reasons, has not trained the workers properly. Also, these two crews will not have all safety equipment. Regulators will be notified about jobs involving the four "good" crews while no notification will accompany work performed by the two, ill-prepared crews.

-- Some companies change names frequently to keep one step ahead of inspectors and customer complaints; removal companies will advertise in the Yellow Pages under one name, but be credentialed under another name.

The nation's largest removal company, Commodore Environmental with annual revenues exceeding $100 million, has suggested to the EPA that abatement contractors pay a fee to cover the cost of a "trust manager" who will oversee all abatement activities to insure that all safety procedures are followed. Christopher Gale, Commodore vice-president, stated that if all removal companies were compelled to work according to OSHA regulations, most abatement companies would go out of business.

Steve Allen, director of Asbestos Division, Oklahoma State Labor Department, explained that removal contractors in Oklahoma pay a $200 daily fee to cover the cost of daily state inspections. The state's extensive regulation of removal work stems from past experiences with sloppy removal jobs which forced the permanent closure of several schools.

Better enforcement of existing asbestos laws in California will take more than a special investigative unit. Current asbestos policing powers are incredibly uncoordinated, as evidenced by the following review of enforcement agencies and their responsibilities.

The Department of Industrial Relations (Cal-OSHA)

On November 20, 1987, Cal-OSHA informed AOR that every asbestos removal contractor in California was in violation of state law. Repeat. Everyone.

The Cal-OSHA story is not an easy one to tell, or understand. We will attempt a chronological approach:

1. **June 1986** -- Fed-OSHA issues new asbestos work regulations which are stricter than Cal-OSHA's (Section 5208, Title 8 of the California Administrative Code).

2. **January 1987** -- The Governor proposes to abolish Cal-OSHA enforcement in the private sector; i.e., no more inspections of asbestos projects.

3. **February 1987** -- The Department of Industrial Relations announces it may require that certain permits (asbestos) be obtained by contractors.

4. **May 1987** -- The Department reverses itself -- no permits will be required after Fed-OSHA takes over July 1, 1987. May 22, 1987, Cal-OSHA asbestos registration regulations are published. (Title 8, Section 341.7-341.14, California Administrative Code)

5. **July 1987** -- Fed-OSHA assumes concurrent jurisdiction in California. Cal-OSHA inspectors are laid off.

6. **August 17, 1987** -- Cal-OSHA announces that it will require asbestos contractors to give work notifications and to register as handlers of asbestos materials. Notification information will be passed on to Fed-OSHA.

7. **October 27, 1987** -- A state Court of Appeal orders Governor Deukmejian to restore the Cal-OSHA program after ruling that the Governor overreached his veto power in eliminating $7 million which the State Legislature had put in the 1987-88 state budget for the program. The Governor appeals to the state Supreme Court. The high court could take a year to reach a decision on the fate of Cal-OSHA.

8. **November 23, 1987** -- No contractor has adequately satisfied the registration requirements for handling asbestos. Thirty applications submitted. Many denied for failure to provide proper health coverage to employees or proper training of employees.

9. **December 1987** -- Cal-OSHA has still not completed an overhaul of asbestos regulations for public employees (Fed-OSHA has no jurisdiction over public employees). Therefore, state asbestos standards are weaker than EPA standards which cover public employees in states which do not have a state plan. EPA regulations are almost identical to the June 1986 Fed-OSHA regulations. In a December 28, 1987 memo to Cal-OSHA inspectors, Deputy Chief Director, Dr. Frank Ciofalo referred to existing state asbestos regulations covering public employees as "obsolete in terms of employee protection." Furthermore, private sector contractors, understandably confused by the status of Cal-OSHA, are, in some cases, using Cal-OSHA's occupational exposure standard

of 2.0 fibers per/cc air rather than 0.2 fibers per cc/air, the current Fed-OSHA standard. The much lower federal exposure level is the law in California for private contractors.

At a hearing of the State Assembly Labor and Employment Committee, **December 21, 1987,** Cal-OSHA announces that only six of the state's 546 board-certified asbestos contractors are legally registered to do work in California (One month later the registration total reached 21).

On August 17, 1987, Cal-OSHA issued the following statement to contractors regarding the state's right to require asbestos registration:

> "The Division's authority to register private sector employers engaged in asbestos-related work is based upon its continuing jurisdiction over all matters pertaining to employment (Labor Code 6303(b); Troy Gold v. OSHAB, (1986), 187 Cal. App. 3d, 379), the need, in support of its jurisdiction over public sector employers for both the enforcement and consultation personnel within DOSH to be kept informed of asbestos-related work wherever such work is performed, and the implicit statutory mandate that the Division continue to act in the interests of public health and safety.
>
> "Therefore, based upon our understanding of the law, and unless and until a court of competent jurisdiction otherwise directs, the Division will continue to require registration of all employers and contractors engaged in asbestos-related work in accordance with Labor Code Section 6501.5, and other applicable sections of the Code."

Basically, any contractor who during one year handles more than 100-square-feet of asbestos containing materials, must register with Cal-OSHA by providing the following proof:

-- certification from the Contractors' State License Board;

-- medical coverage or a $500 trust account for each employee to insure the payment of medical exam(s) as required by law;

-- documentation that each employee has been trained according to specifications in Section 5208, Title 8 of the California Administrative Code, and the regulations under Fed-OSHA;

-- a written list of major asbestos hazard control equipment that the employer has available for use;

-- a written description of the employer's air monitoring program.

In addition, the contractor must notify Cal-OSHA in writing prior to the start of each asbestos job. The following information shall be provided:

-- job location;

-- precise physical location of the asbestos work at the jobsite;

-- estimated start and finish date;

-- name of certified supervisor responsible for the work;

-- name of person responsible for conducting air monitoring, fitting of respiratory equipment;

-- description of work practices;

-- acknowledgement that the Division can revoke registration if there is not full compliance with the registration requirements.

Enforcement of the registration requirement takes imagination. For example, in late November 1987 Cal-OSHA's Fred Ottoboni, now retired, received a complaint from a San Francisco resident concerning an asbestos removal job at a downtown office building. The resident said Fed-OSHA had not responded in a positive manner to the complaint request. Ottoboni eventually sent a letter informing the building owner that the contractor was not properly registered with Cal-OSHA and, consequently, was in

violation of state law. The San Francisco District Attorney's office was also informed of the apparent violation. Ottoboni said that under state law (Section 6505.5 of the Labor Code) a building owner who knowingly employs an asbestos contractor who is working in violation of existing law is subject to a fine of $5,000 and up to six months in jail.

However, Ottoboni noted that a more effective, quicker enforcement measure might be for the Contractors' State License Board to pull the license of a contractor who is not registered. But Board enforcement deputies said they were unsure of "their right" to uphold a Cal-OSHA regulation, especially one that was not actively enforced by Cal-OSHA.

With the elimination of Cal-OSHA's inspection force, the state is engaged in a "paper chase" enforcement of employer-employee asbestos laws.

Federal Occupational Safety and Health Administration (Fed-OSHA)

The handling of asbestos materials by private sector workers in California is regulated by Fed-OSHA which last amended its asbestos rules in June 1986 (29 CFR Parts 1910 and 1926). A key provision stipulates that employers must establish a "regulated area" when the airborne concentration of asbestos exceeds 0.2 fibers per cc of air, averaged over an 8-hour day. Approved respirators must be worn and where feasible, negative pressure enclosures must be set up. The intent of this regulation is to protect employees from high exposure levels and to confine asbestos fibers to the sealed work area.

As noted previously, Fed-OSHA does not require asbestos notifications, nor does it target asbestos removal work for inspections.

Finally, Fed-OSHA regulations allow a contractor to conduct his own air testing to insure that asbestos levels do not reach the action level of 0.1 fibers per cc -- a fiber count which triggers medical monitoring of the exposed workers. As noted before, some contractors believe an independent source should conduct air monitoring tests to insure that a contractor cannot cover up sloppy work by "doctoring" his own air samples.

Contractors' State License Board

Since April 1986 the Board has distributed over 500,000 pamphlets explaining state and federal asbestos laws to contractors. The Board also oversees the administration of a certification exam for contractors who work with 100-square-feet or more of asbestos materials. Board Deputy Berrigan stated that 546 contractors have passed the exam which tests knowledge of asbestos hazards (Section 7058.5 of the Business and Professions Code).

The Board has not taken any action against asbestos contractors other than to issue warning letters to a handful of companies which were advertising improperly in the Yellow Pages.

Cal-OSHA's Dr. Ciofalo, has suggested that the Contractors' Board not issue an asbestos certificate until the contractor has registered with Cal-OSHA as an asbestos handler. Currently, a contractor licensed in any of 40 trades may take the exam. Ciofalo is concerned that contractors, once they are Board-certified, appear to the public to be "okayed" by the state when, in fact, they may not have trained employees or own the right equipment to remove asbestos. In fact, Turkington, before he resigned from

Cal-OSHA, stated that a "sure-fire" way to insure that a contractor knew how to remove asbestos properly would be to inspect the equipment he owned

United States Environmental Protection Agency (EPA)

The EPA's marching orders are contained in the National Emissions Standards for Hazardous Air Pollutants, first published in 1973 as a mandate of the Clean Air Act. Building owners and asbestos removal contractors are responsible for complying with the standard, last amended April 1984. The intent of the regulations is to prevent "visible emissions" of asbestos into the environment. Asbestos materials must be removed prior to the demolition of a building. However, no air asbestos concentration limits are specified. The rule requires the following:

-- Notification to EPA and/or the local air quality management district or air pollution control district when a building is to be demolished or when at least 260 linear-feet on pipes and 160 square-feet of asbestos on other surface materials will be removed or stripped;

-- Sets standards for wet removal and treatment of asbestos materials;

-- Prohibits spray application of materials that contain more than one percent asbestos, and prohibits use of molded and friable or wet-applied asbestos materials.

