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PUBLIC HEARING

before

SENATE JUDICIARY COMMITTEE

SENATE BILL No. 2627

(Codifies the "discovery rule" for certain
actions for asbestos or lead contamination
for statute of limitations purposes)

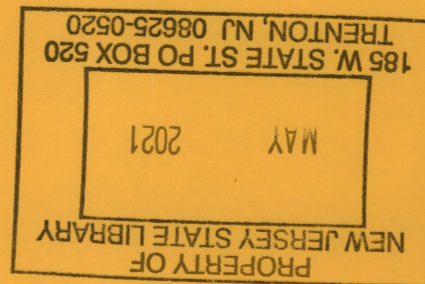
October 4, 1990
Room 424
State House Annex
Trenton, New Jersey

MEMBERS OF COMMITTEE PRESENT:

Senator Edward T. O'Connor, Jr., Chairman
Senator Raymond J. Zane, Vice-Chairman
Senator Richard J. Codey
Senator Carmen A. Orechio
Senator Donald T. DiFrancesco
Senator John H. Dorsey
Senator Lee B. Laskin

ALSO PRESENT:

John J. Tumulty
Office of Legislative Services
Aide, Senate Judiciary Committee



* * * * *

Hearing Recorded and Transcribed by
Office of Legislative Services
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State House Annex
CN 068
Trenton, New Jersey 08625

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New Jersey State Legislature

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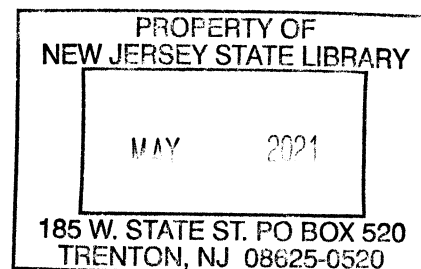
NOTICE OF PUBLIC HEARING

The Senate Judiciary Committee will hold a public hearing on the following legislation.

S-2627 Codifies the "discovery rule" for certain actions for
Lynch asbestos or lead contamination for statute of limitations
purposes.

The hearing will be held on **Thursday, October 4, 1990 at 1:00 p.m.** in **Room 424, State House Annex, Trenton.**

The public may address comments and questions to John J. Tumulty, Committee Aide and persons wishing to testify should contact Karen M. Suta, secretary at (609) 292-5526. Those persons presenting written testimony should provide 15 copies to the committee on the day of the hearing.



Issued 9/20/90

STATE OF NEW JERSEY

INTRODUCED APRIL 30, 1990

By Senator LYNCH

AN ACT concerning the statute of limitations for certain actions involving asbestos or lead materials, amending N.J.S.2A:14-1, P.L.1967, c.59 and supplementing Title 2A of the New Jersey Statutes.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

1. N.J.S.2A:14-1 is amended to read as follows:

2A:14-1. Every action at law for trespass to real property, for any tortious injury to real or personal property, for taking, detaining, or converting personal property, for replevin of goods or chattels, for any tortious injury to the rights of another not stated in sections 2A:14-2 and 2A:14-3 of this Title, or for recovery upon a contractual claim or liability, express or implied, not under seal, or upon an account other than one which concerns the trade or merchandise between merchant and merchant, their factors, agents and servants, shall be commenced within 6 years next after the cause of any such action shall have accrued.

This section shall not apply to any action for breach of any contract for sale governed by section 12A:2-725 of the New Jersey Statutes.

This section shall not apply to certain actions for recovery of costs for corrective actions taken with regard to asbestos or lead related materials as set forth in section 3 of P.L.

c. (C.) (now pending before the Legislature as this bill).

(cf: P.L.1961, c.121, s.1)

2. Section 1 of P.L. 1967, c.59 (C.2A:14-1.1) is amended to read as follows:

1. No action whether in contract, in tort, or otherwise to recover damages for any deficiency in the design, planning, supervision or construction of an improvement to real property, or for any injury to property, real or personal, or for an injury to the person, or for bodily injury or wrongful death, arising out of the defective and unsafe condition of an improvement to real property, nor any action for contribution or indemnity for damages sustained on account of such injury, shall be brought against any person performing or furnishing the design, planning, supervision of construction or construction of such improvement to real property, more than 10 years after the performance or furnishing of such services and construction. This

EXPLANATION—Matter enclosed in bold-faced brackets [thus] in the above bill is not enacted and is intended to be omitted in the law.

Matter underlined thus is new matter.

limitation shall not apply to any person in actual possession and control as owner, tenant, or otherwise, of the improvement at the time the defective and unsafe condition of such improvement constitutes the proximate cause of the injury or damage for which the action is brought. This limitation shall not apply to certain actions for recovery of costs for corrective actions taken with regard to asbestos or lead related materials. These actions shall be governed by section 3 of P.L. _____, c. _____ (C. _____)(now pending before the Legislature as this bill).
(cf: P.L.1967, c.59, s.1)

3. (New section) Any action brought by or on behalf of any municipality, county, public or independent institution of higher education, board of education of any local school district, consolidated school district, regional school district or county vocational school, any private school, housing authority or the State or any other political subdivision thereof, to recover any costs associated with asbestos or lead related corrective actions including, but not limited to, the removal and replacement of asbestos or lead and materials containing asbestos or lead shall be commenced within six years after the municipality, county, public or independent institution of higher education, board of education of any local school district, consolidated school district, regional school district or county vocational school, any private school, housing authority or the State or any other political subdivision thereof, knew of the presence of and the hazard or damage caused by the presence of such asbestos or lead or material containing asbestos or lead within its building.

4. (New section) Notwithstanding the provisions of section 3 of this 1990 amendatory and supplementary act, any municipality, county or public or independent institution of higher education, board of education of any local school district, consolidated school district, regional school district or county vocational school, any private school, housing authority, building owner, or the State or any other political subdivision may commence an action to recover any costs associated with asbestos or lead related corrective actions, including but not limited to, the removal and replacement of asbestos or lead and materials containing asbestos or lead, which would otherwise be barred as a result of the expiration of the applicable period of limitation of action at any time prior to July 1, 1991, provided, however, that such action is commenced prior to July 1, 1993.

5. This act shall take effect immediately.

STATEMENT

This bill codifies the "discovery rule" which defines the point at which a cause of action for tortious injury to property as a

result of contamination of asbestos or lead materials accrues as the time of the discovery of the asbestos or lead materials.

The purpose of this proposed bill is to redress serious health hazards associated with exposure to asbestos or lead and materials containing asbestos or lead. Individuals with even minimal exposure to asbestos or lead in buildings are at risk of developing serious disease.

The proposed bill extends the time within which municipalities, counties, schools (including private and public; all school districts and institutions of higher education), housing authorities or the State or any of its political subdivisions can bring suit to recover the exorbitant costs of remediating asbestos or lead problems in buildings, thus encouraging these entities to act promptly to correct dangers posed by the widespread presence of lead or asbestos in buildings for the benefit of the health and safety of the public.

The statute extends the time within which these entities can bring an action to recover remediation costs in two ways. First, the bill would revive the claims of those entities whose cost recovery actions would otherwise be barred by the applicable statute of limitations, if brought at any time prior to July 1, 1991, so long as an action is brought by these entities prior to July 1, 1993. Second, the statute codifies the "discovery rule" which defines the point at which a cause of action accrues as the time of discovery of the injury.

The bill removes a procedural defense on which a party to an action might have relied. It does not affect what the ultimate outcome of these cases may be in terms of liability for costs.

The bill is based on a Massachusetts statute found at M.G.L.A. c.260 §2D.

CIVIL JUSTICE

Codifies the "discovery rule" for certain actions for asbestos or lead contamination for statute of limitations purposes.

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tca: 1-40

SENATOR EDWARD T. O'CONNOR, JR. (Chairman): Good afternoon, ladies and gentlemen. We're going to go ahead and get started. I want to mention that there is a chance that your statement will not be recorded. For those of you who have prepared statements, please make sure that you hand them into the aide and we will make sure that they are put into the transcript.

We are here today to hear comments on S-2627 -- Senator Lynch's bill. Briefly, it codifies the "discovery rule" in cases involving asbestos and lead contamination for statute of limitations purposes. With that, our first witness is Christopher Placitella.

C H R I S T O P H E R M. P L A C I T E L L A, E S Q .: I would like to thank the Committee for the opportunity to testify today concerning S-2627.

The presence of deteriorating lead paint in public buildings and schools poses a very serious health risk to thousands of children in New Jersey. The testimony that you will hear today will back that up. Today, hazardous conditions exist in many public and private buildings and schools because of the presence of asbestos and lead in deteriorated conditions. Those conditions continue to exist because of lack of funding for removal or encapsulation. As a result, the cost is being borne by the municipalities, our educational institutions, and, in the end, the taxpayers for the removal and encapsulation.

This bill, as you know, codifies the discovery rule. I thought it might be helpful to outline to the Committee a typical situation -- that is presenting the municipalities with a "Hopson's choice" -- of how to deal with asbestos and lead, where it creates a health hazard. I think it's pretty clear, although industry may take a different view, that these companies, prior to installation, were well aware of the dangerous properties of these products, yet never told a building owner, and never told the architects.

What typically happens then is years after construction, the fact that asbestos or lead is in the building becomes known to the building owner, but at that time no action is taken because there is no apparent damage or deterioration, or more importantly, because they are told by professionals or government bodies that they should not remove the asbestos or lead because it doesn't present any current hazard. Then what happens is a number of more years pass and the asbestos or the lead begins to deteriorate and become damaged. Some regulations require its removal or demolition. Other regulations have made a policy decision that it should be removed. What ends up happening is, there is no money to effect the removal.

Now, it's important to understand the litigation strategy of these cases, in which I am involved. Typically, in a case like this, what happens is that the industry argues that the statute of limitations has expired before the case is instituted, because the case should have been started at the moment in time when the institution or municipality found out that they had asbestos or lead in their building, regardless of whether it presented a health hazard at the time. That is compounded particularly in the asbestos situation, where they argue to the jury through the other side of their mouth, I submit, that there's no reason to remove the asbestos because it doesn't present a hazard.

And in fact, it is this "Hopson's choice" that this legislation attempts to address. Now, the issues of lead abatement and those hazards will be addressed by Dr. Richard Wedeen, who will follow me. We will present a statement by Dr. Stephen Levin, who could not be here today.

On the asbestos issue-- I anticipate that you will hear from the other side that there was a recent conference at Harvard, which indicated that certain asbestos -- in place -- was not hazardous and therefore there's a scare that's inflated

in this respect. I submit, and then if necessary I will show, that that conference was organized by the asbestos industry and former asbestos industry producers.

More apropos, however, is the recent conference at the New York Academy of the Sciences -- held this year -- which clearly indicated that asbestos -- in place -- is a hazard. In fact, for one: With respect to schools-- One of the things they showed was that 20% to 40% of the school custodians in New York City, on examination, who had worked in the trade for more than 20 years, were found to have some evidence of an asbestos related disease.

Perhaps even more alarming are statistics I learned about yesterday. A recent study done of home owners here in New Jersey-- Their exposure was from the clothes that their fathers or husbands brought home with them. And what that study indicated was quite disturbing. It showed that even though these people never worked with asbestos and simply lived in the home, 40% of those people tested, came down with some evidence of asbestos disease. Even more alarming than that is the fact that some of those people weren't even alive when the father worked with the asbestos, but contracted the asbestos disease simply from living in a contaminated house.

I have personally handled cases, one case in particular for a school child who developed mesothelioma from exposure to asbestos in a school here in New Jersey, and that case was settled for quite a substantial sum. Now the statute here, I submit, is in the public interest, and probably in the interest of the asbestos and the lead industry, if they look at it very hard. Because this statute says, "The statute of limitations begins to run, not just when you know that there is asbestos in the building" -- that's not enough -- "but when you know, or you are told that a hazard exists, by some professional or by regulation." That is, you are told that it's damaged, or deteriorated, or some government body makes the determination that it should be removed.

I submit that this statutory scheme is absolutely consistent and complementary with the brand-new EPA regulations on what you do with asbestos -- in place. We are advocating nothing like removal of the asbestos in all of the buildings. In fact, what this legislation states is, "You remove it," completely consistent -- this is what the EPA says -- "when a hazard exists." That is, whether it's fallen off, or deteriorating, or whatever. What it does not encourage is a run to the courthouse by the building owners, including the municipalities, for fear that the statute of limitations will run out on them just because they got asbestos in their building. It further fosters the EPA recommendations that you don't remove everything, but you try to manage it. Now, that may have a totally separate course of action because sometimes it costs tens of thousands of dollars to manage asbestos -- in place -- in a single year.

I've been involved with litigation where one building cost approximately \$5 million to abate -- just one building -- for asbestos that has actually fallen off and is sitting in the return air plenum which circulates the asbestos throughout the building. It creates a hazard to building occupants. This legislation is also completely consistent and complementary to the regulations pertaining to lead, which indicates that it should be removed under certain circumstances. And this simply gives the municipalities, and schools, and housing authorities a vehicle to deal with.

There is also included in the legislation what is known as a "revival clause," which gives the building owners, and State agencies one year to bring an action if they already have a known hazard which exists.

Now I anticipate that this bill will try to be attacked on constitutional grounds. I'm aware of some of the people on the other side, who are very capable and able lawyers. I would like to point out, however, that the majority

of states that have addressed very similar, if not identical legislation, have upheld this legislation under constitutional attack, both on due process and equal protection grounds, including both Massachusetts, and the highest court of New York. I'm aware of one state that hasn't, and that was the State of Virginia. But the governing rule is, is there a rational basis for the legislation? Is there a legitimate government objective? And I submit that there is.

I think another thing that is important to note -- and I'm almost finished -- is that the statute does not guarantee recovery for anyone. You still have to prove your case. If the municipality or State agency can't show whose asbestos, or whose lead it was that contaminated their building, then they don't recover. And in a situation where a company buys out another company which might have made asbestos or lead, they don't automatically recover. They have to prove certain conditions -- that have been well engraved in our law for 20 years -- in order to establish that the successor company is responsible for the acts of its predecessor.

I submit that no other legislation accomplishes the purposes of this legislation. There is lead legislation that mandates removal, but the cost is borne by the taxpayers. There is legislation that mandates removal of asbestos under demolition and AHERA regulations, but the cost is borne by the taxpayers.

I submit that without this kind of legislation, as time goes on and the asbestos and lead continue to deteriorate -- which it will do -- the cost to this State and to the taxpayers could become astronomical, and the burden will be placed on the wrong place. And when you put that on top of the potential health claims that could exist against the State institutions, and against the schools for custodians -- which we now know have a very high incidence of asbestos disease -- I

think the results could bankrupt some municipalities, given the years to come. It doesn't take that much, given the current state of affairs.

This legislation, I submit, is the first step in solving what is an important societal problem for the citizens of this State. Thank you very much.

SENATOR O'CONNOR: Thank you. Will you answer a question or two?

MR. PLACITELLA: Sure.

SENATOR O'CONNOR: As you know, the New Jersey courts have given the discovery rule broad interpretation and have consistently allowed exemptions to the strict application of the statute of limitations. Given that fact, why is it now necessary to codify the rule so that it specifically applies to asbestos and lead?

MR. PLACITELLA: Well, I know that there are bills pending elsewhere with respect to personal injury cases, so I'll just address my answer to this particular situation. I'm aware of only one other case -- the Cinnaminson case, by Judge Thompson, which is a Federal court case -- which has held that the discovery rule applies. It wasn't a very long opinion. It wasn't a very in-depth opinion.

Regardless of that, this industry continues to attempt to argue to our courts because we don't have any State court decision on the discovery rule for property damage that Cinnaminson shouldn't apply, that it doesn't apply, and, in fact, they cite cases from outside this State which have accepted this notion that the statute of limitations begins to run once you know you have asbestos in your building, or lead in your building, regardless of whether it presents a hazard. And what I said before is-- If industry thinks hard about this bill, they'll understand that this is in their interest, because the bill only allows for cases where a true hazard exists and stops the run on the courthouse with people running

because they are afraid that the statute of limitations will expire on them.

SENATOR O'CONNOR: The bill -- Senator Lynch's bill -- specifically mentions only asbestos and lead. Isn't this legislation violative of equal protection?

MR. PLACITELLA: I don't think it's violative. I think it accomplishes an important governmental purpose.

In terms of building occupants -- and that's what we're talking about -- these are-- The testimony, I think, by both Dr. Levin, whose statement you will hear, and Dr. Wedeen, will prove that these are the two most egregious problems for building occupants. And the test simply is, is there a rational basis for this kind of legislation? Is there a legitimate government objective?

There is no suspect classification here. The asbestos industry, I submit, is not a suspect class, at least under this circumstance, although maybe under other circumstances I might say it is a suspect class. But under this circumstance, it is not a suspect class and is not entitled to any greater benefit than the rational basis test. This has been upheld in New York under great constitutional attack, and also elsewhere as being Constitutional.

SENATOR O'CONNOR: Would you agree that this type of legislation opens the door to the application of the discovery rule to other types of situations which might not be as urgent as we're dealing with here with asbestos and lead?

MR. PLACITELLA: No. I don't think so at all. I have tremendous faith in this Legislature to make decisions that are in the public health and not to be struck by alarmists who come here before you. And I think that you can evaluate other applications under their own circumstances and their own terms. But there is no doubt about the hazards that exist today and the societal problem that goes along with those hazards, both to those who might be injured and to the costs for the owners of the building.

SENATOR O'CONNOR: What would you say to the argument that this type of revival legislation poses substantive due process considerations?

MR. PLACITELLA: Well, I understand that argument will be made, probably very aptly. I can give the Committee citations and cases, following up my presentation, to support my position that other courts which have addressed this in detail have found that no substantive due process rights have been invaded, except for one court in Virginia, and fortunately that is south of the Mason-Dixon line.

SENATOR O'CONNOR: Doesn't this legislation, and this type of legislation, set a dangerous precedent for the construction business in New Jersey, and New Jersey business as a whole?

MR. PLACITELLA: I don't see it that way. These are industries-- We're focusing on industries. We're not focusing on contractors and building architects here. What we're focusing on are the industries -- the asbestos and lead industries, which knew before I was born -- and I do have some gray hairs -- that these products were dangerous, and yet they chose not to tell anybody. It's just a matter of where the risk should lie, on the taxpayer or on the industry? And I think that when you look at it in that way, the choice, hopefully, is clear.