California is divided into 41 air pollution control districts. In 17 districts the EPA is the lead with the State Air Resources Board providing technical assistance. There are 24 districts which are essentially on their own to enforce the EPA regulations. In some cases a

local district can enact tougher air pollution regulations. For example, the EPA regulation does not cover work done on single family dwellings while the Bay Area Air Quality Management District does include homes under the reporting requirements.

Ed Wong, the lone asbestos inspector for removal work at the Air Resources Board, conducts only about five inspections per year -- only five to ten percent of his time is devoted to asbestos matters. He said rural areas usually lack the resources to police asbestos -- that is why they defer to the EPA. However, the EPA has only one inspector to cover these 17 districts.

The EPA's Inspector General recently blasted its air management division for touching only about 20 percent of the work it is legally responsible to do, noted Crawford. She is hoping for another three staff positions for Region IX, which is currently bogged down with eight criminal lawsuits involving asbestos violations. If she had the time, she said, she might invoke Section 114 of the Clean Air Act which requires a contractor to describe his past removal jobs -- there are criminal penalties for falsifying this information. Crawford said this information would be a way of documenting past job performances and, as such, would be helpful to school districts, for example, concerned about the performance quality of a low bidder.

Inspections by air management districts center around notification compliance and generally do not involve a walk-through check of removal work in progress. In fact, many district inspectors do not own a respirator which would be required equipment if they were to enter a sealed removal area.

The two largest districts are the South Coast Air Management District and the Bay Area Air Quality Management District. In 1986 South Coast, which covers the counties of Los Angeles, Orange, Riverside, and parts of San Bernardino, fielded three inspectors who checked 431 of 1,638 removal jobs reported, and, subsequently, issued 26 "notices of violation." Bay Area, with 39 inspectors, inspected 336 of 1,098 jobs reported between April 1986 and April 1987, resulting in the issuance of eight safety violations.

Notification of the EPA or the air management districts is triggered by the removal of a large amount of asbestos -- 160 square feet or more. Inspectors say they deal primarily with 15 to 20 major removal contractors and do not hear from the 150 small contractors who, based on Cal-OSHA estimates, work on short duration jobs.

As is detailed in the next Chapter, the EPA's main impact on asbestos has come through its regulations for public and private schools, K-12.

More Review Required

This year the State Legislature is expected to review at least a dozen asbestos bills. Special consideration should be given to the technical definition of asbestos, the "workability" of the law requiring a building owner to identify asbestos before contracting out for remodeling work, and the consistent pattern of state departments issuing mandated reports and regulations way beyond a specified completion date.

(1) In 1986, the definition of asbestos was defined by SB 2572 (CH. 1451) as "manufactured construction material which contains more than one tenth of one percent asbestos by weight" (Section 6501.8, Labor Code,

subsection (b)). The EPA recognizes asbestos as any material containing more than one percent asbestos by weight. Bulk sampling laboratories are generally unable to detect asbestos in the minute amounts set by state law. In written testimony presented in 1987 to the Assembly Housing and Community Development Committee regarding asbestos in housing, David Calabria, president of National Econ Corporation, stated, "Your committee would be hard-pressed to find a single project conducted in the state of California which is in compliance with the one-tenth of one percent standard."

(2) A building owner often has inside knowledge of the presence of asbestos-containing materials within his building. Under current state law (Section 6505.5 of the Labor Code, subsection (b)), the owner has to make a "good-faith" effort to determine if asbestos is present before he contracts to have his building structurally altered. Contractors supported this provision in 1985 (AB 2040, CH. 1587) because they claimed they would often encounter asbestos during a job--discoveries which forced an immediate shut-down of work until the materials could be removed. AOR could not find any district attorney who had prosecuted under this provision of law which contractors say should be reworked to inspire building owners to play a greater role in identifying asbestos materials. The Legislature may want to pursue this issue.

(3) The roll call of "better late than never" asbestos reports and regulations is appalling:

-- The State Department of Health Services was to immediately begin a study of asbestos in public buildings after the Governor signed urgency legislation (CH. 115, Statutes of 1986) on May 28, 1986. The $800,000 survey of 240 buildings may not be completed until mid-or-late-1988.

-- The State Department of Health Services released a report on the efficacy of air monitoring for asbestos hazards in our schools in November 1987, 11 months beyond its due date mandated in urgency legislation (CH. 1587, Statutes of 1985).

-- Cal-OSHA asbestos regulations for public employees will probably not be brought into compliance with stricter federal rules until more than two years beyond the June 1986 date when Fed-OSHA issued the revised asbestos regulations. Asbestos regulations for consultants, mandated by urgency legislation (CH. 1451, Statures of 1986) may never be completed, according to asbestos consultants who have asked Cal-OSHA for a due date on the regulation.

-- Cal-OSHA registration regulations for asbestos contractors were published five months, 22 days beyond the mandated due date (CH. 1587, Statutues of 1985) and the actual registration forms were not avilable to contractors until August 17, 1987

The Legislature should consider the ramifications of future bills which place importance on a timely completion of an asbestos report or regulations.

Conclusion

State and federal regulators are not effectively policing asbestos abatement work in California. Enforcement of work practices must be improved before new programs are instituted which promote abatement of asbestos hazards in buildings.

Recommendations

1. If Cal-OSHA's jurisdiction is restored in the private sector, require that no abatement project over 160-square feet, or 260 linear-feet, could begin until a Cal-OSHA inspector had personally visited the removal site to approve the work plan, including approval of respirators to be worn and negative air pressure equipment to be employed during removal. Exemptions would be provided for emergency clean-up of asbestos spills. Expanded Cal-OSHA inspection staff could be paid for, in part, by inspection fees assessed contractors. Also, increase investigations of unregistered contractors.

2. Require the Contractors' State License Board to obtain proof from Board-certified asbestos contractors that they are also registered with Cal-OSHA. Failure to show proof of registration within 90 days would invalidate current certification. No new certificates could be issued to unregistered contractors. To satisfy the registration requirement that a contractor be certified, the contractor would take the certification exam prior to registration. If he passed, the Board would notify Cal-OSHA which would then act on the registration. The Board would only issue a certificate after it was notified by Cal-OSHA that the contractor was registered.

3. If Cal-OSHA private sector enforcement powers are not restored, or actively employed, then establish an asbestos enforcement unit within the State Contractors' License Board to pursue unlicensed or unregistered contractors who perform asbestos removal work.

4. Prohibit conflict of interest relationships between asbestos consultants and abatement contractors; and project monitors and abatement contractors.

5. Amend the state's definition of asbestos to "one percent of more by weight"--current standard is "one-tenth of one percent by weight."

6. Adopt the federal asbestos regulation (20 CFR Parts 1910 and 1926) on an urgency, interim basis for public employees until Cal-OSHA publishes its updated regulation.

CHAPTER V

SCHOOLS: LOSING THE WAR

The EPA-led attempts to manage asbestos in our schools should serve as a national lesson in how not to regulate an environmental hazard. Wasteful, almost tragic, policy decisions have permeated the asbestos-in-schools program since the EPA first offered schools technical assistance in 1979.

Now the EPA, acting at the direction of Congress, has raised the stakes by issuing the most comprehensive asbestos management regulation for schools in our nation's history. The new rule, effective December 14, 1987, was crafted to make amends for a 1982 regulation which lacked specific exposure control directives. Success will be difficult, however, due to an unrealistic time-frame for compliance and the continued EPA philosophy that asbestos problems should ultimately be handled by local decision-making, including local financing of abatement projects.

This chapter will cover the weaknesses in the 1982 EPA asbestos regulation, and how the new rule, although a vast improvement over the original regulation, is filled with problem areas that could jeopardize the safety and health of school children and employees.

In the late 1970s after the EPA banned the spray application of asbestos in buildings, environmental and employee groups lobbied the EPA to set "asbestos standards" for buildings. The EPA, acknowledging that public resources were limited, focused on schools where "asbestos exposure in

children is of special concern: since they have a greater remaining life-span than adults, their lifetime risk of developing mesothelioma is greater."[1] The EPA also contended that children have higher breathing rates than adults and, thus, inhale more through the mouth than the nose which filters out some contaminants.

In 1979 EPA began offering schools "information" about asbestos problems. This effort was followed by a May 1982 regulation which required schools to do the following by June 28, 1983 (40 CFR, Part 763):

- inspect buildings for friable asbestos-containing materials;
- take samples of materials to verify the asbestos content;
- maintain records;
- notify parents and employees whenever friable asbestos was found.

One aim of the regulation was to apply public pressure (upset parents and teachers) on school districts so that abatement action would soon follow the discovery of asbestos materials. The pressure tactic was, in truth, one giant push on the panic button. In New Jersey, for example, hundreds of school districts rushed to have asbestos materials removed. As a result, New Jersey schools were invaded by inexperienced contractors who improperly removed asbestos materials. In September 1984 a New Jersey state commission released the following comment on the school removal efforts:

> "Sometimes the pressure brought to bear on the school boards or others has resulted in the removal of asbestos materials posing no immediate health hazard and requiring substantial expenditures. Unfortunately, there is considerable reason to believe that poor removal jobs not only pose a significant health risk to

the removal workers, but can liberate asbestos fibers into the air at higher levels than existed prior to the removal. Students and school employees who subsequently occupy these buildings may therefore be subject to significantly higher airborne asbestos levels after the removal than if no action had been taken."

One-Time Oversights

In August 1987 the EPA's Office of the Inspector General presented a House subcommittee with stinging criticisms of the 1982 regulations. According to the Inspector General, key oversights in the regulation included the following:

-- Schools were not required to reinspect buildings after the initial survey; therefore, nonfriable materials which later became friable would go undetected as well as material that was missed during the one-time inspection.

-- No standards were set for what constituted proper notification of employees and parents. Some schools hid notices on back pages of newsletters while many schools gave oral notifications even though written notification was required.

-- Notification, as was the case with the inspection program, was a one-time process; therefore, new employees and parents of new students were often not informed that asbestos had been found in the building.

The major regulatory flaw concerned what to do once a school discovered asbestos. The EPA did not mandate a response action, consequently some schools "went overboard" and spent huge sums of money to pay for what, in some cases, was unnecessary removal of asbestos. The vast majority of

schools, however, totally ignored the regulation. In California the EPA reported that over 70 percent of some 900 schools that it checked for compliance with the 1982 regulation had, in fact, not complied. By 1987 the noncompliance rate surpassed 80 percent, underscoring the belief that California school districts were not going to obey federal law unless a federal inspector personally visited a school district and, subsequently, issued a violation notice.

In March 1984 state Superintendent Bill Honig reported that 3,242 California public schools, K-12, had, based on surveys submitted by districts, friable asbestos-containing materials and that about half these schools had, in some manner, abated the asbestos hazards at a cost of over $160 million. He stated that another $100 million was needed to help 1,600 remaining schools with removal efforts. There were no figures available for private schools.

Tight Purse Strings

In August 1984 President Reagan signed the Asbestos School Hazard Abatement Act (ASHAA, PL 98-377) which set up an EPA loan and grant program to help public and private schools abate asbestos hazards. But after two and a half years of operation, the funding program was in need of major revision, as noted by the Inspector General in August, 1987:

> "EPA awarded loans and grants totaling approximately $11 million to schools that did not have the most critical hazards. This occurred because the Agency's definition of qualified applicant is too broad. As a result, EPA provided grants and loans to schools with only minor damage and health risks, while schools with major damage and more severe health risks did not receive funds."

California has not fared well in the receipt of EPA grants and loans. Of the $134 million distributed to the states from 1985 through June 1987, California ranked 22nd with awards of $1,007,870. By contrast Ohio received over $20 million and Pennsylvania was awarded just under $14 million.

In March, 1987, AOR released a report, Danger: Asbestos Policies At Work, which described funding and policy implementation problems plaguing the asbestos abatement efforts in California public schools. The report's major findings were as follows:

-- State inspections of schools may have inaccurately cleared schools of asbestos hazards when, in fact, hazards still exist. (This finding prompted Superintendent Honig to call for a State Auditor General investigation. A July 1987 Auditor General report, The State Department of Education Did Not Comply With Its Federal Fiscal Year 1985-86 Agreement With the Environmental Protection Agency Concerning Asbestos In Schools, confirmed that hazards had been missed and that a state inspector "either directed or encouraged some school officials to sign backdated documents indicating that the school districts had complied with the federal regulations.)"

-- The State Asbestos Abatement Fund, used to help districts pay for abatement work, has not been used properly. (This problem continues. Nancy Anton, Legislative Analyst's Office, reported as of October 24, 1987, that the Office of Local Assistance, which administers the Fund, had not released $18 million of $24 million appropriated by the State Legislature for school abatement work,

from 1984 through 1986. In December 1987, the State Auditor General was authorized to investigate Local Assistance's handling of the Asbestos Abatement Fund -- audit request made by Lieutenant Governor Leo McCarthy).

-- No one in state government can accurately assess how many schools have abated asbestos hazards since the Department of Education estimated that 1,600 schools contained friable asbestos materials in March 1984.

(There are still no accurate estimates of how much asbestos abatement work remains in our public school system.)

In a December 1987 meeting with AOR, Local Assistance Deputy Carl Carmichael explained that "almost all" of the $18 million in unreleased Asbestos Abatement Fund monies had been approved for payment by the State Allocation Board. In many cases, however, school districts had asked for funding in conjunction with major reconstruction projects which entailed the "future" removal of asbestos. These projects could be 18 months to two years from initiation, hence the funds, although allocated, would not be released until the removal work actually occurred.

A further obstacle in releasing funds, noted Carmichael, was that as much as one year might pass between the time a school submitted an application for funding and the actual receipt of bids to perform the work. Removal bids in 1986 and 1987 were averaging 75 percent more than the original estimates used as the basis for approving requests. Mushrooming insurance costs have driven abatement prices up, stated Carmichael.

Clearly, the reasons for slow release of funds were not articulated well during the 1987-88 state budget process when the State Legislature, following the recommendation of the Legislative Analyst, did not approve any new funding for abatement work in schools in FY 87-88.

Therefore, school districts must confront the new federal asbestos program without readily available state aid and minimal opportunities for federal financial assistance.

New Rule, New Problems

On October 22, 1986, President Reagan signed the Asbestos Hazard Emergency Response Act (AHERA) which, for the most part, directed the EPA to correct oversights in its 1982 asbestos rule. In AOR's opinion -- a viewpoint shared without objection by 20 school districts interviewed for comments -- the EPA's "new and improved" product contains serious flaws which will, at the very least, create severe financial problems for hundreds of school districts. In fact, some state officials predict that AHERA will put a few private schools out of business. Furthermore, while the intent of AHERA is to establish an ongoing management plan in every asbestos-containing school geared towards controlling the release of asbestos fibers, the rule may actually promote asbestos fiber releases (See Table I for explanation of AHERA requirements). The major program faults are as follows:

1. **Unrealistic time-frame for compliance**. Under AHERA 15,000 California schools will have to be inspected for asbestos content -- nonfriable materials are to be included in the inventory -- and a management plan, detailing how the identified material is to be controlled,

must be devised for each school. The plans are to be submitted for review and approval by the Governor's designated program clearinghouse, the Office of Local Assistance, by October 12, 1988. This Herculean task will be impossible for many schools to complete by the mandated deadline for these reasons:

- The final regulation was not published until October 30, 1987. School districts and Local Assistance did not receive copies of the regulation prior to December 1987. Therefore, schools actually will have about ten months in which to comply with the first phase of AHERA.

- Inspections and management plans must be completed by personnel who have passed an EPA-approved asbestos training program. The first such program was not offered in California until November 16, 1987. School districts must waste precious time waiting for an army of inspectors and planners to complete their training.

- Schools are confronting AHERA in the middle of their budget year and they are not, in many cases, prepared to meet the significant costs imposed by the regulations. Budgetary constraints will impede a district's ability to respond to AHERA in a timely fashion.

- A limited number of inspectors and planners will be attempting to check 15,000 schools. Since AHERA is a national regulation, schools in other states are going through the same time crunch, consequently, each state will be making demands on the limited pool of inspectors and planners.

2. **Quality Control Over Inspections and Planning Is Lacking**. Anyone may take an EPA-approved asbestos course which, if passed, would qualify the individual to perform asbestos work in schools. There are no minimum qualifications for course applicants other than they must satisfy applicable state laws. California does not regulate asbestos inspectors or planners -- only three other states regulate this type of work.

While it would be premature to say California schools will be plagued by sloppy inspections and poorly devised management plans, the asbestos control experiences in Connecticut schools indicate there could be serious quality control problems in California during 1988. In brief, Connecticut, with a public and private school system about 15 percent the size of California's system, is some two years ahead of California and the EPA in establishing an asbestos exposure control program for schools. In fact, the EPA regulations are modeled, in part, on the Connecticut plan. Connecticut's health department director Paul Schur, in a series of 1987 briefings with California school officials on his state's "hard earned lessons", offered the following observations:

-- Connecticut trained 269 inspectors and 147 planners during a two-month period. This process failed to weed out incompetent inspectors and planners based on the large number of inspections and plans which were rejected by Schur's department. For example, 135 schools had their programs halted due to the inferior work of one accredited inspector. Over half of the planners were school employees while one-third were private consultants. More than 90 percent of the school

employees' plans were rejected while most of the private consultants had their plans approved. Schur warned that while the EPA regulation encourages school employees to engage in asbestos work, there is "no substitute for professional experience."

Schur also asserted that careful review of each management plan is "the best check" against sloppy abatement work. He said a typical plan took one of his health auditors two to three hours to review.

The Office of Local Assistance, California's state review agency for asbestos plans, had only four staff people on staff to deal with asbestos work in December 1987. Local Assistance Deputy Director Carl Carmichael, has stated that the asbestos plan review unit will be augmented substantially to handle the 15,000 or so plans which eventually will find their way to Sacramento for review--however, he would not elaborate on how many people his office would need to meet the workload, let alone what qualifications these people would possess.