SENATOR O'CONNOR: Speaking about your birth and your one or two gray hairs-- This bill also extends the discovery rule exception to the 10-year statute of limitations against those individuals involved in the design, planning, supervision, or construction of the buildings that are affected. Is it fair to extend potential liability to those individuals who probably were only following accepted guidelines during the time of construction?

MR. PLACITELLA: Well, I understand that that's a real concern, and I appreciate that concern. But under our law,

those contractors are entitled to complete indemnity from the industry, either asbestos or lead. The only time that the contractor would be left on the hook, is if the contractor was not able to show whose product they installed. This legislation gives them some motivation to look hard and to look for their records and to speak to former employees about exactly whose lead went into the buildings and whose asbestos went into the buildings. But it is a legitimate concern, I agree.

SENATOR O'CONNOR: How far should the liability reach? Isn't it possible that it would go all the way to the subcontractor who was just following orders and installing the materials that were specified in the buildings' designs?

MR. PLACITELLA: No. Under our law, the bill-- Those in the chain of distribution of sales are those who are responsible on a product liability theory, not simply the installers. If it's a subcontract to simply install, I don't necessarily know that they are in the chain of distribution on sales. It's those in the chain of distribution or sales, under our law, who are held responsible for the tortious conduct of the manufacturers.

SENATOR O'CONNOR: Thank you. Senator Orechio, do you have any questions?

SENATOR ORECHIO: No, no questions.

SENATOR O'CONNOR: Thank you, Mr. Placitella.

MR. PLACITELLA: Thank you very much.

SENATOR O'CONNOR: The next witness we're scheduled to hear from is Dr. Richard Wedeen, Director of Occupational Health, University of Medicine and Dentistry of New Jersey.

R I C H A R D P. W E D E E N, M.D.: Thank you. I'm at the New Jersey Medical School in Newark, not the Piscataway campus, which has a much larger program. The program I'm starting in Newark is new. My work has been in lead, and I'd like to take the opportunity this afternoon to review with you some of the implications of lead in New Jersey.

My point is that, there's a clear and present danger from lead-painted, deteriorating houses in New Jersey that has been known for some time but has not been adequately dealt with because the funds -- the money for lead abatement has not been forthcoming. I wanted to review with you, just about how extensive this problem is, and what the biological effects are, very briefly.

In the 1960s, it became well-known that deteriorating, lead-painted housing in cities all over the country were the source of great problems for children. It was recognized because children have a very common habit, from three months of age to six or seven years of age, of eating everything they get their hands on. When they eat lead paint chips, which turn out to be very sweet, it's called, "pica." What happened to these children was, they had convulsions and they often died. And if they survived therapies, they had severe brain damage for the rest of their lives, and that was well-known.

Lead poisoning has been known for 2000 years. The problems with lead paint were debated in this country in the middle of the 19th century, very extensively. In Europe in the 1920s, lead paint was removed from housing, by law, in each country. In this country, lead paint was removed only in 1977. The data on how many houses have lead paint are-- Up to 1940, 99% of houses were painted with lead paint. From 1940 to 1959, 70% of all American housing still had lead paint on interiors, and from 1959 to 1976, 20% of housing had lead paint. So the burden in old housing is enormous.

It's estimated that-- The ceiling here may be painted with lead. It's not a threat to us. It's not peeling. It's not coming down. When your painters come in and sand and restore, they're in grave risk, which isn't our major concern today. But we must understand that it is deteriorating paint that flakes off, that blisters. Windowsills are the most common site where lead paint is weathered; where children play; and where they put their hands and get the paint chips.

It is estimated that in the United States there are six million children living in housing with lead paint that is deteriorating. In New Jersey, that number is 177,000. And each year in New Jersey it's estimated that 400 children still become lead poisoned by the CDC criteria, which is based on a blood/lead concentration. These children require hospitalization and treatment. And in fact, about half of them, or 60% of them, are treated in New Jersey hospitals every year. That treatment removes the lead; it prevents terrible symptoms. But it is perfectly clear that in the last five years, these exposures to lead leave residual brain damage, very small, very subtle. A doctor or a parent may not recognize it talking to the child. But careful studies -- epidemiological studies -- done on hundreds, or even thousands of children, pick up IQ deficits.

The point is, you don't have to deliberately eat the paint. Even small amounts of low-level paint, low-level lead exposure lead to neural behavior defects in children, which they carry through their entire lives. Because of this very powerful evidence, it was very important to have lead removed from gasoline.

I would like to bring to your attention that there are other effects that are much less known. Almost everybody understands the delayed and terrible effects of asbestos. But the story with lead, which is very similar, is less known, even though it has been in the books for hundreds of years. Specifically, the same paint chips that the child may eat which produce a convulsion that anyone can see and knows to stop-- An adult may not eat it, he may step on it. He turns that paint chip into powder, and it's frequently 50% lead. That powder may fly in the air if they sweep it up; end up in a coffee cup; end up on fingers -- a very faint, light powder. In fact, much of it is so small you can't see it.

If you eat an apple or a hot dog, you transfer lead into your mouth. And if you do that regularly, what happens to adults is that in about five years, they get the kind of exposure -- in this setting of deteriorating paint -- that really has been common amongst lead workers.

Now, lead workers have a much higher exposure, and whether they should or should not have that exposure we won't go into today. The point is that adults pick up dangerous body levels of lead. Incidentally, it's stored in the bones. It stays in the bones for 20 years. It's accumulated-- Incidentally, I've distributed-- I hope you received a write-up of the lead poisoning with these details in it, perhaps more details than you wanted. But it points out that the effects it had are much more subtle. They don't fall down on the floor and have convulsions.

And in fact, what they get is high blood pressure, hypertension, blood disease, stroke, and kidney disease. Now those diseases are all diseases of old age. Everybody gets it sooner or later. Lead contributes to it and accelerates it. It's hard to define the lead contribution, although it is widely recognized that these diseases are contributed to by lead, that lead paint in our homes is the major source of serious lead burdens, and that this is preventable.

As I understand the law you're reviewing today, it makes it possible to seek more money to undertake the removal of lead, to make homes safe for children and adults. And that the impact of that event -- if it ever occurs -- will be important, not only for the present but for the next three or four decades.

I think that's all I wanted to bring to your attention. I'll be happy to answer questions if I can.

SENATOR O'CONNOR: Senator Orechio, any questions?
(no response) Thank you, Dr. Wedeen.

The next speaker is Professor James Henderson, of Cornell Law School. For the record, Professor, we have a copy of your written statement.

P R O F E S S O R J A M E S A . H E N D E R S O N , J R . :
Thank you, Mr. Chairman. I'd ask that it be made a part of the record today.

SENATOR O'CONNOR: It will.

PROFESSOR HENDERSON: Thank you. I'm a professor at the Cornell Law School, and for 25 years I've taught and written in the fields of torts and products liability. I'm not an expert on constitutional law, although I'm happy to share my opinions in that regard with you. I'm here today to urge your Committee to reject Senate Bill No. 2627.

I'm here today at the request of NL Industries; but the views I express are strictly my own. Lest I appear to you a complete carpetbagger from out-of-state, I did spend four of the best years of my life down the road at Princeton, and do return on a semiannual basis to this great State. So I feel a little bit like a native, anyway.

I'd like to set my testimony up by reacting to some things that the previous witnesses have said, and then I'll come to my main argument. Mr. Placitella says, "Section 3 of the bill is a good idea; it codifies existing New Jersey law on limitation and discovery." I agree. I don't think section 3 is harmful in the least. And he spent most of his testimony trying to make the point that it is a good idea. No disagreement there.

What I disagree with is section 4 of the bill. I oppose it for reasons I'll get to. I think it changes the rules of an important game in midstream unfairly. Dr. Wedeen says, "Lead paint is bad for children." And I agree with that 100%. So what do I oppose? Well, as I said, it's section 4 of the bill, not section 3.

Traditional rules should not be changed, in my opinion, merely to shift cost in a rather -- let me say --

political way, from one group which deserves to bear them under existing law/traditional law, to another which arguably under existing law should not. So I'm not against children. I have a couple of my own. I'm against manipulating the system of civil justice in this way.

Okay, my argument: Anytime a Legislature considers setting aside a statute of limitations retroactively, reviving time-barred tort claims, there must be uniquely and serious reasons for doing so. Statutes of limitations serve useful, important purposes. They keep stale, hard-to-litigate claims out of court.

Whenever a 25- or 30-year-old claim is brought to trial, the facts giving rise to the claim are difficult to reconstruct. Defendants are effectively denied a fair chance to defend. Of course, injured plaintiffs must be given a fair opportunity to be heard. Many states, including New Jersey, do not start the period of limitations running until the plaintiff knows or discovers he has been injured. This so-called "discovery rule" often delays the bringing of claims, putting defendants at a disadvantage. But I think that's right. It's believed to be necessary, out of fairness to plaintiffs, who reasonably did not realize they'd been injured.

Indeed, in this regard, New Jersey does not start the running of the limitations period until the plaintiff also knows that the defendant caused the injury. Thus, New Jersey has one of the most generous discovery rules among the states. And once the limitation period begins to run, plaintiffs have six years, in this State, in which to commence legal action. Many other states, of which I'm familiar, allow shorter periods than six years. So existing New Jersey law is generous to plaintiffs, not only with regard to its discovery rule -- governing when a claim accrues -- but also with regard to how long the plaintiffs have after that to file suit.

Moreover, in actions to recover the costs of abating, removing, and disposing of asbestos and lead products, the abatement procedures need not be done when the suit is filed. So plaintiffs need not wait until abatement has been undertaken to commence their actions. Given your State's generous approach to both the discovery rule and the period of limitations, any plaintiff who winds up barred due to the passage of time can only blame him-, her-, or itself.

Changing the rules retroactively, in the middle of the game -- so to speak -- is grossly unfair to defendants who may have relied on those rules reasonably. Any reasons that the plaintiff could advance for being the beneficiary of such a rule change, should be required to pass muster under the discovery rule already in place. Thus, if plaintiffs only very recently discovered the fact of their injury, or if they can show asbestos or lead companies misled or defrauded them in ways that contributed to delay in bringing action, they will succeed as they should succeed under existing law, with no help needed from S-2627. But if they can't come within some exception under existing law, if they have themselves to blame for failing to act with expedition, then to revive their claims is bad social policy.

In my view then, giving the flexibility and fairness of existing New Jersey law in discovery and limitations, S-2627 is either unnecessary or it's bad policy.

Mr. Placitella confuses the issue, as I said, when he focuses on section 3. The mischief, I think, resides in section 4 of this bill. Besides being either unnecessary or unfair, the bill would also have some effects on New Jersey businesses that its proponents may have overlooked or misunderstood.

As I pointed out in my written statement, out-of-state municipalities, will have causes of action against New Jersey firms involved in the production and distribution of asbestos and lead products over the years. No other state has a statute

quite like this one. And out-of-state plaintiffs will be able to use the bill only against New Jersey defendants. I could explain that-- It's in my written statement. Many of these claims are time-barred -- the claims that out-of-staters will bring against New Jersey businesses. S-2627 would revive those claims. And contrary to what Mr. Placitella said, it would apply to contractors, and the little man. He said, "They'll have rights of contribution and indemnity over--" Maybe; maybe not.

More generally, you should understand that S-2627 sends the wrong sort of signal to firms contemplating moving to, or staying in New Jersey. Mr. Placitella has confidence that you won't extend it. May I say, I do, too. But will businessmen share our confidence? There's some that are going to testify later today. You should listen to them.

Once the Legislature is observed changing the rules in midstream, opening New Jersey businesses uniquely to stale claims, firms will think twice -- I submit. Next time it might be their activities the Legislature picks on. Does New Jersey really want to create the image of an unfriendly business environment at this time and place?

In closing, I urge that S-2627 -- especially in a jurisdiction such as New Jersey, which applies its statute of limitations doctrines flexibly and fairly -- should not become law. Thank you. I will answer any questions you might have.

SENATOR O'CONNOR: Thank you, Professor. Professor, you started out by saying that, if the Legislature were to consider changing the statute of limitations, there would have to be a very compelling reason. Given the seriousness of the asbestos and lead problems that we've come to learn of and the lack of funds available for adequate abatement and removal of these problems, why shouldn't the asbestos and lead problems be such that we ought to extend the discovery rule? Isn't that a compelling reason?

PROFESSOR HENDERSON: Well, if it were, then every time we could locate somebody who was injured and people who are -- under the law, properly liable -- unavailable, we could pick, sort of at random, industries to impose the cost on. I think the sort of-- The reason that I have in mind, is why did these municipalities and these would-be plaintiffs not bring action when they knew they had a problem; when they were being urged by the very industries we are talking about to abate? I'm thinking of the lead industry for the moment. Why didn't they? And if they have no good reason -- and I submit that they don't, Senator -- then it's they who are at blame.

And later in the game to push those costs over onto businesses which under existing, fair, flexible, and just law, are not liable, seems to me a form of tax, practically. I submit, sir, that if indeed they do have a reason that's based on ignorance of what was happening to them, then the existing discovery rule in New Jersey is more than adequate to handle that. Let the courts hear those cases and decide. To issue a blank check, a ticket for every plaintiff, however grossly they slept on their rights for many, many years -- we've known about these problems for years -- seems to me to be reaching back-- I understand the concern for the municipalities, but I can't see changing the rules in this fashion for simply that purpose.

SENATOR O'CONNOR: Given your response in answering that question-- With respect to the earlier question that I had asked Mr. Placitella, about the 10-year statute of limitations, and the possibility that you're going to be bringing in someone who did nothing other than observe whatever the requirements were of the job, and using accepted guidelines at the time-- But given the fact that it's been well-known -- going all the way back to the time of Ben Franklin -- that lead poison has been considered a serious health hazard, and also that asbestos has been known to cause serious illnesses, such

as lung cancer, for quite some time-- Why shouldn't these people be subject to some type of liability for including such potentially harmful materials in their plants?

PROFESSOR HENDERSON: Well -- and I hope I don't sound too much like a professor -- but you ask me to accept an assumption that I think a fairly tried lawsuit ought to establish. And the mechanism that we, since the beginning of the republic, have relied upon for treating these kinds of matters, has been -- and these are, in fact, abatement suits in sounding and tort for property damage -- lawsuits. And we have a set of rules that govern those suits. They're traditional and, as I say, New Jersey can be proud of the flexibility of its set of rules.

Under those rules, I can't sit here with certainty and confidence and tell you whether the plaintiffs are going to succeed or not, arguing the discovery point. But those are the rules I think that ought to apply. And when those rules send back a signal -- as they may -- that the plaintiffs have no claim because they slept on their rights and are bringing to court claims most difficult to litigate, then I say it's unfair -- I really mean this -- to impose, retroactively, a change. We are not talking here about concealment-evil. This is behavior that was done in good faith -- for all I know -- and I say, "Play by the rules."

And if I were a firm in some other industry -- and other states have passed revival statutes in other places-- I'm not saying you're unique in that regard. There are a small number of states that have done something like this. Nobody has ever included lead paint, to my knowledge, or at least no existing law has. I think that, may I say-- I risk seeming to divert, but let me suggest that I think the uniqueness of this would signal that this State is in the business of perusing a longer list than maybe any other state has.

If I were thinking of coming here, or at the margins thinking of moving, I think that this would send me a signal that one of these days, if somebody needs it badly enough, you'll come after me. If I didn't think this was so unfair, I might be able to smile or wry smile and say, "The times are tough," but this is very, very strong medicine.

SENATOR O'CONNOR: Thank you. Senator Orechio, questions? (no response) Senator Codey?

SENATOR CODEY: No questions.

SENATOR O'CONNOR: Senator Laskin?

SENATOR LASKIN: Professor, let me ask you something that's a little different: Do we have a due process or equal protection argument, in addition to what's already been discussed about the merits of the bill? If we were to pass this, extending the statute of limitations by the discovery rule only for the recovery of costs attributable to remedying a situation and only to those selected designated entities; the municipality, etc., what about the argument, well, why shouldn't somebody who is injured as a result of this stuff also have the same benefit of that extended statute of limitations? Are we running into another argument to go before the court, to say that this is an unconstitutional statute because it's discriminatory? Or am I really way off base?

PROFESSOR HENDERSON: No, I don't think you're way off base. I don't know what the New Jersey high court would do with this. I certainly can't sit here and say it's unconstitutional. I'm not qualified to say that, and certainly not under your Constitution. I have my own opinion. I suppose if I was to guess, I would say this is -- what they say -- worth what you are paying for it.

But here is my opinion: I suppose it wouldn't surprise me if they said it was constitutional. Indeed, if I thought it was clearly unconstitutional and they would knock it down in a minute, I'd be less upset with the proposal.

SENATOR LASKIN: So the equal protection or the due process concept that I threw out at you, really doesn't make any difference?

PROFESSOR HENDERSON: I have a little more on the response. I guess what I'd like to do is throw a switch and put us back on the track of, is this good social policy?

SENATOR LASKIN: No, no, beyond that?

PROFESSOR HENDERSON: Beyond that?

SENATOR LASKIN: I'm not talking about the merits of this proposal in a vacuum.

PROFESSOR HENDERSON: Right.

SENATOR LASKIN: Now I'm saying-- But if you pass this, what about those other claims that could be made as a result of being injured by this stuff, which cannot be made because they have another statute of limitations? Am I--

PROFESSOR HENDERSON: No, no, you're not. I think the-- I don't know how-- What's the word? Cynical isn't the word I'm looking for. I don't know how practical I should be, because I do respect the law and this body. And I don't for a moment think that the trial lawyer is down here seeking his own self-interest. I think he probably sincerely believes he's pursuing the public good. He's probably got a lot of cases lined up, he wishes he could bring with no impediment, and this is going to create quite a bit of litigation.

SENATOR LASKIN: But only pertaining to the recovery of costs that were spent to fix the problem?