Under the EPA regulation, Local Assistance has 90 days to act on a submitted plan. If the office fails to take action, the plan is automatically approved. Some school districts will submit plans in early 1988 in the hopes, one school official admitted, that Local Assistance will be too disorganized to review the plans within 90 days. On the other hand, Local Assistance may be swamped with 10,000 plans on or near the October 12, 1988 deadline, thus setting up a situation where the office would be unable to adequately review each plan, given the workload and lack of staff.

Existing California law could provide some control over abatement plans, in that Section 39148 of the Education Code requires a registered architect, or in some cases a mechanical or electrical engineer, to prepare plans for school alterations which cost over $20,000. EPA instructor Shirley Cartwright, who teaches a management planner course at the Pacific Asbestos Information Center, U.C. Berkeley, said, however, that she has informed students that California law does not apply to asbestos planners when the removal work specifications involve only a weight reduction rather than a structural change in the building.

Few architects in California design asbestos removal plans due to unavailability of errors and commissions coverage for asbestos-related work. The few architects who do asbestos work, however, contend strongly that EPA graduates who plan abatement projects are practicing architecture without a license. Steven Winter, a registered architect under contract with the City of New York to identify asbestos materials in public and private buildings, testified at a hearing of the Assembly Housing and Community Development Committee (12/9/87) that "the performance of a building during the removal and replacement of asbestos-containing materials are clearly within the realm of architecture". He stated that industrial hygienists who plan removal projects in California are practicing without an architect's license and are "guilty of a misdemeanor".

Michael Chambers, a registered architect with the State Department of Education, has argued that an industrial hygienist, for example, could submit a plan for the abatement work to satisfy the EPA regulations while a registered architect would prepare a plan for any structural changes in the

building. Chambers stressed that most architects are unfamiliar with the intricacies of setting up a removal project which, in part, includes the establishment of negative air pressure within the work area and a regulated decontamination chamber for workers.

Finally, the unregulated work of asbestos consultants could lead to conflict of interest problems. Some critics believe that consultants have a tendency to recommend costly abatement actions if they have a business connection with a company that engages in abatement work. Several abatement contractors, such as Tim Hassler, president of ABMS, Inc., Oakland, would support a conflict of interest law for asbestos work in schools. Under current California law, a company that identifies asbestos hazards can also remove them. Furthermore, a hazard assessment company may use a different name than its affiliated abatement company, a relationship that has not always been disclosed to clients. Although the EPA regulation recommends that a state consider passing a law to prohibit a school district from hiring a firm to conduct a hazard assessment as well as the actual removal work, it fails to mandate this prohibition.

3. **No Special Safeguards Set For Removal**. The EPA regulation also fails to mandate a conflict of interest prohibition for removal contractors and air monitoring companies, although, as is the case with planners and abatement contractors, the regulation urges states to consider a prohibition. Under existing Fed-OSHA work regulations, a removal contractor may monitor his own work, that is, he takes air samples to prove that the concentration of asbestos fibers within the work area does not exceed the permissible exposure level. As noted previously in this report, there have been cases of an air monitoring company providing false sample

reports to indicate that the abatement contractor has conducted a clean job.

In California, Local Assistance has acknowledged the problems with monitoring abatement work by requiring that a school district which uses the State Asbestos Abatement Fund employ an independent project monitor to check the work of the abatement contractor. But this requirement is a "guideline" rather than a state law or regulation and, is not applicable to schools which use other sources of funding to pay for asbestos removal. In a similar manner, the Department of General Services contracts with air monitoring companies to check abatement contractors working in state buildings, but this policy is not in regulation, or law.

The importance of independent monitoring is underscored by the fact that hundreds of removal jobs occur in schools without the benefit of an inspection by a regulatory body. In 1986 under budget language added by the State Legislature, Cal-OSHA was directed to inspect removal jobs in schools. Four inspections turned up serious violations. Fed-OSHA, the active enforcement authority in California schools, does not have any plans to monitor removal work in schools in accordance with EPA regulations.

4. **Too Many Options Spoil The Rules.** The 1982 EPA asbestos regulation lacked details. The new regulation is crammed with detailed written descriptions of asbestos conditions which are designed to guide schools in reaching an abatement decision. In its introduction to the regulation, however, the EPA freely admits that the rule allows administrators to select a variety of responses:

> "However, a rigid response action decision structure is not appropriate for this rule, primarily because many asbestos hazard situations are too circumstantial and

> appropriate response actions are too (hazard specific) to fit neatly into a discrete set of prescriptive categories. There appears, then, no substitute for the judgement of the accredited management planner, who must recommend appropriate response action within the general requirements established in Sec. 763.90."

Later on in the regulation, the EPA adds:

> "The rules, however, are not designated to prefer one response over another, but to allow schools the flexibility to deal with their particular situations. The important point for purposes of this rule, is that varying local circumstances will drive the decision on the appropriate response action."

Key to local decision-making is the EPA's belief that economics must play a key part in choosing a response, as noted in the regulation:

> "From among the actions that protect human health and the environment, the LEA (Local Education Agency) may select the response action that is least burdensome."

There are five accepted responses: (1) operations and maintenance (keep an eye on the material) (2) repair (3) encapsulation (4) enclosure (shut the area down) and (5) removal. In the worst-case scenario a school, according to the regulation, must repair "significantly damaged thermal insulation" and if repair is not possible "due to technological factors," the material must be removed. This is as close as the regulation gets to mandating removal.

The definitions, themselves, lack specifics that would mandate one particular response. For example, "significantly damaged thermal insulation", which usually represents the highest asbestos content and typically is of the greatest concern for health reasons, is defined as insulation that "has lost its structural integrity, or its covering in whole or in part, is crushed, water-stained, gouged, punctured, missing or not intact such that it is not able to contain fibers." EPA contends that

this definition allows that "even though the insulation is marred, scratched or otherwise marked, it may not be, in the judgment of the accredited expert, damaged so as to release fibers." Again, the regulation puts the burden of the abatement decision on the management planner, or so-called "expert".

In the realm of "least burdensome", the EPA offers cheap, sometimes unrealistic solutions to preventing asbestos spills. For example, the regulation recommends that "the problem of high school students hitting the gym ceiling with basketballs may be eliminated by a policy prohibiting such activities, if it can be effectively implemented." Or there is the "installation of a stop to prevent a door from striking (and damaging) thermal system insulation...".

Therefore, under the EPA regulation two schools with identical asbestos problems can, depending on the prejudices of experts and economic constraints, select wildly different responses: the $2 door stop vs the $200,000 removal job.

5. **Private Schools Must Sink or Swim** In past years, EPA grants and loans have been available to private schools seeking to comply with the asbestos rules. But restrictions such as $1,200 per year limit on tuition charges have knocked many California schools out of contention. In fact, the EPA has not awarded one penny to a California private school, yet it has assessed these schools over $258,000 in civil fines from 1984 through 1986 for noncompliance with the 1982 regulation. In short, California private schools account for 11 percent of the state's total student enrollment (K-12) and about 81 percent of the EPA noncompliance fines (1984-1986). In most cases these fines are dismissed after the school

satisfies the federal mandates; however, the large percentage of fines against private schools indicates that they have had a very difficult time complying with a 1982 rule that is now considered much weaker and much less costly to satisfy than the new regulation. One official from Local Assistance has predicted that the new regulation will add to the swelling public school enrollment by putting some private schools out of business.

Private school officials contend that fighting asbestos hazards with state assistance would not violate separation of church and state.

"This is not a classic church and state issue; it is a health issue where financial need is the priority," stated Bruce Keuning, superintendent of Bellflower Christian Schools and past president of the California Association of Private Schools. "I clearly agree with the separation of church and state on text books, but health matters are another concern. We are assisted by the health department in conducting earthquake safety measures at no charge; is not asbestos a health problem?"

Keuning noted that the added cost of meeting the EPA regulation coincides with a tripling of his school's insurance bill.

"The regulation will force schools to scrape an already empty barrel," he noted.

Dr. Joseph McElligot, Director of Education for the California Catholic Conference (there are 747 Catholic schools in California with a total enrollment of 265,000 students) stated, "We would be open to discussion on state funding to help with asbestos problems. While the state Constitution prevents funding private schools, the courts have approved use of state resources in busing, for example, by allowing private school students to ride public school buses when children's safety is at hand."

McElligot also noted that state and local governments have helped conduct private schools earthquake inspections.

One of the hardest hit parochial school systems is the Monterey Diocese where seven schools had abatement work conducted at a cost of $400,000 last year. The diocese, which did not qualify for EPA funding since its $1,700 annual tuition charge exceeded EPA's $1,200 limit, had to take out a loan to pay for the abatement, according to superintendent Agnes Leonardich.

Governor's Expanded Role

Unlike the original 1982 regulation which did not specifically involve the governor of a state in overseeing the implementation of the asbestos-in-schools program, the new regulation requires a governor to play an active role in determining the success of AHERA. As noted earlier, our Governor, as required, has named the Office of Local Assistance to approve the management plans. But the Governor is also directed, under AHERA (Sec. 208. Emergency Authority), to intercede whenever a school district "is not taking sufficient action (as determined by the Administrator or the governor) to respond to the airborne asbestos or friable asbestos-containing material"..."then the Administrator or the Governor of a State is authorized to act to protect human health or the environment." (The Administrator is the EPA.)