PROFESSOR HENDERSON: I think the reason that he's not down here proposing or backing a waiver or revival for personal injury was given to us by the good doctor that preceded me. Most of the plaintiffs in the lead paint ingestion area are children. And the statute toils in New Jersey for those sets of plaintiffs. So I think from his point of view there is no-- The rules of the game are such that it doesn't mean as much to him. The ticket that you would issue for that, with respect to lead paint, is not worth that much.

SENATOR LASKIN: I understand the practical side, and I'm going to stop now. It just strikes me that this statute may be discriminatory on its face and the court may throw it out because of the argument of unequal protection.

PROFESSOR HENDERSON: Well, let me now-- I'll finally come to the point you were urging on me, and again in a nonexpert eye, I will respond. I join you in that suspicion. This thing, when I first learned about it, looked to me -- comparing it with others -- so kind of aimed and so directed. It lacks the objective kind of neutral kind of idea.

Now you all are a Legislature. You're not a court of such and you can make policy. But you are meddling here. That's a bad word, retract that. You are considering changing the system of civil justice, that gal with the blinders and the scales. And I just urge on you to please consider the inherent fairness or not of the proposal. I tend to think it's discriminatory on several grounds, including the one you advanced.

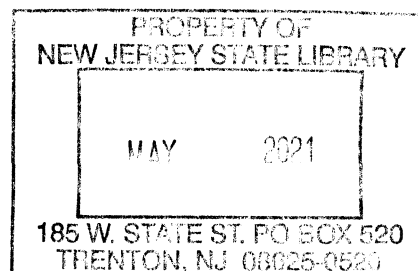
SENATOR LASKIN: See, I think you either have to open it for all injuries or not open it at all. Now that may not be what you want to hear, but I think this statute could be ruled invalid because it doesn't open to all, by the extension of the statute for only certain limited purposes. I don't know, I just throw that out to you.

PROFESSOR HENDERSON: Okay. I certainly don't urge that with you, if you get the drift of what I am saying.

SENATOR O'CONNOR: Senator Codey?

SENATOR CODEY: I just wanted to say, Professor, you got it a little wrong before. It's the courts that meddle, and it's the courts that try to set policy. (laughter)

PROFESSOR HENDERSON: I retracted that. Senator, I regret ever having used that damned verb. It was a -- maybe the tape is going to erase it or something -- no, no.



We are talking here about changing a set of rules that are quite traditional and I think quite adequate in this jurisdiction.

SENATOR O'CONNOR: Thank you, Professor. The next witness is Anthony J. Marchetta, Esq., from the law firm of Hannoch Weisman, representing W.R. Grace & Company.

Mr. Marchetta, we also have received a copy of your written statement and we will make that a part of the record.

A N T H O N Y J. M A R C H E T T A, E S Q.: Thank you very much. I'd like to take you through my statement, because I think it fairly and succinctly sets forth the position that I express here today. I should tell the group that I am a certified civil trial attorney of this State, and I was asked to testify by W.R. Grace today.

I have been personally involved in the asbestos personal injury litigation in our State since 1977, as well as the controversy surrounding asbestos in buildings since 1982. I participated as one of the lead counsels in the Co-defendants' Creditor's Committee of the Manville Bankruptcy. To be direct, I've litigated, lectured, and testified about almost every major issue in the asbestos controversy.

Senate Bill No. 2627, which you're considering today, does nothing less than promote the continuing flood of asbestos litigation and encourages misperceptions about the alleged health risk of asbestos in buildings. Worse is the fact that this legislation will force a rush to the courthouse to preserve stale claims at a time when our scientific community is urging a restrained and conservative approach to the asbestos in buildings issue.

Current law provides that all causes of action arising out of injury to real or personal property must be commenced within six years of the accrual of the cause of action. In addition, N.J.S.A. 2A:14-1.1 establishes a statute of repose,

which prevents actions based on damage to property resulting from improper "design, planning, supervision, or construction of an improvement to real property" from being brought more than 10 years after the performance of such services.

Senate Bill No. 2627 purports to alter the current state of the law in several ways. First, it excludes from the statute of limitations and the statute of repose any claims resulting from injury to real or personal property in which the claimant is seeking recovery of remediation costs associated with lead and asbestos. Second, S-2627 attempts to codify the "discovery rule" exception to our personal injury statute of limitations and makes it applicable to claims arising out of property damage. Third, the bill also extends the period of time in which governmental entities may pursue a claim until July 1, 1993 where the statute of limitations had already run. Consequently, actions that would now be barred by both the statute of limitations and the statute of repose would be considered valid claims.

Statutes of limitations have been recognized as a necessary restriction in the pursuit of legal claims. They were designed to prevent litigants from pursuing stale claims. Statutes of limitations effectively establish order and stability in our legal system. Thus, any erosion of these basic principles must be approached with extreme caution. The Supreme Court has observed that: "Statutes of limitations promote justice by preventing surprise through the revival of claims that have been allowed to slumber until evidence has been lost, memories have faded, and witnesses have disappeared. Even if one has a just claim, it is unjust not to put the adversary on notice to defend within the period of limitation. The right to be free of stale claims in time comes to prevail over the right to prosecute them."

The New Jersey courts have long recognized the problems associated with stale claims. Statutes of limitations are a practical device to spare the courts from this type of

litigation and the citizen from being put to his defense after memories have faded, witnesses have died or disappeared, and evidence has been lost. The present bill disregards these basic tenets and affords governmental entities the opportunity to pursue such claims.

In addition, S-2627 wholly disregards the present statute of repose. While the statute of limitations requires that litigants pursue their claims within a specified period of time, the statute of repose effectively eliminates the cause of action arising from the construction of a building after 10 years has elapsed.

The statute of repose provides comfort and stability to society. It insures builders, architects, engineers, and others a time certain by which they can close their books and rest assured that no new claims will arise out of past construction. This proposed bill fails to recognize the significance of the statute of repose to the construction industry in our State.

As you are all well aware, this bill applies solely to claims arising out of property damage. Thus, the bill does not protect individuals suffering from personal injuries, who are often the class of people needing the greatest protection. But it would seek to borrow a doctrine of personal injury litigation, the "discovery rule" to protect property claims. This was never intended by our courts.

In personal injury claims the discovery rule is necessary because of the latency period associated with many types of diseases and injuries. A personal injury claimant often will not be aware of his injury for many years, until he manifests physical symptoms. On the other hand, the application of the discovery rule to this type of property damage claim is illogical. In the context of a building, there is no latency period involved. The fact that the building contained or might contain lead or asbestos is not, and was

never, a hidden fact. Indeed, up until 1973, 99% of all public buildings were required to contain asbestos fireproofing. To determine if one had a potential claim, a party merely had to conduct a simple inspection or look at the building's specifications. There is no basis for the discovery rule to be applied to property damage claims where the party could have easily determined whether a claim existed.

This bill is not providing private parties with an exception, but rather granting governmental entities an extended period of time to pursue claims which they knew existed. While this bill would probably fail a constitutional analysis, it also runs contrary to the factual proofs required to overcome a statute of limitation defense.

Governmental entities are unique to the extent that they are the owners of their buildings and were continuously involved in the construction process. They not only provided the contractors with specifications, but continuously inspected the structures throughout the construction process. Surely, there is no basis for providing governmental entities with the benefit of an extended statute of limitations for claims the government knew existed, but failed to pursue.

This legislation will also have a chilling effect on private industry in this State. The business industry in New Jersey, is, to a great extent, comprised of manufacturers. Clearly, S-2627 is a warning to these companies that liability may be imposed, despite statutes of limitations and repose for lead and asbestos. But what product will be next? What will be the exceptions of tomorrow? And will industry in this State continue business as usual waiting for the next surprise?

Senate Bill No. 2627 establishes that asbestos and lead litigation is of greater importance, because the litigant is given a longer period of time to institute suit. This is an inaccurate message to convey, given recent scientific findings and EPA pronouncements.

The most recent scientific findings on asbestos in buildings dispel the fear that asbestos is likely to cause injury. In most cases, the levels of asbestos inside a building are lower than the levels that are found in the outside air. Since asbestos is a naturally occurring mineral, comprising approximately 7% of the earth's crust, it's everywhere. But low level exposure is not harmful. Since airborne levels of asbestos in most buildings are low, it does not pose the health risk we once believed. Consequently, the EPA recommends that building owners pursue an in-place management program to contain asbestos.

The EPA's most recent guidebook, issued in September of 1990, states: "Based on available data, the average airborne asbestos levels in buildings seem to be very low. Accordingly, the health risk to most building occupants also appears to be very low.

"Removal is often not a building owner's best course of action to reduce asbestos exposure. In fact, an improper removal can create a dangerous situation where none previously existed.

"EPA only requires asbestos removal in order to prevent significant public exposure to asbestos during building renovation or demolition.

"EPA does recommend in-place management whenever asbestos is discovered."

While the EPA points out that improper remediation can result in greater health risks, it is also evident that even where the remediation is done properly the concentration of friable asbestos is likely to increase.

Similarly, a bulletin recently distributed by the EPA, to public schools, states:

"Asbestos removal is generally necessary only when the material damage is extensive and severe, and other actions will not control fiber release. Although, EPA rules do not prohibit

schools from removing any asbestos materials, removal decisions should not be made lightly. An ill-conceived or poorly conducted removal can actually increase, rather than eliminate risk."

A recent editorial in "Science" magazine was more emphatic, stating:

"The content of asbestos fibers in the air of buildings containing asbestos is harmlessly small and essentially the same as in outdoor air. Asbestos in buildings, unless damaged, does not shed fibers. Unless policies are modified, the sums wasted in abatement and litigation will proliferate."

I will pause here for a moment to address a question that was posed earlier. Asbestos litigation, especially in the personal injury arena, has taught us one important fact, and that is, litigation is the most expensive and least cost-effective way to address the problem of asbestos, whether it be in the personal injury arena or as a remediation policy for schools and buildings. As we learned from the personal injury arena, it was ultimately determined by the Rand Study -- I believe -- that only 10% of the money that was spent in asbestos litigation ever made its way to personal injury plaintiffs. I suspect nothing less here. I suspect the same type of waste, in terms of resources, if this type of legislation is introduced.

It is evident that the EPA adopted the conclusions reached at the International Symposium on the Health Aspects of Exposure to Asbestos in Buildings which was held at Harvard University's Energy and Environmental Policy Center in 1988. The findings of the symposium are instructive.

"There is a reasonable possibility that removal of asbestos may actually increase exposure to building occupants. Current removal practices vary substantially in adherence to worker protection and material handling procedures.

Requirements for reoccupancy after abatement specify that indoor fiber levels be no higher than found outdoors. Limited evaluations indicate that fiber concentrations can increase following abatement. Demonstrating that removal actually lowers health risk is not a condition for either removal or reoccupancy; given revised estimates of public health risk associated with asbestos in buildings and the cost for removal, it is reasonable to reevaluate the Federal policies and requirements related to asbestos in buildings."

In recent years, the EPA has attempted to quell the fears associated with asbestos in buildings. In fact, the EPA has stressed "in-place management" of asbestos in most cases. In June, 1990, Mr. William Reilly, Administrator for the Environmental Protection Agency, noted in his address to the American Enterprise Institute that:

"It's clear to me that a considerable gap has been opened up between what the EPA had been trying to say about asbestos and what the public has been hearing. The government, and EPA specifically, must also accept a share of the responsibility for the misperceptions that have lead to unwarranted anxiety and unnecessary asbestos removals. The asbestos issue shows us that even when we try to communicate clearly about environmental hazards, misperception, and overreactions can still occur."

It is now clear that the EPA is not recommending removal in most instances. It is the position of the EPA that an in-place management program can effectively reduce the risks associated with asbestos and is the preferred method of dealing with asbestos. Although the EPA has stressed an in-place management program, the agency is concerned about the significant amount of building owners who are removing asbestos from their buildings as a result of "other forces," such as fears related to property values, not health risks.

Despite these findings, Senate Bill No. 2627 would help perpetuate the asbestos panic and would result in unnecessary litigation. The solution to the asbestos problem is not a bill which will proliferate expensive litigation, but rather education and information on monitoring and in-place management of asbestos in buildings.

Those are my formal comments. If you have any questions, I'll be happy to answer them.

SENATOR O'CONNOR: Thank you very much. You mentioned the EPA guidelines and how their emphasis is on active management programs as opposed to removal, and that removal of asbestos is only a last recourse. Isn't it true that the guidelines don't mention that there will come a day somewhere down the road, where the asbestos materials will have to be removed?

MR. MARCHETTA: That's right, they don't mention a day where asbestos may ever have to be removed. You must understand that much of the asbestos involved is asbestos fireproofing, and much of that was a cementitious product; that is, it was put on as a cement-based product. It was only a small percentage of the product that was ever put on in a fluffy, friable state, and as a result, it adhered to the beams and the steel structure of the building. A monitoring program is appropriate, because chances are, it will never have to be touched.

SENATOR O'CONNOR: Isn't it also true that the guidelines make no mention of where the money will come from for the removal if removal is necessary?

MR. MARCHETTA: Absolutely, they do not.

SENATOR O'CONNOR: Are there questions from the Committee? (no response) Thank you, Mr. Marchetta.

MR. MARCHETTA: Thank you.

SENATOR O'CONNOR: The next witness is Elmer Matthews, Esq., representing the American Insurance Association.

E L M E R M A T T H E W S, E S Q . : Mr. Chairman and members of the Committee, I appear before you this afternoon in my capacity as New Jersey Counsel to the American Insurance Association. I will not offend your ears with lengthy testimony because, if you will recall, I appeared before you earlier, in May -- when this bill was first listed -- and expressed to you some of my concerns about the bill, and the thought that perhaps the Committee would like to go into it in a little bit more depth. I also congratulate you for having this public hearing this morning -- this afternoon rather -- because I believe that some of the arguments that should be presented have been presented, and have been presented very well.

I'd like to emphasize just a few things; and one of them is the fact that what we are doing here, especially in section 4, is, we are removing a statute of repose; that is, the statute that protects the builders, contractors, architects, engineers, etc., that have been protected by this legislation through the direct action of the Legislature. I describe it as a statute of repose and not as just a procedural or substantive statute of limitation, because a statute of repose has a slightly different flair to it. A statute of repose, when ruled so, or described so by the courts, has a constitutional implication. The person who is protected by that statute has a vested right to continue under the protection, under that statute. The 10-year statute of limitation is a vested statute of repose in New Jersey. I really fear that any attempt to revive these causes of action would have a substantial deprivation of due process effect, and would be immediately followed by litigation.

Reference was made by Mr. Placitella, the first witness, that there is a case in Virginia to that effect, and he sort of deprecated it because it was below the Mason-Dixon line, although parts of Cape May are below the Mason-Dixon line.

There was a recent case, this summer, in the State of Kansas -- which if need be I'll make available to the Committee -- that case not only tracked a statute similar to this, but found it to be a statute of repose and delineated, for the benefit of Committee staff, the states which follow the statute of repose doctrine and those that do not. I submit that those which follow the statute of repose are much more extensive than those that do not.

I would also like to call your attention to a case here in New Jersey, with respect to the specific 10-year statute, and that is the case of McCalla v. Harnishfeger -- without the umlaut -- 215 N.J. Super. 160. That case-- The Appellate Division specifically described the 10-year statute as a statute of repose. They said, "It is a statute of repose, conferring immunity 10 years after the performance of the services which would have occasional liability, but for the statute." So I submit that, although New Jersey has not been listed among some of the list of codification as a statute of repose-- On the strength of that opinion in the Harnishfeger case, we are a State that does abide by the statute of repose principle.

In addition, with respect to notice, I pointed out to you at the first Committee hearing in May that the list of entities that would be protected by this statute, in section 3 and section 4 -- and this point was touched upon by the gentleman with Hannotch Weisman, so I won't dwell on it-- The people who are being protected are the people who are affiliated or described as governmental type entities. They are not the kind of organizations, individuals, or associations that purchase buildings. They really build them themselves, for example: municipalities, counties, higher education, boards of education, etc. You're familiar with the list.

I submit that the buildings that we are concerned with here are buildings that were originally constructed by those

entities, constructed in accordance with strict building codes set down by the State of New Jersey, I might add. As such, they were aware of the presence of these items -- asbestos, or lead -- at the very time the plans and specifications for the buildings were drawn up.

So what you are doing is creating a window in space. You're really painting on a brick wall, because there's no way you can jump through this window, because all of these people had this knowledge before these buildings was built. Now as an insurance entity I could add a flavor to it, too. If you open up this Pandora's box -- and that is what you would do with this type of legislation, and you could go back 40 or 50 years -- I submit that we would have a field day trying to identify policies that were in effect during this period, whether the language of the policies that were in effect during that period applied to these kinds of laws, and whether the policies in effect in that period had contributing carriers or policies that covered suppliers. The extent of litigation that would be sworn by this legislation is absolutely mind-boggling.

The statute of limitations that you try to lift here, really is a statute of repose. It is something that people have relied on over the years. It's something that solved a problem that this Legislature recognized when it was put into place. I submit that to lift that blanket of repose that is over these individuals, is not in the interest of the State of New Jersey; is not in the interest of this Legislature. There are those who say that the Legislature can give and the Legislature can take away. But in giving, it gives with justice, and I think if it tries to take away it should try to take away with concomitant justice.

I'll be very glad to supplement my remarks with some of the judicial decisions, which I referred to with Mr. Ungrady. I did mail a memo down to him earlier when this bill

was listed the second time in May, but not only did Mr. Ungrady mislay it, I mislaid it, too. I'm going to have to create a entirely new memorandum. Thank you for your time.

SENATOR O'CONNOR: Thank you. Are there any questions? (no response) It appears that there are no questions. I think we got everything down.

MR. MATTHEWS: Okay. Thank you, Senator.

SENATOR O'CONNOR: The next witness is Hal Bozarth, representing the New Jersey Chemical Council. Hal, good afternoon.

H A L B O Z A R T H: Thank you, Mr. Chairman. It's nice to see you all today -- members of the Committee. I'm going to be brief. As most of you know, I'm not a constitutional scholar, nor have I ever pretended to be. I'm just a poor lobbyist trying to make sure that the clients that I represent can react to situations and keep a fair business climate out there.

As most of you know, Mr. Chairman, I'm the Executive Director for the Chemical Industry Council of New Jersey. We represent about 105 member companies in the chemical and allied product industry in the State of New Jersey. Those companies employ about 117,000 people throughout just about everyone's district in the State.