The Governor may be prompted to act as a result of a parent's complaint. Under Part 763.97, "Compliance and Enforcement," the regulation clearly states that any citizen may direct a complaint to the Governor, or the EPA and that the complaint shall be investigated and responded to within "a reasonable period of time if the allegations provide a reasonable basis to believe that a violation of the Act has occurred."

Therefore, angry parents who have in the past have filed suit against school districts for asbestos inaction, are now under federal law invited to take their case directly to the Governor.

Conclusion

The intent of the new EPA regulation deserves praise. The establishment of an ongoing program to prevent asbestos spills in our schools is long overdue. If it is important to maintain a school's boiler room furnace, it is as equally important to maintain the asbestos materials that help keep a heating system efficient.

Clearly, the regulation recognizes the importance of assessing asbestos materials on a case-by-case basis. Wholesale removal is a blueprint for disaster. Asbestos control is a function of sound, environmental management.

But the grand plan begins to unravel under an unrealistic time-frame for compliance which aggravates the crying need for money and technical expertise, both of which are in short supply in California and throughout the nation.

State legislation can help schools alleviate some of the stress prompted by AHERA as well as correct several quality control flaws in the regulation. It will take an act of Congress to adjust the October 12, 1988 deadline, however, and other compliance deadlines to a point where California's 15,000 schools have a reasonable opportunity to institute a sound asbestos management program.

Recommendations

1. The Office of Local Assistance should field an inspection team to conduct on-site reviews of inspection reports prepared by EPA-approved inspectors hired by schools. Local Assistance inspectors, who should be industrial hygienists, must be empowered to decertify individuals who perform improper or incomplete inspections. This must be urgency legislation since some inspections will start in early 1988. These state inspectors could also provide technical assistance to both public and private schools; i.e., they could demonstrate what a properly conducted asbestos inspection should cover.

2. Local Assistance must have adequate staff to review 15,000 management plans. A proper staffing level can be set during the 1988-89 budget process

3. All school abatement projects should have an independent project monitor who reports directly to the school district and who has the power to shut an abatement job down if safety measures are not followed. The monitor cannot have a business relationship with the company hired by the district to abate an asbestos hazard. This change in law is needed to bolster enforcement of asbestos work regulations which are not now adequately enforced in California.

4. A school district should be prohibited from using the same company to assess the condition of asbestos materials and to abate any identifiable hazards. Assessment and abatement of asbestos are two distinct functions which should not be undertaken together by the same company or two companies with a business relationship.

5. The Asbestos Abatement Fund should be restructured so that schools which would have to be shut down until asbestos materials are abated would receive priority treatment over schools which use the Fund to help pay for reconstruction projects. Furthermore, the use of air monitoring to establish eligibility for funding should be abolished and instead, Local Assistance personnel with industrial hygiene capabilities should conduct on-site assessments to determine eligibility (air monitoring problem covered in Chapter II).

6. Local Assistance should report to the Legislature by December 31, 1988, the results of management plans submitted by schools through November 1, 1988. This report should contain an estimate of how many schools have complied with the EPA regulation and the projected cost of their long-term abatement work. In addition, a report should be done on why some schools have failed to comply. Furthermore, the State Auditor General should complete its audit (P-773) of Local Asssitance's management of asbestos monies (audit may not be completed until mid-1988) as soon as possible.

7. The Legislature should provide adequate funding to our schools to insure that inspections and plans are conducted by qualified personnel in a timely fashion. The projected need for public schools is $40 million during 1988 and $22.8 million in 1989. Demand for removal funding should exceed $110 million in 1989.

FOOTNOTE

Chapter 5

1. EPA, Guidance for Controlling Asbestos-Containing Materials In Buildings, June, 1985.

CHAPTER VI

STATE OWNED ASBESTOS

"Decisions to abate asbestos are based on potential health risk considerations--cost is a subordinate factor," so stated Michael J. Bocchicchio, State Architect of California, at a December 9, 1987 hearing of the Assembly Housing and Community Development Committee. Bocchicchio also testified that long-term costs for abatement in the state's 11,600 buildings could top $1.3 billion while short-term expenditures were set at $70 million.

The architect's statements drew whistles from members of the audience who were stunned by the potential bill that taxpayers might have to foot to control asbestos exposure in state buildings. Indeed, the state's involvement in controlling asbestos in its own buildings is one of state government's best kept secrets. The Department of General Services, which oversees the asbestos control program, has developed its initial policies with limited legislative oversight. However, the department was most cooperative with AOR in exchanging information on asbestos control work. Furthermore, the department participated in two Assembly hearings on asbestos during December 1987, and, subsequently, altered some of its asbestos policies as a result of these hearings. Therefore, the department has clearly demonstrated a willingness to improve its asbestos control efforts in concert with legislative oversight.

This Chapter is devoted to a brief description of the state's asbestos control program, including recommendations for improving the program.

Law Suit Initiates Action

In January 1985, the State Attorney General, on behalf of the State of California, joined 41 other states in filing a claim against the Manville Corporation, a former manufacturer of asbestos which had filed for protection from creditors under Chapter 11 of the U.S. bankruptcy code in 1982. To date over $80 billion in claims against Manville have been filed by states, schools, hospitals. etc., hoping to recoup some of the costs related to abating asbestos hazards in buildings.

State Deputy Attorney General Jeff Graybill explained that the claim process required the state to present proof of its asbestos inspections and costs. Subsequently, under the direction of the Office of the State Architect (Department of General Services), a series of asbestos inspections were initiated covering 2,200 buildings during 1985 and 1986. The remaining 9,000 buildings will be inspected during the coming year.

The Legislature appropriated $2.2 million in the 1986 Budget Act for the asbestos program. The initial survey cost $1.2 million. Remaining funds coupled with an urgency deficiency appropriation of $627,000 were used for abatement work. The 1987 Budget Act added $2 million for abatement while the Governor has proposed $13.9 million in the 1988-89 budget for future abatement projects at state buildings. Removal schedules, however, were put on hold in December 1987, after General Services learned that not one single asbestos contractor working on state buildings was legally registered with Cal-OSHA. The current budget review

should consider the extent to which the registration oversight will delay the start and completion of future abatement projects covered in the proposed budget.

According to Deputy State Architect John W. Hansen (resigned in June, 1987), the initial survey was conducted by six different consultants. Hansen said the state wanted to spread the work out to assess the performance of what is a relatively new industry--asbestos hazard assessment. This survey should not be confused with another state survey, mandated by legislation (CH. 116, Statutes of 1986), which calls for a sampling (state and local governments) of public buildings to be surveyed for asbestos hazards.

Bocchicchio explained that the consultants followed EPA guidelines for assessing asbestos hazards in buildings. The focus of the survey was 24-hour facilities such as prisons and hospitals.

"It should be noted that asbestos is not considered a permanent construction material and is usually recommended for abatement," stated Bocchicchio. "The more durable (nonfriable) materials are recommended for removal during a future remodel project or renovation of space. If asbestos-containing materials are found to be friable, they are removed in accordance with EPA guidelines."

By using six consultants rather than one or two, the state opened itself to what critics call the "vagaries of risk assessment". Some consultants rate high, some tend to be low. For example, Asbestos Environmental Controls, Inc., estimated that each building it checked had $26,400 worth of priority abatement work while Hall-Kimbrell Environmental

Services Inc., found an average of $8,932 of abatement work in each location inspected. Therefore, while 63 priority hazards were identified collectively by the six consultants in the survey of 2,200 buildings, there may have been more, or possibly less hazards found if the work had been performed by one or two consultants.

Hansen said he did not check to see if the consultants hired by the state were connected with companies that remove asbestos. A business tie between assessment and a removal company is not illegal nor does it signify that estimates will be high (promote removal). But there has been substantial documentation to suggest that it would be wise to avoid a conflict of interest in hazard assessment. Indeed, at least one of the state-hired assessment firms was tied to a company which removes asbestos.

Policies Continue to Evolve

On September 8, 1987, the director of General Services, W.J. Anthony, answered in writing a series of questions that had been lodged by AOR a month earlier regarding asbestos work in state buildings. These verbatim answers are followed by updated information when applicable.

(1) Question: How did you pre-qualify asbestos removal companies that bid on state jobs? And did you check a contractor for satisfactory completion of the last three removal jobs?

Answer "Contractors are prequalified for financial capability where required; otherwise, we rely on the procedures of the Contractors' State License Board, which governs the licensing of contractors and certification of asbestos abatement firms. OSA (Office of the State Architect) verifies the status of the licensees prior to issuing a bid proposal form.

"We cannot, under the law, use prior performance as a screening device, except as it relates to financial capability and prior safety violations. This office is preparing a safety questionnaire for review by the Department of Industrial Relations, per Section 10161 of the State Contract Act, for future bids.

"Under the licensing law, the contractor is legally able to bid on any and all projects provided they can meet bonding and insurance requirements. We feel that the assurances provided by bonding, liquidated damages and the supervision by the contract consultants (air monitoring and supervision) are adequate to assure performance."