I want to lead off again with underscoring some of the things that have been said by previous witnesses: The bill does create a hostile climate for business here in New Jersey. Some of my members would tell you the climate is already hostile. This would be a further burden to them in yet another area. It does send a signal -- in my view -- to business and members, that their companies may be singled out for legislative changes which create uncertainty as to the business climate in this State.

Reviving old cases to further fuel the litigation crisis, in many cases could be -- as testified by previous

speakers -- reinstituted and revived, which would compound the already intensifying litigation explosion, which is impacting upon my members.

It seems to us to be a piecemeal effort, which will lead to other special exemptions relating to other types of products, thereby further rewarding constitutional and statutory protections for the rights of defendants and the general public. If it is asbestos and lead today, Mr. Chairman, it could be food additives, pesticides, or pharmaceuticals tomorrow. As Professor Henderson testified, it's not necessary to protect plaintiffs' rights in the way that this bill does. The current law seems to afford those plaintiffs ample opportunity to assert claims, even when damage or injury are unknown for many years.

Further, and one of my final points, Mr. Chairman, it does send the wrong message about asbestos in buildings. It ignores current statements iterated to you earlier by the US EPA, and the recent scientific findings about the low health risk of airborne asbestos to building occupants.

This Committee is seeking to reduce the enormous expenditures of public funds. On asbestos removal, the solution is not a bill which will promote expensive and wasteful litigation by reviving old cases and extending the statute of limitations. Rather, the solution lies in using the scientific knowledge that is already available to quell the asbestos and building panic, and to stem the flow of public funds to ill-advised asbestos removal projects.

And one last point, Mr. Chairman, is -- and it has been testified previously this afternoon -- fewer than 10% of the money and settlements involved in these cases actually gets to the plaintiffs. Therefore, I would ask you, from a public policy point of view: Who benefits from legislation like this? Should public policy be driven by my friends -- some of them in the legal community -- who are looking for revenues at

the expense of a sound, fair system of addressing grievances that business in the State of New Jersey can rely on?

Thank you, Mr. Chairman. I appreciate the opportunity.

SENATOR O'CONNOR: Thank you, Mr. Bozarth. Are there any questions? (no response)

The next witness is David Lloyd, representing the State Affairs Division, National Paint and Coatings Association.
D A V I D W. L L O Y D: Good afternoon, Mr. Chairman, members of the Committee.

SENATOR O'CONNOR: Good afternoon.

MR. LLOYD: I'm David Lloyd. I'm Director of the State Affairs Division of the National Paint and Coatings Association in Washington, D.C. The NPCA is a nonprofit Association, with about 700 company members, many of whom have locations or offices in the State of New Jersey.

I'm not going to repeat -- I hope I won't, anyway -- all of the comments that have been made by those who feel that this is not legislation that is in the public interest. I've got several points that I would like to emphasize.

First, I think S-2627 is quite unfair. It exposes-- It threatens to expose manufacturers to unexpected liability. It removes a statutory right that is the result upon the common law, and it has been relied upon for years, in good faith. It removes a significant element of certainty in the law. I think one of the beauties of our law is that you can rely upon its application and fair manner. This would be -- as a number have already said -- changing the rules in midstream. It seeks to shift the expense to an industry -- in my case, the paint and coating industry -- that began to move away from the use of lead almost 50 years ago; 20 or 30 years before the Federal legislation that limited the amount of lead that could be used in paint.

The use of lead in paint has almost been nonexistent during the past 30 years. In fact, around 1960, they were

using about 5% of the amount of lead that they were using in 1920 to 1924. It's now down to about three eight-hundredths, which is less than one-half of 1%. So there has been a significant decrease in the amount of lead being used. Companies have shifted to two other products: lithopone and titanium dioxide. So we are talking about reviving claims that could be 20, 30, 40, or 50 years old.

I have to also comment on one other point that another speaker mentioned about lead exposure around the home. There have been several estimates about exactly what percentage is due to lead in paint. The best that I've heard is that, somewhere around 90% of the lead exposure in individuals is from gasoline. Now, that, too, is obviously decreasing because of the unleaded gasoline. But at most, about 10% of your lead exposure would be from paint, and obviously that is going to decrease as the years go on.

Senate Bill No. 2627, would be establishing a dangerous precedent. I know of no other situation where a statute of limitation, once established, has been violated in this fashion. Mention was made that Massachusetts has this statute and that it has been upheld. That statute, by the way, applies only to asbestos, not lead.

I will also ask the same question that another witness asked: What is to prevent the Legislature from offering this same kind of remedy to some other well deserving claimant or a class of plaintiffs?

The matter of insurance: Elmer went into it from his side, but look at it from the side of those that have to buy the insurance. What kind of insurance protection would be available, and at what kind of cost? Are insurers going to provide coverage for cases that are filed during the two-year window of opportunity? Won't the change in the event triggering the statute of limitation put insurers at a greater

risk than they bargained for? How can you write insurance for claims that are opened for as long as anybody is around to file a claim?

I have to assume that S-2627 is a result of the fact that there are negligent landlords and/or others-- Here I might point to section 4. I believe it covers more than just public buildings. It says, "building owners." As it sets, surrounded by commas, I'm assuming that means private building owners, slumlords -- I don't mean to look at you when I say that (laughter) -- that are trying--

SENATOR O'CONNOR: Let the record reflect that Mr. Lloyd pointed to the Committee aide, John Tumulty. (laughter)

MR. LLOYD: I had to look at someone, John.

The idea is that these negligent landlords are trying to have someone else pay for their mistakes, because they failed to exercise their duty and their rights in a timely fashion. So we are rewarding-- It is almost a case of unjust enrichment.

I would also like to quarrel with a couple of the statements that are made in the bill statement. I submit that the real purpose of this bill is not to redress a serious health problem, but rather to shift the responsibility for the costs of cleaning up an abatement. I also feel that the extension of time to file will reward laziness and negligence, not encourage prompt action. If these folks acted promptly, you wouldn't have any need for this bill. And I do believe that the bill will affect the outcome of cases by exposing people to liability that they might not otherwise be exposed to.

Another witness mentioned the fact that if the manufacturers of the product are not known, well then the contractors are out of luck. If memory serves me correctly, there was a case involving the manufacturer of a football helmet. A young man got injured -- maybe killed, I forget the exact statistic -- and they could not figure out who made the

helmet. They went to one of the major helmet manufacturers and said, "We'll, you make most of them, so therefore you're going to pay." So I'm not so sure we can hide behind the fact that not knowing who's responsible is going to mean that the plaintiff won't recover or that the contractor is going to be left hanging.

I believe that is the extent of my comments. I hope they have been helpful. I'll be glad to answer any questions. I urge that the Committee reject this legislation.

SENATOR O'CONNOR: Thank you. I'm advised that the language that you referred to at line 33 on page two, is, in fact, a mistake. And the words, "building owner" will be deleted from the bill.

MR. LLOYD: Okay. Thank you.

SENATOR O'CONNOR: Are there any questions for Mr. Lloyd? (no response) Thank you, Mr. Lloyd.

MR. LLOYD: Thank you.

SENATOR O'CONNOR: The last scheduled witnesses that we have are Michael Baker and Bob Kenny, representing New Jersey Society of Architects.

M I C H A E L J. B A K E R, ESQ.: Good afternoon. I have with me, Robert Kenny and we don't want to reiterate most of the testimony that has gone before us. Mr. Kenny would just like to bring a few items to your attention.

R O B E R T G. K E N N Y, ESQ.: I would just like to add that our opposition to the proposed bill-- All of the arguments in opposition that have been voiced, we agree with. I will, though, raise a couple of arguments that concern the fundamental unfairness of the proposal.

The inequity of what has gone on -- as it relates to design professionals and architects in particular -- relates to the fact that, for years the statute of repose -- the 10-year statute of repose -- has been relied upon by design professionals and architects in particular. In fact, it puts

them at such a disadvantage at this point, because-- For example: You have an architect who has known that he has not been involved in any projects for 10 years, no longer has any records, and, in fact, may have retired and no longer carries a tail on his insurance policy. The purported purpose of this bill is to seek more funds, but what you have in actuality done is expose a design professional to personal liability, with no insurance to cover this.

Forcing extended litigation on the persons or the entities that will fund that litigation will, of course, include the public bodies that are attempting to gain some benefit, and that is just not going to happen in the reality of the situation. We also should take into account that the wording of the language of this bill seems to resurrect every suit that there has ever been, potentially, since it seems to allow for the resurrection of third-party complaints, cross claims against design professionals that could not have been brought at the time because of the preexisting 10-year statute of repose and statute of limitations.

Potentially, you have just caused, not only all additional suits that were never brought before, to now be allowed to be resurrected, but all suits that were either adjudicated or settled before, can potentially be resurrected seeking indemnification and payments by those who paid the plaintiffs in those other suits.

We urge rejection of the bill for those reasons, and that's all I have in addition to our statement.

SENATOR O'CONNOR: Thank you, Mr. Kenny. Are there questions? (no response)

Before we close the hearing, I would also like the record to reflect that we've received a letter from Jon R. Moran, Senior Legislative Analyst with the New Jersey State League of Municipalities, expressing the League's support for Senate Bill No. 2627. There is also a letter and statement

submitted by Mr. Michael A. Wiegard, W-I-E-G-A-R-D, with the firm of Paul, Hastings, Janofsky & Walker, representing GAF Building Material, expressing their opposition to the bill.

If there is nothing else to come before the Committee, then the public hearing is closed, and I thank you all for your attendance here today.

(HEARING CONCLUDED)

APPENDIX

WILENTZ, GOLDMAN & SPITZER

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PLEASE REPLY TO WOODBRIDGE

October 19, 1990

Senator John A. Lynch
State House
CN-099
Trenton, New Jersey 08625

RE: Senate Bill No. 2627

Dear Senator Lynch:

I would like to thank you and the committee for the opportunity of testifying on October 4, 1990 concerning Senate Bill No. 2627. Insofar as I was the first person to testify, I did not have the opportunity to comment on the testimony given by the various opponents to this Bill. Accordingly, please accept this letter as a supplement to my testimony.

A. Unrebutted Facts

Despite the testimony of a number of opponents to this extremely important legislation, it is worth noting that the following facts remain uncontested:

1. The presence of deteriorating lead paint in public buildings and schools poses a very serious health risk to thousands of children in New Jersey.
2. One of the primary reasons that hazardous asbestos and lead conditions remain unabated in our public buildings and schools is the lack of funds available to accomplish such removal.
3. The cost of abating hazardous asbestos and lead conditions has the potential to bankrupt many of our municipalities and educational institutions.

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4. The asbestos and lead paint industry were well aware that the products they sold to our municipalities and schools were hazardous and defective prior to installation and that knowledge was never communicated to either the building owners or to the architects.

5. As the lead paint and asbestos deteriorates or when renovation or demolition of a structure is necessary, the asbestos and lead paint must be removed from the buildings in issue.

6. Recent surveys of custodial workers in New York City demonstrate that 30% to 40% of the custodial workers in the New York City schools have been diagnosed with asbestos related disease. If similar results are obtained in New Jersey, and hazardous asbestos in place continues unabated, numerous personal injury claims can be anticipated against municipalities and schools in this State as a result of not abating the asbestos hazard.

B. The Need For Legislation

Professor Henderson, testifying on behalf of N.L. Industries, argued that there is no need to codify the discovery rule in New Jersey since it was already accepted law in this State. The testimony given by Mr. Marchetta, however, on behalf of W. R. Grace & Company, a former asbestos manufacturer, clearly demonstrates why this legislation is required. In his testimony, Mr. Marchetta spent the majority of his time arguing that the discovery rule does not and should not apply to property damage cases. This same position is advocated uniformly by the asbestos industry in all cases seeking the cost of reimbursement for the removal of hazardous asbestos from buildings. Thus, without this legislation, industry will continue to litigate the discovery rule issue in each and every case that is brought.

The position taken by Mr. Marchetta on behalf of W. R. Grace is that the statute of limitations begins to run as soon as the building owner learns that asbestos or lead paint was installed in its building, regardless of whether the condition of the asbestos or lead paint presents a present hazard so as to warrant removal. In other words, they would argue that if Rutgers learned in 1977 that it had asbestos in its gymnasium, a law suit

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should have been started at that time, even if the State of New Jersey, or some other health professional, advised Rutgers that there was no need to remove the asbestos in 1977 because its condition did not present a hazard.

The position advocated by W. R. Grace encourages law suits for abatement and removal as soon as a building owner learns that asbestos or lead is located in its building, without regard to whether the presence of that material poses a health risk. Senate Bill No. 2627 on the other hand discourages a rush to the courthouse for fear of having a time barred claim by virtue of the statute of limitations, and facilitates only those cases where a imminent hazard exists as a result of inter alia deteriorating or friable material, renovation or demolition.

C. The Legislation is Consistant with the Guidelines of the EPA

Mr. Marchetta, for W. R. Grace, also cited selected portions of the new EPA recommendations concerning how to manage asbestos in place to argue that this legislation is contrary to the new EPA guidelines. The portion of the EPA guidelines selectively not mentioned by Mr. Marchetta bears repeating here:

"There is an increasing concern for the health and safety of construction, renovation and building maintenance personnel because of possible periodic exposure to elevated levels of asbestos fibers while performing their jobs.

* * *
Because these fibers are so small and light, they remain in the air for many hours if they are released from ACM (asbestos containing material) in a building. When fibers are released into the air they may be inhaled by people in the building.

* * *

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* * *

Intact and undisturbed asbestos materials do not pose a health risk. The mere presence of asbestos in a building does not mean that the health of the building occupants is in danger. However, asbestos materials can become hazardous when, due to damage, disturbance, or deterioration over time, they release fibers into building air. (Emphasis added.)
EPA Guidelines, pp. 2-3, 1990.

Thus, the S2627 is perfectly consistent with the EPA recommendation of only encouraging removal when a hazardous condition exists and not merely when asbestos is present in a building. The position of W. R. Grace and others that a law suit should be filed immediately upon discovery of asbestos in a building is clearly contrary to the EPA guidelines.

D. The Asbestos Health Issue

As is evident from the foregoing citation to the 1990 EPA guidebook, asbestos that becomes airborne due to damage, deterioration or disturbance "release fibers into building air" and "may be inhaled by people in the building."

In support of its position that asbestos in buildings presents no hazard, W. R. Grace cites a recent article appearing in Science Magazine which was echoed at the so called Harvard Symposium. What W. R. Grace did not tell the Committee was that the author of Science Magazine article is regularly retained by the asbestos industry in asbestos personal injury and property damage litigation and that the so called Harvard Symposium was a closed door conference orchestrated by former asbestos manufacturers now defending against asbestos cases. So that the Committee has a more balanced picture, I am attaching hereto a copy of the testimony of Dr. Steven Levin before the U.S. Congress concerning the health hazards posed by asbestos installed in public and private buildings. Dr. Levin was to testify before this Committee, but due to last minute scheduling changes, was unable to attend. You should also be aware that in June, 1990 the New York Academy of Sciences held an international symposium which focused on the dangers to bystanders from asbestos in place.

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For those members of the Committee who were unable to attend the hearings, I thought it also important to note the findings of a recent study which demonstrated that 30% to 40% of the family members of asbestos factory workers recently surveyed here in New Jersey were found to have evidence of asbestos disease on x-ray. Some of these family members were born after their father had stopped working in the asbestos factory, and therefore developed asbestos disease simply by living in a contaminated household.

E. Bill No. 2627 is Constitutional

During the hearings, Senator Laskin raised the issue as to whether this legislation might be unconstitutional because it does not offer similar protection for people who have been injured from exposure to asbestos. His concerns were of course admirable. I believe, however, that this legislation is constitutional and would be upheld on a rational basis test. In fact, Professor Henderson, who testified on behalf of N.L. Industries candidly admitted that the legislation would probably pass constitutional muster. Similar legislation has been upheld as constitutional in other states including Massachusetts and New York.

In addition, it is my understanding that there is other legislation pending in the Senate and Assembly that extends similar protection to personal injury victims, thereby obviating the concerns of Senator Laskin.

F. Threats by the Asbestos and Lead Industries

Lastly, industry spokesmen repeatedly attempted to persuade this Committee that this legislation is not in the interest of New Jersey because it would somehow create a chilling effect to attracting new business in this State. This argument is simply a red herring to attempt to influence this Committee by impliedly threatening that industry will leave if this legislation is passed. New Jersey has long been in the forefront of protecting the innocent from the tortious conduct of others, whether that the wrongdoer is an individual or a corporation. Notwithstanding this policy, many responsible corporations have chosen to establish corporate offices in this State.

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Thank you for your consideration.

Very truly yours,



CHRISTOPHER M. PLACITELLA

CMP:tr

6X

HEALTH HAZARDS OF LEAD PAINT

Prepared by: Richard P. Wedeen, M.D., VA Medical Center, East Orange, N.J. 07019. Telephone: (201) 676-1000, Extension 1269. (c.v. attached)

This summary of lead poisoning is intended to provide background information on the delayed adverse health effects of lead in connection with Senate, No. 2627 (An act concerning the statute of limitations for certain actions involving asbestos or lead materials.... By Senator Lynch).

Acute lead poisoning was recognized by pre-scientific physicians over two thousand years ago. Benjamin Franklin contributed to the modern description of lead poisoning by Sir George Baker in 1767. Acute poisoning was easily recognized when the amount of lead absorbed was so massive that the health effects were obvious within a few days. The acute symptoms were dramatic: lead colic (severe abdominal pain), painter's palsy (wrist paralysis from nerve damage), and behavioral abnormalities (brain damage, encephalopathy). In the mid-nineteenth century, anemia (decreased red blood cells) was added to the typical symptoms of acute lead poisoning. Current understanding of lead toxicity extends beyond the classical acute symptoms to the more subtle, cumulative delayed effects. The danger of leaded paint has been known since the eighteenth century. Recommendations that zinc paints replace lead paints were hotly debated in both New York and Boston in the mid-nineteenth century. Leaded house paints were nevertheless widely used in this country until the 1970s and continue to be used for metal structures.

In the 1960s, acute lead poisoning was recognized as a serious problem among New Jersey's inner city children. Lead poisoning occurred between 3 months and six years of age. The children frequently had convulsions and sometimes died. Surviving children often sustained severe permanent brain damage. Acute childhood lead poisoning resulted from the eating of leaded paint chips in deteriorating buildings, a practice called "pica." Extensive public health measures were put in place to identify children at risk by blood testing before serious complications occurred. Lead abatement was required but funds to pay for the lead paint removal were not available. Funding sources to cover the \$10,000 per dwelling needed for lead abatement have been difficult to find.

The childhood lead poisoning detection programs in New Jersey have been partially successful. Severe poisoning is distinctly unusual in children in New Jersey today. However, it has recently been shown, that even low-level lead exposure causes decreased IQ scores and behavioral abnormalities in children. Low-level lead absorption causes impaired intellectual development and antisocial behavior later in life. These children eventually have unfortunate encounters with the courts. Currently, 177,000 children, one through five years of age, are at risk of lead poisoning in New Jersey from deteriorating leaded paint (22 N.J.R. 1503).

The more subtle, delayed effects of long-term, moderate lead absorption from deteriorating leaded paint has not been controlled. Accidental exposure from dust created by leaded paint chips was not eliminated by childhood lead surveillance programs, although the deliberate ingestion of paint chips (pica) by children has been reduced. The toxic effects of moderate lead absorption over a prolonged period may only be manifest decades after the building was painted and decades after exposure began. The diagnostic symptoms of acute poisoning may never occur. The danger from old leaded paint is, therefore,

not limited to childhood or pica, but may impair health only after they have reached adulthood. Slow continuous exposure may occur in children and in adults who get tiny flakes of lead paint dust on their hands, in their food and in the air. Normal hand-to-mouth activity in children and adults results in increasing lead stores in the body over years or decades. Such exposure may contribute to the development of hypertension, stroke, heart disease and kidney disease after 20 or 30 years. The causal relationship is often obscure because the victims do not recognize the source of the lead. In addition, the long delay before the appearance of symptoms, the multiple sources of lead in the environment, and the many other factors that contribute to the development of these diseases in an aging population, serve to obscure the role of leaded paint. New Jersey's lead abatement regulations have not been successful because of the high costs, and the extreme danger to unskilled individuals who attempt to remove lead paint without proper safety controls.

The adverse delayed effects of chronic lead absorption include hypertension, saturnine (lead-induced) gout, diminished newborn growth rate, reproductive dysfunction, neurological deficits, neuro-behavioral dysfunction, stroke, heart disease and renal disease (see attached outline and tables). About 1% of the American population is probably at risk of excessive cumulative lead absorption. The Second National Health and Nutrition Survey (NHANES II) conducted from 1976 to 1980 measured blood lead in 27,000 individuals 6 months to 74 years of age. This study indicated that about 2,000,000 citizens had blood lead levels greater than 30 mcg/dl and may therefore have excessive lead stores. Elevated blood lead levels were particularly common among impoverished black males. Eighteen percent of black males with family incomes under \$6,000 a year had blood leads over 30 mcg/dl. It is estimated that about 400 children in New Jersey had elevated lead levels in 1987 but that only 272 received medical treatment (22 N.J.R. 1503). Blood lead levels over 25 mcg/dl must be reported to the New Jersey Department of Health. In 1988 approximately 200,000 children in the United States still had blood leads over 25 mcg/dl. The vulnerability of infants and children to lead poisoning is exceeded only by the vulnerability of the developing fetus which accumulates lead directly from the pregnant mother's blood. In 1984, over 400,000 pregnancies were estimated to be at risk because of maternal blood leads greater than 10 mcg/dl.

Over 95% of the body lead burden in adults is stored in bone. There is compelling evidence that lead in bone offers the best measure of the cumulative dangers from lead absorption over a lifetime. Lead in blood has a biological half life of only a few weeks and therefore reflects recent, rather than cumulative absorption. Another test for body lead stores, the EDTA chelation test (lead-mobilization test), is impractical for large-scale application because it requires injections and timed urine collections. Full understanding of the impact of lead on health is expected to come from a new, high tech device developed in New Jersey called in vivo tibial x-ray fluorescence (XRF). This machine measures lead in bone non-invasively and safely. It has been developed by Dr. Wedeen in collaboration with the the New Jersey Institute of Technology, the VA Medical Center in East Orange, and the New Jersey Medical School in Newark. The New Jersey State Occupational Medicine Program and the New Jersey Poison Information System at the Beth Israel Medical Center in Newark are currently seeking ways to include this unique diagnostic tool in their lead surveillance programs. The only in vivo tibial XRF device for screening purposes in the United States is located at UMDNJ-New Jersey Medical School in Newark. Experimental studies using in vivo tibial XRF are being conducted at the Harvard Medical School, the University

of Cincinnati and the University of Birmingham in England.

CLINICAL ASPECTS OF LEAD POISONING

Richard P. Wedeen, M.D.

VA Medical Center, East Orange, N.J. 07666 (201) 676-1000, Extension 1269.

I. Sources of lead exposure

1. Low level
 - a. Water, food, air, soil
2. Moderate exposure
 - a. Paint dust, cans, toys, pewter, enamelware, silver plate, stationary sources
3. High level
 - a. Pica, occupational, glazes, moonshine, paint dust
4. Massive (acute poisoning)
 - a. Pica, occupational, glazes, moonshine, paint dust

II. Symptoms

1. Low level
 - a. IQ
 - b. Reproduction, gestation, growth
 - c. Hypertension (high blood pressure)
2. Moderate exposure
 - a. Kidney disease
 - b. Hypertension
 - c. Behavioral/mental
 - d. Constipation
3. High level
 - a. Lead colic (abdominal pain)
 - b. Neuropathy (wrist drop)
 - c. Encephalopathy (brain damage)
 - d. Anemia
 - e. Hypertension, stroke, kidney and heart disease
4. Massive (acute poisoning)
 - a. Colic
 - b. Neuropathy
 - c. Encephalopathy
 - d. Anemia
 - e. Transient hypertension, kidney and heart damage

III. Diagnosis

1. Low level
 - a. Blood lead; $E_{Pb} < 25$ mcg/dl
 - b. EDTA chelation test < 600 mcg Pb/d
 - c. Bone lead; In vivo tibial XRF - < 15 ppm wet wt
2. Moderate exposure
 - a. E_{Pb} 20-50 mcg/dl
 - b. EDTA chelation test > 600 mcg Pb/d
 - c. In vivo tibial XRF - 15-40 ppm wet wt
3. High level
 - a. E_{Pb} 30-30 mcg/dl
 - b. EDTA chelation test > 1000 mcg Pb/d
 - c. In vivo tibial XRF - > 40 ppm wet wt
4. Massive (acute poisoning)
 - a. $E_{Pb} > 60$ mcg/dl
 - b. EDTA chelation test > 1000 mcg Pb/d
 - c. In vivo tibial XRF - time dependent

LEVELS OF LEAD EXPOSURE

SOURCES AND SYMPTOMS

<u>Exposure</u>	<u>Sources</u>	<u>Symptoms</u>	<u>Blood Pb (mcg/dl)</u> 10-25
1. Low, continuous (Ambient)	Water Food Air Soil	IQ, Growth Reproduction Stillbirths Hypertension	
2. Moderate, occasional (Intermittent)	Paint dust Cans, Toys Powder Enamelware Silver plate Stationary	Kidney Hypertension Gouty Behavior/Mental Bowel	20-50
3. High, persistent (Chronic)	Pica Work Glazes Moonshine Paint dust	Colic Neuropathy Encephalopathy Anemia Hypertension Kidney	30-80
4. Massive, rapid (Acute)	As above	Transient Hypertension Fanconi syndrome As above	>60

BODY STORES IN ADULTS

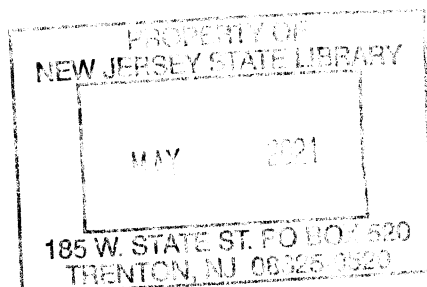
<u>Exposure</u>	<u>Symptoms</u>	<u>Blood Pb (mcg/dl)</u>	<u>EDTA Test (mcg/3d)</u>	<u>Tibial** [Pb] (mcg/G)</u>	<u>Pb:Ca (mcg/G)</u>
1. Low, continuous (Ambient)	Hypertension	<25	<600	<15	<150
2. Moderate, occasional (Intermittent)	TIN*** Hypertension Gouty	20-50	>600	15-40	150-400
3. High, persistent (Chronic)	TIN*** Hypertension Gouty kidney	30-80	>1000	>40	>400
4. Massive, rapid (Acute)	Transient Hypertension Fanconi syndrome	>60	>1000	time dependent	

* Values are for adults.

** Net weight. Determined by in vivo tibial XRF.

*** TIN = tubulointerstitial nephritis.

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TESTIMONY OF JAMES A. HENDERSON, JR.

Frank B. Ingersoll Professor
of Law
Cornell University

On S.2627

Before the
New Jersey
Senate Judiciary Committee

October 4, 1990

TESTIMONY OF PROFESSOR JAMES A. HENDERSON, JR.

ON S.2627

I am Jim Henderson, Frank B. Ingersoll Professor of Law at Cornell Law School. I have taught torts and products liability for the past 25 years and have published numerous books and law review articles on those subjects. I have also testified before committees of state legislatures and the U.S. Congress on a number of occasions, addressing a variety of issues in my major fields of interest. I appear today at the request of NL Industries; but the opinions I express are strictly my own. I want to thank the Committee and its chairman for inviting me to testify. I very much oppose S.2627 and will briefly explain why I think it reflects bad social policy.

My first ground for opposing the bill takes me back to the reasons for having a statute of limitations in the first instance. Attempting to adjudicate stale claims many years after the events that gave rise to them is difficult, often haphazard, and burdensome to the judiciary system. It is also grossly unfair to defendants who may no longer have access to the facts necessary to defend themselves.

The New Jersey statute of limitations otherwise applicable to these claims is one of the most generous. An injured plaintiff has six years within which to bring an action after the cause accrues, whereas many states allow only two or three years. And, under New Jersey law, a cause does not accrue until the claimant knows that he has suffered injury and that the

defendant caused it.¹ Six years from discovery is, in my judgment, more than ample time for a claimant to decide to bring action once the injury and the causal connection with the defendant is known. In the present context, one need not wait until the hazardous substances have actually been abated to commence an action for recovery of monetary damages; it should be sufficient for the plaintiff to prove that abatement will be necessary and to establish the cost of achieving that objective.

Section 3 of S.2627 codifies the existing six-year period of limitations for asbestos and lead abatement claims. Why did the draftsman pick six years? Because, in New Jersey, it is traditional, adequate, and fair. Why not give claimants twelve years? Or eighteen? Because no one needs that much time after discovering they have been injured. And yet, section 4 of S.2627 will have the effect in some cases of allowing plaintiffs in asbestos and lead abatement cases many more years than twelve or eighteen in which to sue. Indeed, I can envision a claimant bringing an action more than 30 years after the events giving rise to the claim. Thus, the policy judgments reflected in Section 3 (a general six-year period of limitations) and Section 4 (a special rule that gives asbestos and lead plaintiffs up to 30 years or more) contradict each another. Section 3 is

¹ See Vispiziano v. Ashland Chemical Co., 107 N.J. 416, 527 A.2d 66 (1987); Graves v. Church & Dwight Co., 225 N.J. Super. 49, 541 A.2d 725 (1988).

the traditional New Jersey rule and makes sense. Section 4 reflects bad policy and should not become law.

In response to the arguments I have just offered, one might reply that a small number of other state legislatures have enacted measures eliminating statute of limitations defenses, including limitations defenses in personal injury actions. If other states have done so, what can be wrong in principle with New Jersey doing likewise? My response to this counter-argument is two-fold.

First, merely because other states have enacted analogous measures does not make it any less unfair or inappropriate for New Jersey to do so. On the view just expressed in support of S.2627, presumably the first state to eliminate limitations defenses was wrong, and maybe the next; but after two or three had done so, the repetition of the wrong somehow made it right.

My other response to the argument that "others have done this" relates to my observation earlier that New Jersey has one of the most liberal, generous-to-plaintiffs discovery rules in this country. In contrast, my home state of New York had, at the time of the enactment of the New York statute reviving time-barred claims, one of the least generous, most stingy rules. Thus, when New York eliminated the limitations bar for personal injury claims relating to a cluster of toxic products, it did so in order to save time-barred plaintiffs from the draconian

effects of a "you're barred before you even know you were hurt" limitations approach in that state. No such circumstances exist in New Jersey; the limitations rule here imposes no such unfair burdens on injured plaintiffs. Therefore, the fact that New York eliminated its limitations bar is of no relevance to the propriety of S.2627.

My second reason for opposing S.2627 is that it changes the rules of the game in midstream. If New Jersey had had an excessively flexible limitation period, as proposed here, from the onset, instead of a bright-line six-year cut-off, defendants would at least have been on notice that they better retain all records running back indefinitely in time. But New Jersey had no such rule at the outset. S.2627 seeks to impose excessive flexibility retroactively, after many firms may have reasonably relied on the protection of the traditional six-years-from-discovery rule. This circumstance exacerbates the problems of stale claims, making it even more difficult for the judicial system and more unfair to defendants.

I am not arguing that S.2627 is unconstitutional in a legal sense -- with a capital "C" -- although strong arguments to that effect exist. But I do insist that it is improper and inappropriate from the standpoint of social policy. The legislature must have an overwhelmingly compelling reason, unique to asbestos and lead abatement litigation, to take this nontraditional, extreme measure.

All that I have heard by way of justification is that the municipalities, schools, and other claimants who would be benefited by S.2627 received conflicting advice over the years concerning whether or not to attempt abatement of the products in their buildings and thus let the limitations period lapse without taking action. Now, let me make clear that if the defendants were responsible for creating confusion in this regard, or relaying misinformation, I would support S.2627 enthusiastically. But they were not thus responsible. Indeed, I understand that beginning in the 1950's, the major lead and paint companies expended substantial resources to educate the public regarding the need for abatement measures to be taken.

So what we are left with is a number of would-be claimants who, knowing of the injuries and their cause, failed to get their tactics straight and slept on their rights. It is unfortunate that those public officials running the municipal buildings, schools, and the like did not act in time. Once again, they could have commenced legal action even if abatement had not yet begun. But it is grossly unfair to impose the costs and burdens of such delay on defendants who are entitled to the reasonable protections of the traditional limitations cut-off.

Even if I could somehow live with the problems I have identified, another consideration forces me to oppose S.2627 most strongly. No only is it bad social policy to invite stale claims to court and to change the rules of the game after parties have

reasonably relied on those rules to their detriment, but it is also bad policy to change the rules in such a patently selective political fashion. If S.2627 is enacted and becomes law, New Jersey will be the first and only state to have waived the statute of limitations for lead abatement cost recovery claims. Other states have taken similar action regarding asbestos; and as I pointed out earlier, my home state of New York has done so for a cluster of toxic substances. But you will be unique if S.2627 becomes law.

Why will you have taken this unprecedented step? I believe objective outsiders will see this new law as an attempt to place costs over onto mainly out-of-state companies who will presumably be defendants in the abatement actions to come. I understand that plaintiffs may have arguments under the existing liberal discovery rule to sue under existing law, but, to the extent plaintiffs fail, New Jersey will be seen to be attempting to change the rules retroactively and put the costs on out-of-state defendants. Thus characterized, the objectives of S.2627 are unworthy of the great state of New Jersey.

Rather than moralize further regarding the inherent shabbiness of a proposal that seeks to impose costs on out-of-state defendants, however, I prefer to point out several implications of S.2627 that may actually hurt the interests of New Jersey in the longer run. Rather than continue to appeal to notions of fundamental fairness, then, the remainder of my

remarks appeal to New Jersey's own long-run self interest. In the arguments that follow I assume that actions to recover abatement costs may prove successful. I have no reason to think this is the case; but if one assumes otherwise, S.2627 serves no purpose.

My first observation is that New Jersey must be home to many firms that were involved, going back in time to the 1950's and possibly earlier, in the production and distribution of lead-based building products. In fact, NL Industries, who asked me to testify, is one such company. Even if these products are not currently produced in New Jersey, there must be many firms that, in earlier periods, engaged in the production and distribution of such products. Observe also that the bill applies not only to manufacturers, but also to other persons -- engineers, architects, contractors -- who might be sued in abatement actions. Those firms are likely still operating in New Jersey today. If I am correct, and if the actions to recover abatement costs should prove successful, then S.2627 will represent a financial threat to those firms.

Note also that out-of-state plaintiffs will bring actions against New Jersey firms based on earlier asbestos and lead product purchases in this state. The bill does not limit the plaintiff class to New Jersey municipalities and schools; many potential plaintiffs in neighboring states presumably did business with suppliers in New Jersey. Given the liberal rules

permitting the assertion of jurisdiction against-out-of-state defendants, these plaintiffs will have the option of bringing suit either in their home states or in New Jersey, arguing that the newly enacted New Jersey statute of limitations should apply against the New Jersey corporations and in favor of the out-of-state municipalities and schools. Such arguments have sometimes met with success.²

Out-of-state plaintiffs will be able to invoke the New Jersey statute only against New Jersey producers and distributors, because otherwise there will not be sufficient nexus with New Jersey to justify applying New Jersey law. So one practical implication of S.2627 is that it represents an open invitation to otherwise time-barred out-of-state plaintiffs to impose potentially large liabilities on New Jersey firms.

An equally serious implication of S.2627 concerns the effects the bill may have on firms' decisions in the future to come to, or remain in, New Jersey. Given the unsettled nature of choice-of-law rules, a firm that is deciding whether New Jersey provides a friendly business environment will have to concern itself with the possibility that other states may use the New Jersey open-ended statute of limitations as a sword against New Jersey enterprises. Of course, S.2627 only applies to abatement actions involving asbestos and lead products. But what is to

² See, e.g., Mahne v. Ford Motor Co., 900 F.2d 83 (6th Cir. 1990); Ledesma v. Jack Stewart Produce, Inc., 816 F.2d 482 (9th Cir. 1987).

stop the New Jersey legislature from adding to the list of limitations waivers at some future time for many other products? I believe S.2627 will send a signal that, if the pressures become great enough, the New Jersey legislature will change the rules in midstream to help plaintiffs even if it exposes New Jersey firms to unfair levels of liability. New Jersey legislators may have no present intention of making such further extensions. But the precedent will have been set and the signal sent.