Update: A further clarification of this response verified that a contractor's previous work was not checked. As director Anthony indicated, state law prevents a contractor from being excluded based soley on prior job performance. The point AOR made was that some contractors do not notify authorities, as required by law, that they are doing asbestos work, hence, they are usually not inspected--a record of the work does not exist. Specifically, AOR asked Cal-OSHA to check the reporting records of companies which bid on state asbestos jobs. One firm apparently had never notified or registered with Cal-OSHA; however, the state did not check the company's last three jobs, hence, it never was aware that it had not registered with Cal-OSHA (the firm also had no recorded asbestos violations). (The next question addresses General Services' failure to communicate with Cal-OSHA on notification and registration records.)

Effective January, 1988 the Start Architect's Office began using a safety questionnaire in its contract specifications. The questionnaire, however, fails to address the asbestos registration requirements of Section 341.7, Title 8, of the California Administrative Code. (see below)

Safety Questionnaire

In accordance with Public Contract Code section 10162, the bidder shall complete the following questionnaire.

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever received a safety violation citation or failed to file notifications to the Cal-OSHA, Federal OSHA or EPA agencies for employee records as required by Title 8, Section 5208, and CFR 40, Part 61?

Yes_____ **No**_____

If the answer is yes to the above, give the date(s) of the citation(s) or failure to make notifications and explain the circumstances in an attachment.

Note: This questionnaire constitutes a part of the Proposal, and signature on the signature portion of this Proposal shall constitute signature on this questionnaire.

(2) Question: Did you verify that the asbestos contractor had registered with Cal-OSHA as required by law?

Answer: "The notification of Cal-OSHA of activities as an asbestos handler is the contractor's responsibility. OSA requires that any work done by the contractor on a

"Notification of EPA and local air management districts is the contractor's responsibility. A standard questionnaire is required from the contractor pursuant to Section 10162 of the State Contract Act, that it has not been previously disqualified from participation in the bidding process due to a citation for violation of regulations. The questionnaire is made part of the bidder's proposal form."

Update: At a December 21, 1987 hearing of the State Assembly Labor and Employment Committee, Ken McClellan, special project officer for the Office of the State Architect, testified that his department had only a "few weeks ago" learned that not one single contractor removing asbestos from state buildings was registered with Cal-OSHA. At the hearing State Assemblyman Richard E. Floyd and State Senator Bill Greene recommended that

all state asbestos jobs be shut down until the contractors involved were properly registered. Subsequently, the State Architect sent letters by registered mail (12/24/87), informing contractors doing asbestos work in state buildings that they must immediately stop working until they were properly registered. The cease and desist order affected six contractors involved in 33 projects.

General Services should have been aware that contractors had been in violation of Cal-OSHA's registration law since May 22, 1987. Also, Cal-OSHA should have done a better job informing state agencies of the registration requirements. Cal-OSHA's first memo on the registration law was issued August 17, 1987, although General Services administrators and many asbestos contractors claim they never saw such a memo.

(3) Question: Does the state require an asbestos contractor to have "claims made" or "occurrence" liability insurance?

Update: Further clarification of the initial response which was inaccurate revealed that the state requires a $1 million "claims made" coverage, a much less desirable insurance than "occurrence". Basically, under claims made, the policy only covers claims filed during the life of the policy, usually one year, while occurrence claims may be filed at any time. Only a few abatement companies have "occurrence" coverage due to its high cost.

(4) Question: Does an independent project monitor oversee the abatement project?

Answer: "Each project has three 'managers' (the construction supervisor, consultant and the project manager) cooperating with each other to provide total project management. Specifically, within contaminated areas, a consultant is hired to inspect the contractor's abatement practices and provide air level monitoring. During abatement activities, both the consultant and the contractor report to the OSA construction supervisor. This dual effort constitutes the total of our field services. Administrative matters are handled by a designated project manager in Sacramento.

"The consultant is under contract with OSA and is not to be associated with the contractor in any way. Within the abatement areas (off-limits to the OSA construction supervisor), the consultant has delegated authority to suspend contractor activities. Should an event occur, immediate notification must be made to the OSA construction supervisor. The consultant is selected through OSA's architectural and engineering selection process.

"It is our position that the use of qualified construction supervisors and consultants will result in adequate supervision of the work and minimize the risk to building occupants and workers. In addition, we will be completing a consultant evaluation form which can be used to improve the services of the consultants."

(5) Question: Are building occupants notified that asbestos removal work will be performed in the building in which they work or live?

Answer: "A standardized letter is being prepared as an example for department notification to building occupants of impending abatement action. This is an essential step in the process to allay employee concerns and still make them aware of the contract activities."

(5) Update: As of January 12, 1987, the Department had not completed a standardized letter; however, it has worked with agencies in distributing notification memos to state employees, according to McClellan.

On October 5, 1987 the Department of Food and Agriculture issued a bulletin to its workers in its Sacramento headquarters building after flooding (broken water pump) damaged asbestos pipe insulation and ceiling tiles. Employees were informed about the clean-up procedures as well as the location of safe entries and exits. While this is a good example of communications reducing fears and promoting safety, other state departments have failed to adequately keep their workers apprised of asbestos work and/or hazards in their buildings. Specifically, scores of employees at the Department of Veterans of Affairs and the Resources Agency in Sacramento were angered over asbestos work they claim was conducted "behind their backs" in 1987. Furthermore, on December 2, 1987 Cal-OSHA discovered asbestos hazards in the locker room and gym at State Police headquarters in Sacramento (Blue Anchor Building). Employees had not been informed of the asbestos problems. On January 5, 1988, Cal-OSHA cited the California State Police for exposing officers to friable asbestos. In a surprise inspection the following day, Cal-OSHA "caught" General Services' work crews cleaning up the asbestos without proper equipment. The work was halted.

General Services has contracted with Med-Tox Associates, an environmental hazard assessment firm, to provide "awareness training" to state building maintenance workers. But Christopher J. Voight, executive assistant for the Alliance of Trades and Maintenance, has claimed that this one day asbestos training "falls short of properly preparing employees" to work safely with asbestos building materials. He added that the training, directed at 300 General Services employees, is not offered to thousands of state employees--members of his union--who work with asbestos materials in a construction or mechanical capacity. He contended an important first step for the state would be applying warning labels to asbestos materials so workers could avoid disturbing asbestos on the job.

Other State Asbestos Policies/Programs

In 1984, the California State University (CSU)with 1,000 buildings became the first major public building owner in California to institute an asbestos management plan. Plant operations specialist Jo Ann Betti stated that all 19 campuses have asbestos and that abatement has or will soon take place at 17 campuses. She said the original estimate for hazard abatement was set at $40 million in 1985, but current estimates have run as high as $120 million. A little over $7 million has been allocated for abatement at CSU sites since 1986. The proposed CSU budget contains $10.6 million for asbestos abatement.

Vice-chancellor Ted Binkley indicated that CSU assesses the potential for asbestos hazards prior to buying or leasing building space. "If it is economically feasible, we will lease or buy space in a building with asbestos, but not if the asbestos is friable," he stated.

Art Johnson, facilities planner for the California Community Colleges' (CCC) 4,000 buildings, said that, based on a 1986 survey, all 106 campuses have asbestos. He put the original abatement estimates at $35 million, but said that new estimates are "significantly higher (over $100 million)." The CCC has in $5 million its proposed budget for abatement--it spent $1 million on ten abatement projects in 1985.

A veteran architect of 25 years, Johnson believes asbestos should be removed. "I don't agree with the Legislative Analyst's contention that asbestos in a nonfriable state that is protected from disturbance is okay--all asbestos is a potential danger," he noted.

Johnson said the Board of Governors has yet to set a policy on leasing or buying a space in a building with asbestos, but he strongly recommended that asbestos-containing buildings not be considered for future leases or purchases.

The University of California (UC) system has asbestos in buildings at each of its nine campuses; however, surveys which would assess the extent of abatement work needed are still in the preliminary stage, according to University analyst Todd Greenspan. He said current abatement projections at the Davis campus total $33.4 million ($26 million for state-supported buildings; $1.9 million for student housing and $6.5 million for medical facilities). Although estimates are still in the preliminary stage at Berkeley, abatement needs already exceed $8.9 million. The University spent $3.8 million on abatement in 1987-88 budget year and has proposed $3.2 million for next fiscal year ($1.4 million for Berkeley).

Will Lee, facilities planner for the Department of Justice's 57 buildings, said he advocated leasing or purchasing a building that is asbestos-free. He said that when he was assigned to look for 20,000 additional square-feet of space for the Attorney General's office in Los Angeles he was besieged by landlords advertising that their space was "asbestos-free." The Attorney General's Office in Los Angeles is in a leased building containing asbestos.

Asbestos-Free Leases

In June 1987, General Services advertised for the first time that it would not lease space in a building containing asbestos. In fact, General Services now requires that building owners certify in writing that their

property is asbestos-free. Paul V. Savona, Chief, Office of Real Estate and Design Services (General Services), noted that leasing space in asbestos-free buildings will mean the state might pay 25 percent more for its office space since it will be locating in new buildings where asbestos materials were not used in construction. (Some contractors say that trace amounts of asbestos can be found in drywall materials used in construction today.)

The state leases 2,000 facilities involving more than 8 million square-feet of space.

Savona added, "Since the state cannot dictate the removal of asbestos (in leased buildings), we can, however, establish policies that will assure that buildings being considered for lease are free of asbestos and that owners of buildings currently under lease, agree to remove or contain the asbestos before the lease would be considered for renewal."

Justification for a no-asbestos lease policy was dramatically underscored last year by a minor automation project at the California Court of Appeals, Second Appelate District, which featured $219,000 in asbestos-related expenses. Diana Darsey, management analyst who coordinated the site operation for the project, explained that initially there was a plan to remodel three floors which house the court facilities in Los Angeles; however, a private consultant informed the court that asbestos would have to be removed before remodeling work could begin. The estimated removal bill was $1.75 million. The building owner, Paramount Group, Inc., refused to pay for the asbestos work. Subsequently, the project was reduced to the installation of cable for five computer rooms.

The court will vacate this building at 3580 Wilshire Boulevard when the planned state building at Third and Spring streets is opened in four or five years. However, Darsey explained that the court was too backlogged with work to delay the automation projection. The cost of moving to temporary facilities was termed "too high." Therefore, the state paid the bill for the removal of asbestos, a federally mandated action that benefited the building owners.

Savona noted, "We clearly didn't want to pick up the cost of removal. We argued that under the full use and enjoyment clause of our lease, we should not have to incur the cost of asbestos work, but the building owner stated it was our responsibility to pay for all costs related to remodeling, even asbestos removal."

There are many hidden costs involved with asbestos removal. Darsey termed the four-week period when removal actually occurred as one of a "total work disturbance" where employees were forced to work in closets. She said the removal project delayed the automation project some ten months. Other expenditures included $15,770 for construction related to removal; $29,286 to prepare the area for removal (set up a decontamination room); $71,143 for removal, disposal and insurance and $32,124 for replacing the removed asbestos with nonasbestos fireproofing. After the project was started additional asbestos was uncovered which, subsequently, required removal at a cost of $54,282. The project was closely monitored by an industrial hygienist at a cost of $14,000. The original hazard assessment totaled $3,000.

Complete abatement costs ran about $59 per square foot for this low bid project. Remember, this material was originally applied in the building for less than $1 per square foot!

Conclusion

The state owns a tremendous amount of asbestos. It has begun recently to manage this carcinogenic material by abating hazardous conditions; by avoiding future hazards through a no-asbestos lease policy and by training maintenance workers to be "aware" of asbestos materials. Oversights include employing unregistered contractors (violation of law) to remove asbestos; failure to publicly identify the location of friable asbestos materials; and inconsistent policies involving the alerting of state employees when asbestos work is to occur in or near their work areas. The state needs to improve its management of asbestos exposure in its buildings.

Recommendations

1. The state should develop its own expertise in assessing asbestos hazards and ultimately should consider that assessment and abatement might be best conducted by properly trained state employees. While private vendors may pose an economical choice for scheduled renovation work requiring abatement, there will be an increase in asbestos spills and urgency removals due to the aging of state buildings. The benefits of an in-house asbestos "SWAT" team may save the state precious response time and possibly, money. Furthermore, in-house assessment would help standardize the state's responses to asbestos hazards which, depending on the prejudices of a particular vendor, can be quite varied.

2. The state should develop and implement an asbestos identification/information program for state employees.

(a) The Department of General Services, in conjunction with the Department of Health Services, should develop a standardized "asbestos bulletin" which other state departments and public institutions could use to inform occupants of a state building that asbestos abatement work has been scheduled near their work area. A policy should be adopted for holding meetings where management could address questions raised by workers concerned about asbestos abatement and/or the presence of asbestos materials in their work area.

(b) The Department of General Services should alter its ongoing survey of asbestos in state buildings to include an aggressive identification program of asbestos materials which might be subjected to disturbance by maintenance workers. Asbestos warning signs should be posted in risk areas.

Furthermore, General Services should assess the accuracy of previous assessment surveys.

3. State workers (maintenance, trades, electrical, etc.) who come in contact with asbestos materials, as required by their work assignments, should be trained in how to deal safely with asbestos materials--other hazardous materials should be included in the training. This training should be done annually and should address such matters as how to properly wear a respirator and techniques to reduce asbestos dust.

4. The Department of General Services (Office of Local Assistance, Office of the State Architect), the Department of Industrial Relations, the Department of Education, the Department of Health Services, the Air Resources Board and the Contractors' State License Board should form a

"reconstruction task force" to improve mutual understanding of state and federal laws and regulations involving the handling of hazardous materials during reconstruction work. While much of this reconstruction work will be contracted out to private vendors, the state has a responsibility to monitor the work to insure it is performed safely. This monitoring requires full knowledge of the rules.

Futhermore, the Office of the State Architect should oversee this unit which could provide valuable technical support to our schools which are now confronting asbestos management problems.

5. The Department of General Services' no-asbestos lease policy should be put into law and should be applied, after review by the State Legislature, to all state-owned buildings (General Services controls about only 12 percent of all state buildings). The state should study the legal ramifications of using taxpayers dollars to abate asbestos hazards when the work benefits private building owners.

6. The following abatement policies covering work in state buildings should be put into law: the mandatory use of an independent project monitor with powers to shut down an unsafe job; prohibition against using an abatement firm to perform removal on a job that has been assessed by a consultant with a business relationship with the contractor.

CHAPTER VII

MARKETPLACE FEARS

"The name of the game in real estate used to be location, location, location; now it's liability, liability, liability with asbestos at the top of the list," stated Jack Townsley, a former EPA asbestos inspector.

Richard Klein, senior manager with Kenneth Leventhal & Co., warned, "If you buy property with asbestos, look out, you're fair game. The impact of asbestos comes in two ways: depressed values and retarded sales. No regulations exist that define risk, so investors operate on the notion that any exposure is a health risk. The lender doesn't want it to deal with the problem because there is no protection."

Marketplace fears have forced major investors such as Prudential, Aetna and Metropolitan Life to turn down acquisitions of asbestos-containing buildings. The state's two largest public pension funds no longer invest directly in buildings with asbestos. The state and federal governments only want to lease asbestos-free space, a trend initiated by the IBM Corp. In brief, the selling price of an asbestos-containing building may be discounted to allow the buyer to cover future abatement and liability costs; or lenders may demand a special reserve be set aside to cover unforeseen asbestos problems which might arise after the building is sold. In some cases lenders will not touch an asbestos property, consequently, removal is the only option to keep the property alive.

The notion that asbestos is an economic hazard first, and a health hazard second, is shared by building owners, investors and risk managers alike. These groups contend -- and AOR agrees -- that financing and refinancing problems associated with asbestos properties and liability fears are the driving force behind removal, not health-minded regulations. The "who's who" of who is managing their asbestos is astounding. For example, Peter MacDowell, Western Regional Manager for the environmental science and engineering firm of K & D West, Inc., said the company's client base for asbestos management included the New York Port Authority, New York World Trade Center, Prudential Realty, Hughes Aircraft, American Express and Equitable Life Insurance. In California the Irvine Corporation has been removing asbestos from its properties for over 18 months. Currently major removal projects are underway at the Union Bank headquarters and ARCO Towers in Los Angeles. In fact, during 1987 this office discovered that major department stores such as Macy's and Weinstock's and leading banks were engaged in asbestos control work.

"I have seen buildings decline 50 percent in value over the presence of asbestos--that makes the property unmarketable," noted Susan Barlow, investment adviser with Pension Realty, San Francisco. She asserted that three years ago only two of the nation's top 20 pension advisers were demanding comprehensive asbestos inspections be performed in conjunction with a possible real estate acquisition. Today, the majority of advisers want every nook and cranny checked for asbestos, according to Barlow.

But some real estate advisers say investment policies which shun asbestos properties are short-sighted. They contend that a building value can be stabilized by putting asbestos materials on a routine management program.

Basil Schwan, assistant executive officer of the Public Employees' Retirement System which has a no-asbestos investment policy, said that 12 of the 140 properties controlled by PERS have asbestos. In each case a management plan is in place with removal of encapsulation playing an integral role in exposure control.

More Information Needed

The importance of controlling fears, not just fibers, was the centerpiece testimony provided at the Assembly Housing and Community Development Committee's interim hearing on asbestos in buildings (San Francisco, 12/9/87). Specifically, Doug Ford of Kenneth Leventhal & Co., testified that "fear and lack of information" were feeding the asbestos hysteria that is responsible for inflating clean-up costs and deflating property values. He cited, as an example, the recent refinancing of a major Southern California hotel with a PERS-held mortgage:

> "The refinancing became part of a much larger transaction and the presence of asbestos in the property along with a similar presence found at a second property put the transaction in some jeopardy. At first PERS refused to refinance. Later it demanded that reserves of up to $40 million be put up to cover the cost of removal--a figure that represented about 25 percent of the hotel's value."

Ford, who was involved in the refinancing negotiations, added that as "more reliable information was gathered," the $40 million demand was dropped. He said the real removal costs, now underway, will amount to only $3 million. He said hotel refinancing negotiations illustrated three common patterns in asbestos transactions: (1) faced with uncertainties with future liability and clean up costs, parties tend to err on the high side protect themselves; (2) technical information is often incomplete,

contradictory and not universally standardized; (3) and asbestos is a negotiating ploy which can only be effectively contained by obtaining credible information early in the process.