It is simply inappropriate for state legislatures to get into the business of altering the fundamental rules of the liability system to serve short-term political objectives. States may and do compete with each other in many appropriate ways. But they should refrain from making competitive-based adjustments in their systems of civil justice. Once such legislative behavior becomes commonplace, America -- and perhaps New Jersey in particular -- will be the worse for it.

For these reasons I urge this Committee to reject S.2627 as a bad idea, borne of understandable concern for New Jersey municipalities and schools, but fraught with the difficulties I have described.

Testimony of Anthony J. Marchetta
on Senate Bill 2627 on
Behalf of W.R. Grace & Co.

My name is Anthony J. Marchetta. I am an attorney of the State of New Jersey and a certified civil trial attorney. I am also a partner in the law firm of Hannoch Weisman, and the head of its litigation department. I have been asked to testify today by W.R. Grace & Company about Senate Bill 2627.

I have been personally involved in asbestos personal injury litigation in our State since 1977, as well as the controversy surrounding asbestos in buildings since 1982. I also participated as one of the lead counsel in the Co-defendants' Creditor's Committee of the Manville Bankruptcy. To be direct, I've litigated, lectured and testified about almost every major issue in the asbestos controversy.

S2627 does nothing less than promote the continuing flood of asbestos litigation and encourage misperceptions about the alleged health risk of asbestos in buildings. Worse is the fact that this legislation will force a rush to the court house to preserve stale claims at a time when our scientific community is urging a restrained and conservative approach to the asbestos in buildings issue.

Current law provides that all causes of action arising out of injury to real or personal property must be commenced within six years of the accrual of the cause of action. In addition, N.J.S.A. 2A:14-1.1 establishes a statute of repose, which

prevents actions based on damage to property resulting from improper "design, planning, supervision or construction of an improvement to real property" from being brought more than 10 years after the performance of such services.

Senate Bill 2627 purports to alter the current state of the law in several ways. First, it excludes from the statute of limitations and the statute of repose any claims resulting from injury to real or personal property in which the claimant is seeking recovery of remediation costs associated with lead and asbestos. Second, S2627 attempts to codify the "discovery rule" exception to our personal injury statute of limitations and makes it applicable to claims arising out of property damage. Third, S2627 also extends the period of time in which governmental entities may pursue a claim until July 1, 1993, where the statute of limitations had already run. Consequently, actions that would now be barred by both the statute of limitations and the statute of repose would be considered valid claims.

Statutes of limitations have been recognized as a necessary restriction on the pursuit of legal claims. They were designed to prevent litigants from pursuing stale claims. Statutes of limitations effectively establish order and stability in our legal system. Thus, any erosion of these basic principles must be approached with extreme caution. The Supreme Court has observed that:

Statutes of limitations . . . promote justice by preventing surprise through the revival of claims that have been allowed to slumber until evidence has been lost, memories have faded, and witnesses have disappeared.

. . . [E]ven if one has a just claim, it is

unjust not to put the adversary on notice to defend within the period of limitation . . . [T]he right to be free of stale claims in time comes to prevail over the right to prosecute them.¹

The New Jersey courts have long recognized the problems associated with stale claims. Statutes of Limitations are a practical device to spare the courts from this type of litigation and the citizen from being put to his defense after memories have faded, witnesses have died or disappeared, and evidence has been lost. Fidelity and Deposit Company of Maryland v. Abagnale, 97 N.J. Super 132, 234 A.2d 511, 516 (1967). The present bill disregards these basic tenets and affords governmental entities the opportunity to pursue such claims.

In addition, S2627 wholly disregards the present statute of repose. While the Statute of Limitations requires that litigants pursue their claims within a specified period of time, the statute of repose effectively eliminates the cause of action arising from the construction of a building after ten years has elapsed.

The statute of repose provides comfort and stability to society. It insures builders, architects, engineers and others a time certain by which they can close their books and rest assured that no new claims will arise out of past construction. This proposed bill fails to recognize the significance of the Statute of Repose to the construction industry in our State.

As you are all aware, this bill applies solely to claims arising out of property damage. Thus, the bill does not protect individuals suffering from personal injuries, who are often the

class of people needing greatest protection. But it would seek to borrow a doctrine of personal injury litigation, the "discovery rule" to protect property claims. This was never intended by our courts.

In personal injury claims the discovery rule is necessary because of the latency period associated with many types of disease and injury. A personal injury claimant often will not be aware of his injury for many years until he manifests physical symptoms. On the other hand, the application of the discovery rule to this type of property damage claim is illogical. In the context of a building, there is no latency period involved. The fact that the building contained or might contain lead or asbestos is not a hidden fact. Indeed, up until 1973 99% of all public buildings were required to contain asbestos fireproofing. To determine if one had a potential claim, a party merely had to conduct a simple inspection or look at the building specifications. There is no basis for the discovery rule to be applied to property damage claims where the party could have easily determined whether a claim existed.

This Bill is not providing private parties with an exception, but rather granting governmental entities an extended period of time to pursue claims which they knew existed. While this bill would probably fail a constitutional analysis, it also runs contrary to the factual proofs required to overcome a statute of limitation defense.

Governmental entities are unique to the extent that they are the owners of their buildings and were continuously involved

in the construction process. They not only provided the contractors with specifications, but continuously inspected the structures throughout the construction process. Surely, there is no basis for providing governmental entities with the benefit of an extended statute of limitations for claims the government knew existed, but failed to pursue.

This legislation will also have a chilling effect on private industry in the state. The business industry in New Jersey, is, to a great extent, comprised of manufacturers. Clearly, S2627 is a warning to these companies that liability may be imposed, despite statutes of limitations and repose for lead and asbestos, but what product will be next? What will be the exceptions of tomorrow? - And will industry in this State continue business as usual waiting for the next surprise?

Senate Bill 2627 establishes that asbestos and lead litigation is of greater importance, because the litigant is given a longer period of time to institute suit. This is an inaccurate message to convey given recent scientific findings and EPA pronouncements.

The most recent scientific findings on asbestos in buildings dispels the fear that asbestos is likely to cause injury. In most cases, the levels of asbestos inside a building are lower than the levels that are found in the outside air. Since asbestos is a naturally occurring mineral comprising approximately 7% of the earth's crust, it's everywhere. But low level exposure is not harmful. Since, airborne levels of asbestos in most buildings are low, it does not pose the health

risk we once believed. Consequently, the EPA recommends that building owners pursue in an in place management program to contain asbestos.

The EPA's most recent guidebook states:

Based on the available data, the average airborne asbestos levels in buildings seem to be very low. Accordingly, the health risk to most building occupants also appears to be very low.

Removal is often not a building owner's best course of action to reduce asbestos exposure. In fact, an improper removal can create a dangerous situation where none previously existed.

EPA only requires asbestos removal in order to prevent significant public exposure to asbestos during building renovation or demolition.

EPA does recommend in-place management whenever asbestos is discovered.²

While the EPA points out that improper remediation can result in greater health risks, it is also evident that even where the remediation is done properly the concentration of friable asbestos is likely to increase.

Similarly, a bulletin recently distributed by the Environmental Protection Agency to public schools states:

[A]sbestos removal is generally necessary only when the material damage is extensive and severe, and other actions will not control fiber release. Although [EPA] rule[s] do not prohibit schools from removing any asbestos materials, removal decisions should not be made lightly. An ill-conceived or poorly conducted removal can actually increase rather than eliminate risk.³

A recent editorial in Science magazine was more emphatic, stating:

The content of asbestos fibers in the air of buildings containing asbestos is harmlessly small and essentially the same as in outdoor air. Asbestos in buildings, unless damaged, does not shed fibers.

Unless policies are modified, the sums wasted in abatement and litigation will proliferate.⁴

It is evident that the EPA adopted the conclusions reached at the International Symposium on The Health Aspects Of Exposure To Asbestos In Buildings which was held at Harvard University's Energy and Environmental Policy Center in 1988. The findings of the symposium are instructive.

There is a reasonable possibility that removal of asbestos may actually increase exposure to building occupants. Current removal practices vary substantially in adherence to worker protection and material handling procedures. Requirements for reoccupancy after abatement specifies that indoor fiber levels be no higher than found outdoors. Limited evaluations indicate that fiber concentrations can increase following abatement. Demonstrating that removal actually lowers health risk is not a condition for either removal or reoccupancy. Given revised estimates of public health risk associated with asbestos in buildings and the cost for removal, it is reasonable to reevaluate the federal policies and requirements related to asbestos in buildings.⁵

In recent years the EPA has attempted to quell the fears associated with asbestos in buildings. In fact, the EPA has stressed "in place management" of asbestos in most cases. In June, 1990 Mr. William Reilly, Administrator for the Environmental Protection Agency, noted in his address to the American Enterprise Institute that

"it's clear to me that a considerable gap has opened up between what the EPA has been trying to say about asbestos, and what the public has been hearing....The government, and EPA specifically, must also accept a share of the responsibility for the misperceptions that have led to unwarranted anxiety and unnecessary asbestos removals. The asbestos issue shows us that even when we try to communicate clearly about environmental hazards, misperception and overreactions can still occur.⁶

It is now clear that the EPA is not recommending removal in most instances. It is the position of the EPA that an in-place management program can effectively reduce the risks associated with asbestos and is the preferred method of dealing with asbestos. Although the EPA has stressed an in-place management program, the agency is concerned about the significant amount of building owners who are removing asbestos from their buildings as a result of "other forces", such as fears related to property values, not health risks.

Despite these findings, Senate Bill 2627 would help perpetuate the asbestos panic and result in unnecessary litigation. The solution to the asbestos problems is not a bill which will proliferate expensive litigation, but rather education and information on monitoring and in-place management of asbestos in buildings.

FOOTNOTES

- 1 Order of Railroad Telegraphers v. Railway Express Agency,
321 U.S. 342, 348-349 (1944)
- 2 Asbestos in U.S. Buildings: Current Facts and Changing
Opinion (quoting Statement of Linda J. Fisher, Assistant
Administrator for Pesticides and Toxic Substances U.S. EPA,
before Subcommittee on Health and Safety of the Committee on
Education and Labor, U.S. House of Representatives (April 3,
1990)).
- 3 EPA, The ABCs of Asbestos in Schools, at 6-7 (1989)
- 4 "The Asbestos Removal Fiasco" Science (March 1990)
- 5 "Harvard's Energy and Environmental Policy Center Finds Fear
of Asbestos in Buildings Out of Proportion to Public Health
Risk" (August 9, 1989).
- 6 Statement of William K. Reilly, Administrator U.S.E.P.A.,
"Asbestos, Sound, Science, and Public Perceptions: Why We
Need a New Approach to Risk." (July 12, 1990)



Note to Correspondents

FRIDAY, SEPTEMBER 7, 1990

EPA today released a new guidebook that encourages school officials, building owners and abatement professionals to consider and use in-place management of asbestos as an alternative to removal. "Managing Asbestos In Place" seeks to dispel the myth that all asbestos in buildings must be immediately removed and sets out detailed guidelines for safely maintaining asbestos.

"EPA is telling insurance companies, banks, building owners and managers that under the right circumstances, an active in-place management program may be all that is necessary to prevent the release of asbestos fibers," said EPA Administrator William K. Reilly.

EPA stresses that an in-place management program can be beneficial for the following reasons:

1) Asbestos is a human health hazard when its fibers are airborne and can be breathed into the lungs. Asbestos that is in good condition and is not releasing fibers should be maintained until building renovation or demolition. The risk of asbestos-related disease depends upon exposure to airborne asbestos fibers.

2) The average airborne asbestos levels in buildings are very low, according to current data. Therefore, the health risk to most building occupants also appears to be very low.

3) Removal is often not a building owner's best course of action to reduce asbestos exposure. In fact, improper removal can create a dangerous situation where none had previously existed.

4) EPA requires asbestos removal only during building demolition or renovation.

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(more)

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The Agency recommends an in-place management program whenever asbestos-containing material is discovered. In-place management options for asbestos include maintenance, repair, encapsulation and enclosure. EPA recommends asbestos removal only if none of the management options can safely contain asbestos fibers.

EPA's guide, released today, is called "Managing Asbestos In Place: A Building Owner's Guide to Operations and Maintenance Programs for Asbestos Containing Materials." Over 125,000 copies will be distributed to parties with an interest in asbestos control.

"Many millions of dollars have been wasted on unnecessary asbestos removal operations," said Reilly. "This guide will help people understand that in-place asbestos management can protect public health, reduce costs and guard against liability."

Copies of the guide are available through the Press Office, the Toxic Substances Control Act (TSCA) Hotline at 202-554-0404 and EPA Regional Asbestos Coordinators.

For more information, call Gwen Brown at 202-382-4384.

John Kasper, Director
Press Services Division
202-382-4355

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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SEP 18 1990

Dear School Official:

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

I am pleased to provide you with this copy of Managing Asbestos In Place. This new document, the most comprehensive asbestos guide published by the U.S. Environmental Protection Agency (EPA) since 1985, provides state-of-the-art instruction to help you successfully manage those asbestos-containing materials which can be appropriately left in place.

The new guide is important because in-place management should be the cornerstone of your school asbestos control program, as documented in your management plans under the Asbestos Hazard Emergency Response Act (AHERA). Since mandatory AHERA reinspections are approaching, you should conduct the reinspections and revise, as appropriate, your AHERA management plans with this guidance in mind.

Emphasizing the importance and effectiveness of a good in-place management program is a critical element of EPA's broader effort to put the potential hazard and risk of asbestos exposure in proper perspective. That attempt centers around communicating the five facts found on pages vii-viii of the guide. EPA hopes that this effort will help calm the unwarranted fears some people seem to have about the mere presence of asbestos in buildings and discourage decisions to arbitrarily remove all asbestos-containing material regardless of its condition.

In-place management, however, does not relieve your school of its requirements under AHERA, nor does it mean "do nothing." It means that an effective operations and maintenance program should be established to ensure that the release of asbestos fibers into the air is minimized by the day-to-day management of the building and that, when fibers are released, proper control and cleanup procedures are implemented.

If you need a few additional copies of the guide, contact our Hotline at (202) 554-1404 or your EPA Regional Asbestos Coordinator, listed on page 37. Orders for larger quantities can be filled by calling the Government Printing Office Order Desk at (202) 783-3238; ask for GPO Stock No. 055-000-00362-9.

Sincerely,

Michael M. Stahl

Michael M. Stahl, Director
Environmental Assistance Division
Office of Toxic Substances (TS-799)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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SEP 27 1990

Dear Training Provider:

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

I am pleased to provide you with a copy of the guidance document, Managing Asbestos in Place. This document, the most comprehensive asbestos guide published by the Environmental Protection Agency (EPA) since 1985, provides "state-of-the-art" instruction to building owners to help them successfully manage asbestos-containing materials in place. It also informs those individuals deciding what to do about the asbestos in their buildings that a properly conducted operations and maintenance (O&M) program can, in many cases, be as appropriate as a large-scale removal project in controlling the release of asbestos fibers. Furthermore, it stresses that, in some cases, an O&M program is ~~more~~ appropriate than other asbestos control strategies, including removal.

Emphasizing the importance and effectiveness of a good O&M program is a critical element of EPA's broader effort to put the potential hazard and risk of asbestos exposure in proper perspective. That effort centers around communicating the five facts found on pages vii-viii in the Guide. EPA hopes that this effort will help calm the unwarranted fears that a number of people seem to have about the mere presence of asbestos in their buildings and discourage decisions to remove all asbestos-containing material regardless of its condition.

We think you will find that this document is a useful resource for school officials, building owners and managers, consultants, and abatement professionals. We encourage you to incorporate this message into your training courses, and thereby help carry out your role in helping those individuals make sound decisions about controlling asbestos risks.

To obtain additional copies of this Guide, call the U.S. Government Printing Office Order Desk at (202) 783-3238; ask for GPO Stock No. 055-000-00362-9. Sets of camera-ready negatives are also available at EPA's TSCA Information Service (202-554-1404) or from the EPA Regional Asbestos Coordinator (see Guide for phone numbers). Those who want to print large quantities of the Guide can borrow a negative set for that purpose.

Sincerely,

Michael M. Stahl
Michael M. Stahl, Director
Environmental Assistance Division
Office of Toxic Substances (TS-799)

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Legislative Viewpoint



JOHN E. TRAFFORD, Executive Director
WILLIAM G. DRESSEL, JR., Asst. Executive Director
JON R. MORAN, Senior Legislative Analyst
CHRISTOPHER CAREW, Legislative Analyst
HELEN YELDELL, Legislative Analyst

October 4, 1990

Re: Senate 2627

To Members of the Senate Judiciary Committee:

The League of Municipalities enthusiastically endorses S-2627, which codifies the "Discovery Rule" for certain actions relating to asbestos or lead contamination.

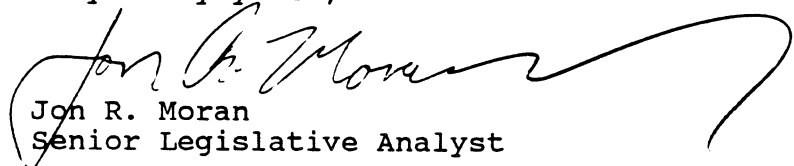
As the dangers attributed to these, once popular, building materials have come to light, public entities have been forced to dedicate scarce resources to the elimination of these hazardous substances from public buildings. This has occurred in spite of the fact that, at the time of construction, industry standards not only recommended but even required the use of these substances.

It is only in light of recent scientific research that any questions concerning the use of these substances could have been raised. And, indeed, it is only now that the ultimate questions regarding responsibility for remediation efforts can be broached.

We are confident that enactment of S-2627 will encourage the acceleration of remediation efforts and we commend the sponsor for his efforts to allow our courts to assess responsibility for what now appear to be misuses of asbestos and lead.