The best known example of asbestos hysteria impacting a California building transaction involved the sale of asbestos-containing ARCO Towers in Los Angeles. Ford said removal costs were estimated at $66 million to $77 million, about 15 percent of the building's value. The asbestos information prompted some bidders to drop out, although in the end the final purchase price paid by Japanese investors reflected a lack of concern over asbestos, according to Ford.

Frank Goss, president of Diagnostic Engineering, Inc., has given numerous talks where he has warned that investors should not run away from buildings with asbestos. "Asbestos relegates these buildings to a second class status; moreover, it leaves these buildings attractive only to foreign investors who have no fear of asbestos" he has stated.

National Legislation Proposed

Building owners and investors are waiting for government to define asbestos "responsibility". For three years Congress has considered bills that would, basically, extend the EPA school regulation to public and commercial buildings. In fact, the EPA assembled state representatives involved in asbestos (AOR participated) for a May 1987 hearing on the feasibility of regulating buildings other than schools. The consensus opinion was that it was commendable for building owners to institute operations and maintenance programs for asbestos in their buildings, but that mandating such action was "premature" at this time. These state

officials wanted to wait for the results of how schools were able to implement the new EPA regulation.

John C. Irwin, Chief of Environmental Toxicology, State of Kansas, made this observation at the hearing: "Additional rule-making will prompt an increase in controlled and unnecessary abatement work by building owners and their employees that may exacerbate an already difficult problem."

Clearly, there are no quick fixes to solving our state's indoor asbestos problem. Irwin's comment underscores the urgent need for California and other states to develop a strong asbestos management "infrastructure", consisting of competent inspectors, planners, monitors, abatement contractors and waste haulers. We need a reliable game plan crafted by technical experts to stop the asbestos hysteria in the marketplace.

The commercial marketplace will eventually produce a competent, private corps of well-paid asbestos experts to service the needs of major building owners and investors. But the outlook for expanding taxpayer-supported asbestos-related services is not good. While local health officials would like more specific language to empower their investigations of asbestos hazards in housing, what they really need and want, but will not get due to budgetary constraints, are monitoring equipment, training and staff. Consequently, the government network for helping people with asbestos problems in homes and apartment buildings is weak.

This office uncovered several cases in the Sacramento area of homeowners who were living in motels because their homes had been contaminated by sloppy removal contractors. A San Mateo resident

discovered piles of asbestos under her house six months after she had paid a contractor to remove the material. A Santa Monica tenant is armed with a Cal-OSHA report indicating that asbestos was spilled in her building during the installation of fire sprinklers--a clean up order was never issued. A San Francisco tenant said asbestos was dropping from her water-damaged ceiling. A city inspector verified the claim and abatement action may soon occur, but only after five months and dozens of phone calls for help.

Conclusion

Asbestos marketplace fears which lead to building devaluation may be reduced through the institution of asbestos management techniques. However, mandating that building owners employ asbestos control measures for their properties may backfire due to the inability of government to insure, at this time, that asbestos abatement work will be done correctly and/or safely.

Recommendation

New state asbestos laws impacting buildings should strengthen, not burden the existing government network now in place to protect people from asbestos exposure. For example, to require that the presence of asbestos be determined prior to a real estate transfer (not now required) would be helpful in that it would (1) prepare the buyers to anticipate future costs associated with remodeling; i.e., asbestos removal work, and (2) it would alert new occupants (tenants as well as the owners) that certain areas of a building or house should not be disturbed unless special precautions are taken to control fiber releases. However, a disclosure law could be counterproductive if it allowed unqualified people to inspect and recommend

actions that were not indicative of good asbestos management. A safe balance must be struck between providing building occupants with "safety information" and instituting asbestos management programs in our buildings.

APPENDIX: TABLE I

THE ASBESTOS HAZARD EMERGENCY RESPONSE ACT

The Asbestos Hazard Emergency Response Act (AHERA) applies to all California public and private schools (K-12) constructed prior to October 12, 1988. AHERA requirements are contained in EPA regulation 40 CFR, Part 763, which became effective December 14, 1987.

The regulation puts schools on a strict deadline for establishing ongoing asbestos exposure control programs which may range from periodic surveillance to complete removal of asbestos-containing materials. The EPA estimates that the rules will affect 107,000 schools nationwide at a cost of $3.2 billion over the next 30 years. Several states contend the EPA has underestimated compliance costs tenfold. The Assembly Office of Research projects that AHERA could cost California schools $55 million in 1988, based on all schools complying with the regulation. But, we believe, however, that the financial burden imposed by AHERA will prohibit at least 30 percent of our schools from satisfying the federal requirements this year. School asbestos expenditures could top $200 million in 1989 as a result of the compliance program and the cost of asbestos removal could easily exceed $1 billion over the next ten years. By comparison the Office of the State Architect predicted in December 1987 that the long-term cost of asbestos abatement in state buildings could run more than $1.3 billion.

In brief, the EPA regulation requires schools to do the following:

1. Identify all asbestos materials in every school building -- nonfriable materials are to be identified as well. Each asbestos-containing area is to be assessed for its potential to be a hazard based on the material's condition, its accessibility, area use, etc. (see Chapter III for explanation of factors influencing the release of asbestos fibers). The asbestos content of material is to be analyzed by an EPA-approved laboratory. This type of inspection is to occur every three years. EPA estimates inspections costs per school will range from $1,144 to $1,627. Inspections may only be conducted by personnel who have passed an EPA-approved AHERA training course for inspectors.

2. The inspection results are to be put into a management plan which would describe how the asbestos material will be treated. The regulations stipulate five responses: operations and maintenance, repair, enclosure, encapsulation or removal. The management planner must have completed an EPA-approved AHERA training program. EPA estimates the cost of developing management plans per school will range from $1,025 to $1,420. Other costs include developing a map of asbestos locations ($110 to $270 per school) and analysis of bulk materials ($500 to $940 per school).

3. A school's management plan must be submitted to the Governor's designated AHERA representative, the Office of Local Assistance, by October 12, 1988. The office has 90 days to review the plans. If the plan is rejected, the school in question will have 30 days to revise it. The review process will cost Local Assistance at least $1 million, according to the EPA.

4. A school must implement its management plan's response actions by July 9, 1989. The design of a response action and the actual performance of the action must be carried out by individuals who have completed EPA-approved AHERA training programs for planners, abatement contractors and workers.

EPA contends that the response action selected most often will be operations and maintenance which it estimates will cost a school $3,800 to $5,100 per year in addition to training costs for employees. Also, the rule calls for an initial cleaning of asbestos materials that is expected to run at least $1,000 per school, not including the purchase of special cleaning equipment. Removal costs in California schools are running $10 to $15 per square-foot.

5. Each school is to keep management plans available for review by the public. Furthermore, each school is to inform parents and employees annually in writing regarding the presence of asbestos in the school.

6. The EPA may impose a fine of $5,000 per day on a school which fails to comply with the regulation. The fine is raised to $25,000 per day for violations involving an individual other than a "school district". Criminal penalties may also be imposed for intentionally or knowingly falsifying asbestos reports.

7. Any citizen may file a complaint with the EPA or the Governor if he or she believes a school is not taking appropriate action to control asbestos exposure. Complaints must be responded to within a reasonable period of time if any investigation reveals that a possible violation of the federal regulation has occurred. The Governor has special emergency

powers which he may use to intercede if he determines that a school is not implementing its asbestos program in a manner that is protective of public health.

8. A school may be exempted, in whole or in part, if it can document that asbestos materials were previously removed and/or prior inspections revealed that no asbestos materials were present. However, the 1982 EPA regulation directed schools to identify only friable asbestos materials whereas the new rule directs that all asbestos materials, friable and nonfriable, be inventoried. Therefore, all schools will probably have to reinspect their buildings. Also, previous inspections may be rejected because they did not meet EPA standards (evidence of bulk sampling, participation by a "qualified" inspector, etc. is required).

9. AHERA is intended to be an ongoing program for schools with regularly occuring inspections, response actions and training for employees.

10. As of January 26, 1988, there were seven "schools" in California approved to provide EPA training as required by the regulation. Inspectors must pass a three-day course; planners must pass the inspection course and complete two extra days of training; abatement design planners must complete three days of training. Abatement contractors and supervisors must complete four days of training while abatement workers must pass a three-day training course.

Program Cost Projections

Local Assistance informed AOR that there are approximately 7,500 public schools and 7,500 private schools. The Department of Education's 1986

figures total 12,819 schools (4,533 public elementary, 2,829 public secondary and 5,457 private). The EPA estimates that California has 10,932 schools affected by AHERA. We used Education statistics to project compliance costs. In addition, we assumed that only 70 percent of the schools will be able to comply with AHERA during the first year. Reasons for noncompliance center on lack of funds to pay for asbestos-related work and delays in contracting with EPA-accredited inspectors and planners.

We also inflated EPA's cost estimates by as much as 50 percent to account for the fact that the cost of abatement work in California is higher than in most other states.

1988 inspections/management plans (70% compliance)

Public Schools	$ 25.7 million
Private Schools	$ 16.6 million
TOTAL	$ 42.2 million

	1989 inspections/management plans/response actions other than removal	**1989 removal**
Public Schools	$ 37.1 million	$ 110 million
Private Schools	$ 10.2 million	$ 45 million
TOTAL	$ 47.3 million	$ 155 million