We urge the Committee to release S-2627. Enactment of this bill will close a procedural loophole and allow for a determination of substantive justice.

Very truly yours,



Jon R. Moran
Senior Legislative Analyst

JRM:es

LAW OFFICES OF
PAUL, HASTINGS, JANOFSKY & WALKER

A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

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October 3, 1990

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WRITER'S DIRECT DIAL NUMBER
(202) 457-9443

OUR FILE NO.

The Honorable Edward T. O'Connor, Jr.
Chairman
Senate Judiciary Committee
1662 Kennedy Boulevard
Jersey City, New Jersey 07305

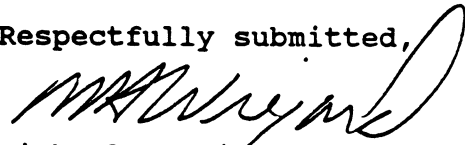
Re: Senate Bill No. 2627

Dear Mr. Chairman:

Enclosed is a statement by GAF Building Materials Corporation ("GAFBMC") regarding Senate Bill No. 2627, which the Judiciary Committee is scheduled to consider at a public hearing on October 4, 1990. GAFBMC appreciates the opportunity to submit its views on this proposed Bill to the Committee.

Any questions that may arise regarding GAFBMC's statement should be directed to the undersigned.

Respectfully submitted,



Michael A. Wiegard
of PAUL, HASTINGS, JANOFSKY & WALKER

Counsel to GAF Building Materials Corp.

MAW:ryh
Enclosure

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The Honorable Edward T. O'Connor, Jr.
October 3, 1990
Page 2

cc: Senator Raymond Zane - Vice Chair
Senator Gabe Ambrosio
Senator Richard Codey
Senator Don DiFrancesco
Senator John Dorsey
Senator Bill Gormley
Senator Lee Laskin
Senator Carmen Orechio
Senator John Russo
Senator Richard Van Wagner

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STATEMENT OF GAF BUILDINGS MATERIALS CORPORATION
REGARDING SENATE BILL NO. 2627

OCTOBER 4, 1990

GAF Building Materials Corporation ("GAFBMC") is a diversified manufacturer of building products and a subsidiary of GAF Corporation, which has its international headquarters in Wayne, and has approximately 1,000 employees in the state of New Jersey. Formerly, GAFBMC corporate predecessors also manufactured certain building materials that contained asbestos, including, among other things, vinyl floor tile and asphalt roofing materials. GAFBMC appreciates the opportunity to present its views with respect to Senate Bill No. 2627.

Senate Bill No. 2627 would codify a six-year discovery rule for actions brought by various public entities and private schools to recover costs associated with "corrective actions," including removal, regarding lead and asbestos in buildings. In addition, the Bill would establish a "window" prior to July 1, 1993 during which public entities or private schools could commence such a cost recovery action that would otherwise be barred as a result of the expiration of the applicable period of limitation. As initially introduced, the Bill would also appear to make this "window" provision available to all building owners.

GAFBMC shares a number of the doubts and concerns that have been previously expressed regarding this Bill. In particular, it views this measure as raising fundamental issues of fairness because it is limited to only two aspects of building construction, lead and asbestos. In addition, the Bill would resurrect old and stale claims which the legislature has previously seen fit to bar for reasons of difficulty of proof and fairness. Indeed, for a number of reasons the Bill may violate constitutional requirements. Furthermore, GAFBMC believes that adoption of this measure would set a troublesome precedent for the treatment of other industry segments such as pharmaceuticals, chemicals, other building materials, and indeed industry as a whole, in the state of New Jersey. By showing New Jersey's law to be mercurial, it would make New Jersey a less desirable state within which to do business.

GAFBMC also shares the view that Senate Bill No. 2627 is simply not necessary as a legal matter. It is our understanding that the New Jersey courts have long applied a "discovery rule" with respect to the statute of limitations in personal injury litigation. Although the applicability of this discovery rule to asbestos-in-buildings litigation has not yet been resolved, as a

practical matter, only those few New Jersey schools which formerly "opted out" of pending national class action law suits would be concerned that a statute of limitations might present a potential bar to seeking damages for asbestos-containing materials in school or college buildings. The decision whether to "opt out" was within the control of those school officials and was made three years ago, in 1987. Most did not do so, and thus are in no danger of having their actions barred by the running of time.

More importantly, GAFBMC is concerned that the Bill would cause owners of public buildings and schools to undertake substantial unnecessary and unwarranted removal of asbestos-containing material over the next two-and-one-half years, i.e., prior to July 1, 1993. Indeed, the Bill's stated purpose is to encourage building owners "to act promptly to correct dangers posed by the widespread presence of lead or asbestos in buildings" However, accelerated removal of asbestos-containing material is directly contrary to the current advice and guidance of the U.S. Environmental Protection Agency.

Just last month, EPA released a new guidebook that recommends school officials and building owners consider using in-place management of asbestos as an alternative to removal. In releasing the new guidebook, EPA Administrator

William Reilly stated flatly that "many millions of dollars had been wasted on unnecessary asbestos removal operations." The new guidebook, entitled "Managing Asbestos in-Place," stresses that removal is often not a building owner's best course of action to reduce asbestos exposure, and that in fact, an improper removal can create a dangerous situation where none previously existed. Rather, the new guidebook recommends strongly in favor of managing ACM in-place in most instances, as does the New Jersey Department of Health. (A copy of this new EPA guidebook, which was released by the agency on September 7, 1990, is attached.)

The resultant push for accelerated removal which would follow enactment of this Bill would be extremely imprudent and potentially dangerous as well as unnecessary. It would also be extremely disruptive of the federal asbestos-in-schools program under the AHERA law, which as you know was written by then-Congressman Florio. More specifically, the powerful incentive to remove the material quickly and at any cost which enactment of the Bill would supply would lead many schools in New Jersey to tear up detailed management plans for the ACM in their buildings which they have only recently completed and begun to implement, after much time and expense, under the AHERA program.

In addition, as a former manufacturer of "nonfriable" asbestos-containing flooring and roofing products, GAFBMC is especially concerned about the likely effect of the Bill with respect to such materials. Asbestos-containing vinyl floor tiles were manufactured with the asbestos fibers firmly imbedded in polymer compound. Asbestos-containing roofing materials likewise were manufactured with the asbestos being firmly encapsulated by asphalt. The physical properties of these materials defy their being crumbled or pulverized by hand pressure, which is the definition of a "friable" asbestos material.

It is neither required nor appropriate for school or public building owners to go to significant expense to remove these nonfriable materials. The EPA AHERA regulations for schools do not require any "response action," much less removal, for nonfriable ACM such as vinyl asbestos floor tile. The EPA Clean Air Act NESHAPS regulations similarly do not require removal of nonfriable ACM prior to building renovation or demolition. (Attached to this statement is a recent internal EPA memorandum confirming that nonfriable flooring and roofing materials are not subject to the NESHAPS removal requirements.) In sum, there is simply no regulatory requirement for the removal, or the

taking of any other corrective action, with respect to nonfriable flooring and roofing materials in buildings.

Unfortunately, Senate Bill No. 2627 would likely lead to substantial, costly and unnecessary removals of these nonfriable materials. The Bill would have the perverse effect of leading school and building owners to undertake such removals precisely for the purpose of seeking recovery of these unnecessary and inappropriate costs from GAFBMC and other former manufacturers of these nonfriable materials.

In summary, GAF believes that Senate Bill No. 2627 would have the undesirable effect of causing a wave of unnecessary, costly, inappropriate and potentially unsafe removals of asbestos-containing materials from buildings, contrary to the advice of EPA and relevant regulatory provisions. It would also lead to a further clogging of the court system with unnecessary and unwarranted law suits seeking recovery for costs of those unnecessary removals. Finally, the Bill is simply not necessary given the current state of the law in New Jersey, and would raise significant issues and concerns on the part of industry generally without any benefit to the public.

For these reasons, GAFBMC respectfully suggests that the Judiciary Committee should decide against giving a favorable recommendation to Senate Bill No. 2627.

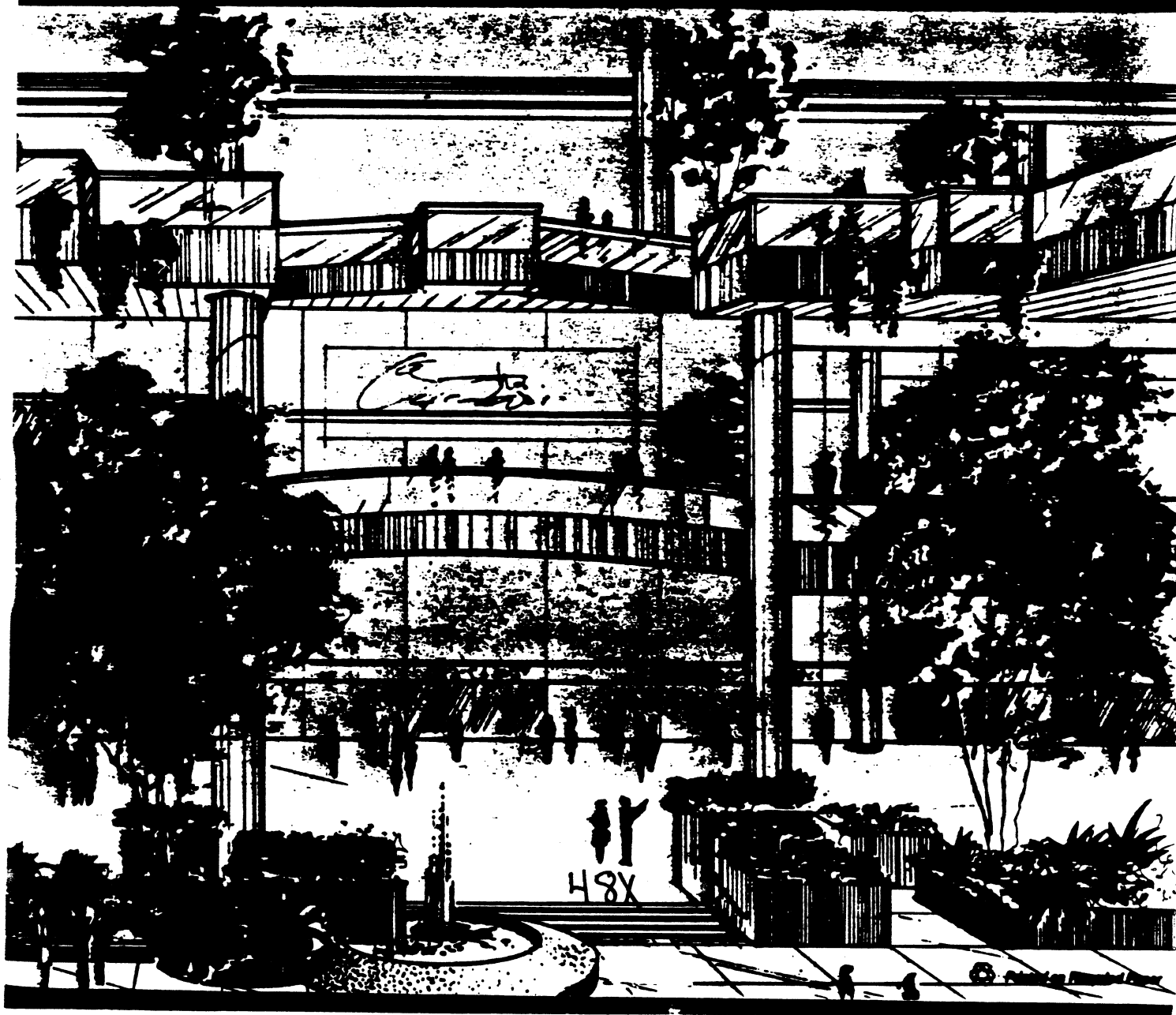
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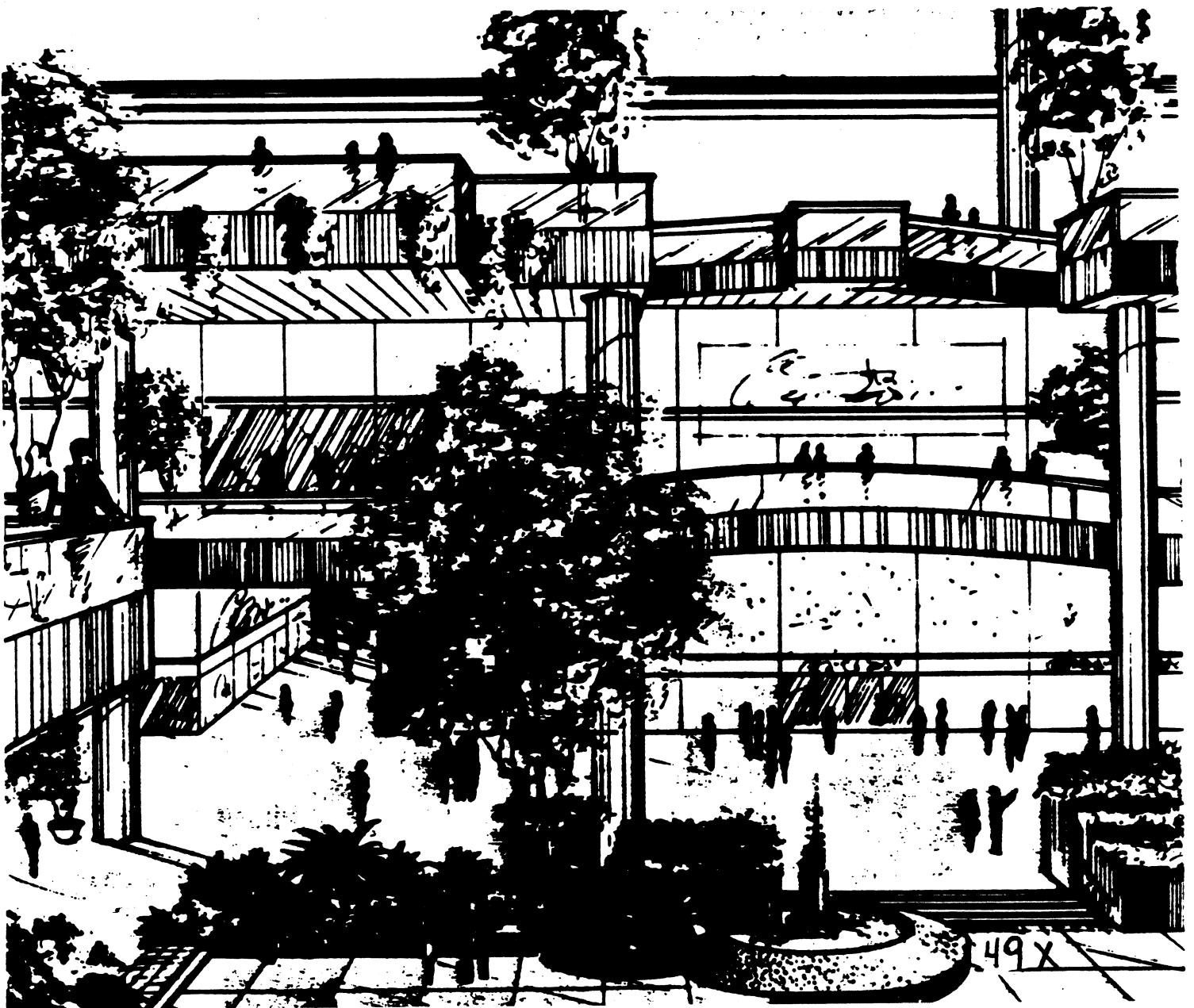
Managing Asbestos In Place

A Building Owner's Guide to Operations and Maintenance Programs for Asbestos-Containing Materials



Managing Asbestos In Place

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met several times during 1989-1990. The purpose of
this multi-disciplinary group was to identify the prob-
lems associated with asbestos in public and commercial
buildings and to develop policy recommendations for
solving these problems. Many comments raised by the
Dialogue Group in the area of asbestos management
were incorporated into this document.

Foreword

In February 1988, the Administrator of the Environmental Protection Agency (EPA) recommended to Congress that the Agency work during the next three years to enhance the nation's technical capability in asbestos by helping building owners better select and apply appropriate asbestos control and abatement actions in their buildings. The publication of this guidance document is EPA's most extensive effort to date to carry out that recommendation. In fact, *Managing Asbestos In Place* is the most comprehensive asbestos guide published by EPA since the Agency expanded and updated *Guidance for Controlling Asbestos-Containing Materials in Buildings* (also known as the Purple Book) in June 1985. Based on the insights and recommendations of nationally recognized asbestos experts, this new guide, along with a new operations and maintenance work practices manual expected to be available in 1991, provides "state-of-the-art" instruction to building owners to help them successfully manage asbestos-containing materials in place.

Managing Asbestos in Place does not supplant the 1985 Purple Book as EPA's principal asbestos guidance document. Rather, based on our experience since 1985, it expands and refines the Purple Book's guidance for a special operations and maintenance (O&M) program. In particular, the guide more strongly emphasizes the importance of in-place management. The guide's purpose is two-fold. First, it offers building owners the more detailed and up-to-date instruction they need to carry out a successful O&M program. Second, it informs building owners, lenders, and insurers that a properly conducted O&M program can in many cases be as appropriate an asbestos control strategy as removal. Furthermore, in some cases, an O&M program is *more* appropriate than other asbestos control strategies, including removal.

Emphasizing the importance and effectiveness of a good O&M program is a critical element of EPA's broader effort to put the potential hazard and risk of asbestos exposure in proper perspective. That effort centers around communicating the following *five facts*, which EPA hopes will help calm the unwarranted fears that a number of people seem to have about the mere presence of asbestos in their buildings and discourage the spontaneous decisions by some building owners to remove all asbestos-containing material regardless of its condition.

FACT ONE: Although asbestos is hazardous, the risk of asbestos-related disease depends upon exposure to airborne asbestos fibers.

In other words, an individual must breathe asbestos fibers in order to incur any chance of developing an asbestos-related disease. How many fibers a person must breathe to develop disease is uncertain. However, at very low exposure levels, the risk may be negligible or zero.

FACT TWO: Based upon available data, the average airborne asbestos levels in buildings seem to be very low. Accordingly, the health risk to most building occupants also appears to be very low.

A 1987 EPA study found asbestos air levels in a small segment of Federal buildings to be essentially the same as levels outside these buildings. Based on that limited data, most building occupants (i.e., those unlikely to disturb asbestos-containing building materials) appear to face only a very slight risk, if any, of developing an asbestos-related disease.

FACT THREE: Removal is often *not* a building owner's best course of action to reduce asbestos exposure. In fact, an improper removal can create a dangerous situation where none previously existed.

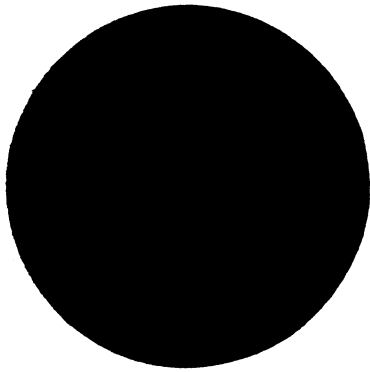
By their nature, asbestos removals tend to elevate the airborne level of asbestos fibers. Unless all safeguards are properly applied, a removal operation can actually increase rather than decrease the risk of asbestos-related disease.

FACT FOUR: EPA *only* requires asbestos removal in order to prevent significant public exposure to airborne asbestos fibers during building demolition or renovation activities.

Asbestos removal before the wrecking ball swings into action is appropriate to protect public health. At other times, EPA believes that asbestos removal projects, unless well-designed and properly performed, can actually increase health risk.

FACT FIVE: EPA *does* recommend a proactive, in-place management program whenever asbestos-containing material is discovered.

As this guide will explain in some detail, in-place management does *not* mean "do nothing." It means having a program to ensure that the day-to-day management of the building is carried out in a manner that minimizes release of asbestos fibers into the air, and ensures that when asbestos fibers are released, either accidentally or intentionally, proper control and cleanup procedures are implemented. As such, it may be all that is necessary to control the release of asbestos fibers, until the asbestos-containing material in a building is scheduled to be disturbed by renovation or demolition activities.



Why Is Asbestos a Problem?

Introduction: Asbestos in Buildings

This U.S. Environmental Protection Agency (EPA) guide is primarily directed to owners and managers of office buildings, shopping centers, apartment buildings, hospitals, and similar facilities which may contain asbestos materials. Managers of industrial plants and other types of structures may need to supplement this information with additional specialized guidance. This document gives building owners, managers, workers, and other key building staff basic information on how to develop and carry out high-quality operations and maintenance programs for managing asbestos in place to safeguard the health of all building occupants. An operations and maintenance (O&M) program can be defined as a formulated plan of training, cleaning, work practices, and surveillance to maintain asbestos-containing materials (ACM) in good condition.

In this document you will find the following information:

- The objectives of an O&M program, and an indication of the scope of O&M activities (Chapter 2);
- Basic steps to take before starting an O&M program, including an initial survey and evaluation of ACM (Chapter 3);
- How to implement and manage the program, including some basic cost considerations (Chapter 3);
- O&M work practices that protect both workers and the general building environment (Chapter 4);
- Recordkeeping suggestions and requirements (a section of Chapter 4);
- Training recommendations and requirements for workers performing O&M activities (Chapter 5); and
- An overview of federal regulations, including those affecting O&M programs (Chapter 6).

In addition, the Appendices provide other useful information, including a glossary of useful terms, and contacts for additional assistance.

How O&M Fits In

There are steps which a building owner can take to prevent asbestos fiber releases or resuspension of already-released fibers, or control fiber releases quickly and safely if they occur. O&M programs are designed to achieve both these goals. This guide's purpose, therefore, is to inform building owners about how to develop, implement and manage effective O&M programs, and to encourage their use.

EPA recommends a pro-active, in-place management program whenever asbestos is discovered. In many buildings, a well-run O&M program may be all that is necessary to control the release of asbestos fibers until the ACM in the building is abated through renovation or demolition activities. Also, an emergency repair to equipment or building services, or an unexpected incident such as ACM falling from a surface could necessitate a different control strategy. However, barring such events, if ACM is properly managed, release of asbestos fibers into the air is minimized. The exposure to asbestos fibers, and therefore the risk of asbestos-related disease, can be reduced to a negligible level for all building occupants.

An O&M program may also provide an effective, less costly alternative to wholesale removal operations. Some additional cost-related considerations are discussed in Chapter 3.

The EPA National Emission Standards for Hazardous

An O&M program can be defined as a formulated plan of training, cleaning, work practices, and surveillance to maintain asbestos-containing materials in good condition.

Air Pollutants (NESHAP) regulations on asbestos may require ACM removal prior to renovation and/or demolition projects, to prevent significant asbestos releases into the air (see Chapter 6). Additionally, removal of some ACM in a building will be necessary if the material has been damaged beyond repair. However, at other times, removal is often *not* a building owner's best course of action to reduce asbestos exposure. (Extraneous factors — for example, difficulty in obtaining insurance, or obtaining financing relative to a real estate transaction — may actually represent the driving forces in a decision to remove all ACM, rather than a health-based need for removal.) In fact, unless all safeguards are properly applied by trained, experienced individuals, removing ACM can actually increase building occupants' risk of asbestos-related disease.

Background

The Asbestos Issue

Asbestos fibers can cause serious health problems. If inhaled, they can cause diseases which disrupt the normal functioning of the lungs. Three specific diseases — asbestosis (a fibrous scarring of the lungs), lung cancer, and mesothelioma (a cancer of the lining of the chest or abdominal cavity) — have been linked to asbestos exposure. These diseases do not develop immediately after inhalation of asbestos fibers; it may be 20 years or more before symptoms appear.

In general, as with cigarette smoking and the inhalation of tobacco smoke, the more asbestos fibers a person inhales, the greater the risk of developing an asbestos-related disease. Most of the cases of severe health problems resulting from asbestos exposure have been experienced by workers who held jobs in industries such as shipbuilding, mining, milling, and fabricating, where they were exposed to very high levels of asbestos in the air, without benefit of the worker protections now afforded by law. Many of these same workers were also smokers. These employees worked directly with asbestos materials on a regular basis and, generally, for long periods of time as part of their jobs. Additionally, there is an increasing concern for the health and safety of construction, renovation, and building maintenance personnel, because of possible periodic exposure to elevated levels of asbestos fibers while performing their jobs.

Whenever we discuss the risk posed by asbestos, we must keep in mind that asbestos fibers can be found nearly everywhere in our environment (usually at very low levels). There is, at this time, insufficient information concerning health effects resulting from low-level asbestos exposure, either from exposures in buildings or from our environment. This makes it difficult to accurately assess the magnitude of cancer risk for building occupants, tenants, and building maintenance and custodial workers. Although in general the risk is

likely to be negligible for occupants, health concerns remain, particularly for the building's custodial and maintenance workers. Their jobs are likely to bring them into close proximity to ACM, and may sometimes require them to disturb the ACM in the performance of maintenance activities. For these workers in particular, a complete and effective O&M program can greatly reduce asbestos exposure. This kind of O&M program can also minimize asbestos exposures for other building occupants as well.

What Is Asbestos?

The term "asbestos" describes six naturally occurring fibrous minerals found in certain types of rock formations. Of that general group, the minerals chrysotile, amosite, and crocidolite have been most commonly used in building products. When mined and processed, asbestos is typically separated into very thin fibers. When these fibers are present in the air, they are normally invisible to the naked eye. Asbestos fibers are commonly mixed during processing with a material which binds them together so that they can be used in many different products. Because these fibers are so small and light, they may remain in the air for many hours if they are released from ACM in a building. When fibers are released into the air they may be inhaled by people in the building.

Asbestos became a popular commercial product because it is strong, won't burn, resists corrosion, and insulates well. In the United States, its commercial use began in the early 1900's and peaked in the period from World War II into the 1970's. Under the Clean Air Act of 1970 the EPA has been regulating many asbestos-containing materials which, by EPA definition, are materials with more than 1 percent asbestos. The Occupational Safety and Health Administration's (OSHA) asbestos construction standard in section K, "Communication of hazards to employees," specifies labeling many materials containing 0.1% or more asbestos. In the mid-1970's several major kinds of asbestos materials, such as spray-applied insulation, fireproofing, and acoustical surfacing material, were banned by EPA because of growing concern about health effects, particularly cancer, associated with exposures to such materials.

In July 1989, EPA promulgated the Asbestos Ban and Phasedown Rule. The rule applies to new product manufacture, importation, and processing, and essentially bans almost all asbestos-containing products in the United States by 1997. This rule does *not* require removal of ACM currently in place in buildings.

Where Is Asbestos Likely to Be Found in Buildings?

In February 1988, the EPA released a report titled *EPA Study of Asbestos-Containing Materials in Public Buildings: A Report to Congress*. EPA found that "friable" (easily crumbled) ACM can be

found in an estimated 700,000 public and commercial buildings. About 500,000 of those buildings are believed to contain at least some damaged asbestos, and some areas of significantly damaged ACM can be found in over half of them.

According to the EPA study, significantly damaged ACM is found primarily in building areas not generally accessible to the public, such as boiler and machinery rooms, where asbestos exposures generally would be limited to service and maintenance workers. Friable ACM, if present in air plenums, can lead to distribution of the material throughout the building, thereby possibly exposing building occupants. ACM can also be found in other building locations.

Asbestos in buildings has been commonly used for thermal insulation, fireproofing, and in various building materials, such as floor coverings and ceiling tile, cement pipe and sheeting, granular and corrugated paper pipe wrap, and acoustical and decorative treatment for ceilings and walls. Typically, it is found in pipe and boiler insulation and in spray-applied uses such as fireproofing or sound-deadening applications.

The amount of asbestos in these products varies widely (from approximately 1 percent to nearly 100 percent). The precise amount of asbestos in a product cannot always be accurately determined from labels or by asking the manufacturer. Nor can positive identification of asbestos be ascertained merely by visual examination. Instead, a qualified laboratory must analyze representative samples of the suspect material. Appendix G contains a sample list of some suspect materials.

When Is Asbestos a Problem?

Intact and undisturbed asbestos materials do not pose a health risk.

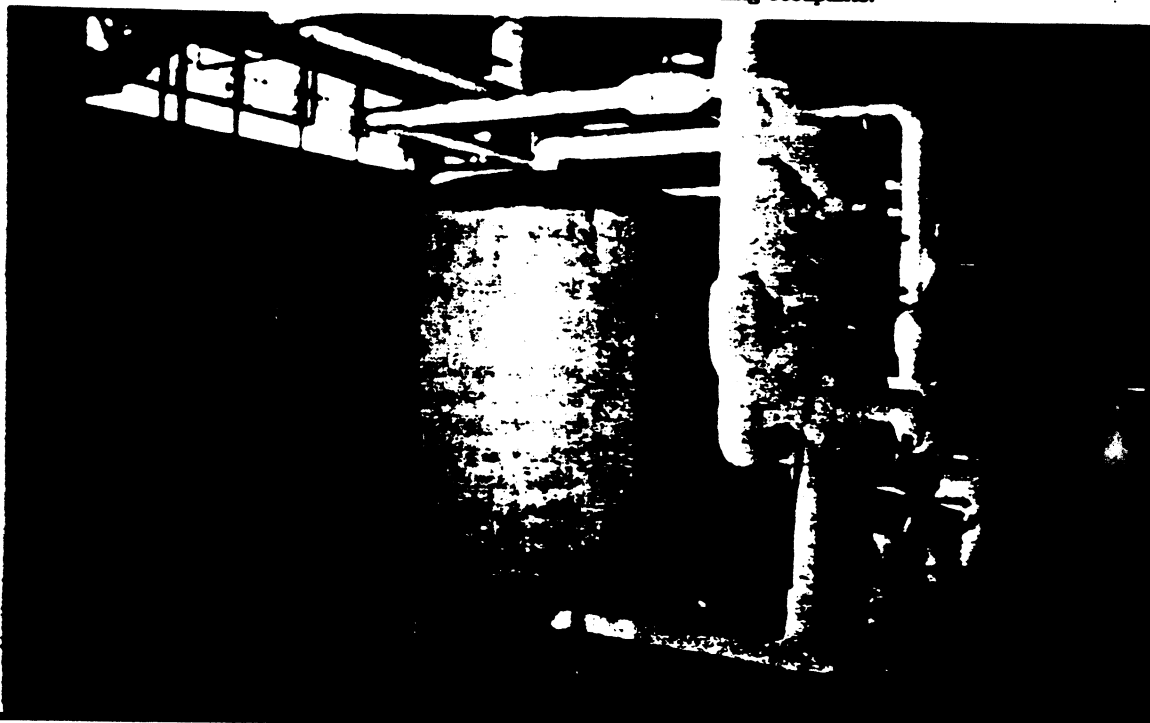
The mere presence of asbestos in a building does not mean that the health of building occupants is endan-



ACM which is in poor physical condition. Under a proper operations and maintenance program, corrective action would normally prevent deterioration of the insulation.

gered. ACM which is in good condition, and is not somehow damaged or disturbed, is not likely to release asbestos fibers into the air. When ACM is properly managed, release of asbestos fibers into the air is prevented or minimized, and the risk of asbestos-related disease can be reduced to a negligible level.

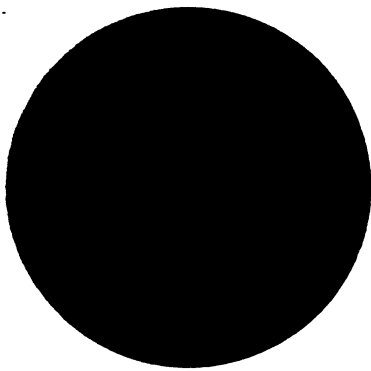
However, asbestos materials can become hazardous when, due to damage, disturbance, or deterioration over time, they release fibers into building air. Under these conditions, when ACM is damaged or disturbed — for example, by maintenance repairs conducted without proper controls — elevated airborne asbestos concentrations can create a potential hazard for workers and other building occupants.



ACM with sound structural integrity on the exterior of a domestic hot water tank. Note that the insulation jacketing is intact and there is no evidence of disturbance.

This document, directed to owners and managers of office buildings and similar facilities, should help lay the groundwork for developing and implementing effective operations and maintenance programs. Major highlights in this section have focused on background information concerning asbestos and have touched on the current asbestos-in-buildings situation. Important points to remember are the following:

- Inhalation of asbestos fibers has been shown to cause asbestosis, lung cancer and mesothelioma. Much of our knowledge of these health effects has come primarily from studies of workers exposed routinely to very high levels of asbestos in their jobs.
- Information on health effects of low-level asbestos exposure is less certain; custodial/maintenance workers who sometimes disturb asbestos as part of their job would benefit from properly executed O&M programs.
- Three of the six naturally occurring asbestos minerals, chrysotile, amosite, and crocidolite, have been most commonly used in building products.
- Asbestos became a popular commercial product because of its strength, heat resistance, corrosion resistance, and thermal insulation properties.
- Asbestos-containing materials (ACM) are regulated by EPA, OSHA, and the Consumer Product Safety Commission (CPSC), and individual state and local agencies.
- Friable ACM can be found in about 700,000 public and commercial buildings. Many areas where asbestos is found are not accessible to the general public.
- Some common uses of asbestos have included pipe/boiler insulation, spray-applied fireproofing, floor and ceiling tile, cement pipe/sheeting and paper pipe wrap.
- Positive identification of asbestos requires laboratory analysis; information on labels or visual examination only is not sufficient.
- Intact, undisturbed materials generally do not pose a health risk; they may become hazardous when damaged, disturbed, or deteriorated over time and release fibers into building air.



What Is an O&M Program?

Purpose and Scope of an Operations and Maintenance Program

Purpose of O&M

The principal objective of an O&M program is to minimize exposure of all building occupants to asbestos fibers. To accomplish this objective, an O&M program includes work practices to (1) maintain ACM in good condition, (2) ensure proper cleanup of asbestos fibers previously released, (3) prevent further release of asbestos fibers, and (4) monitor the condition of ACM.

Scope of an O&M Program

An effective O&M program should address all types of ACM present in a building. ACM that may be managed as part of an O&M program in buildings can be classified in one of the following categories:

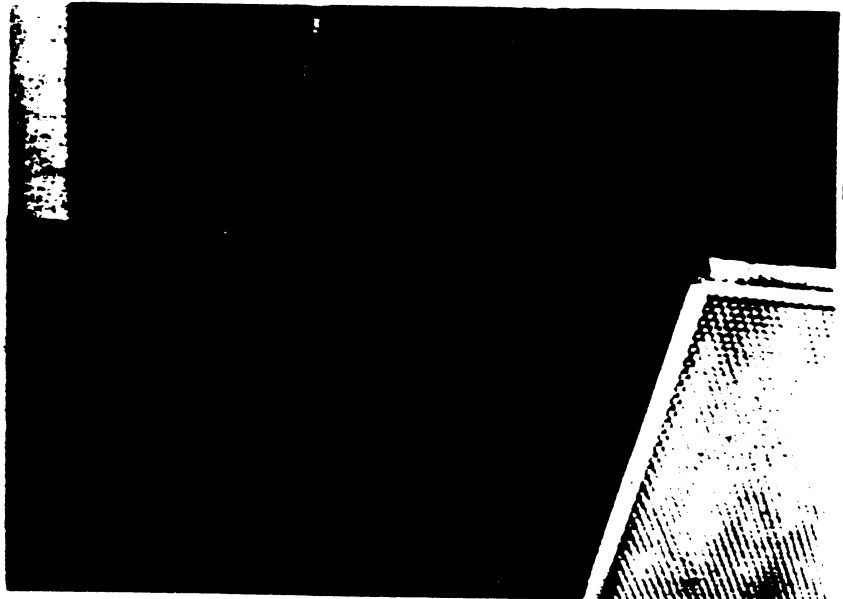
- 1 Surfacing Material:** Examples include ACM sprayed or troweled onto surfaces, such as decorative plaster on ceilings or acoustical ACM on the underside of concrete slabs or decking, or fireproofing materials on structural members.
- 2 Thermal System Insulation (TSI):** Examples include ACM applied to pipes, boilers, tanks, and ducts to prevent heat loss or gain, or condensation.
- 3 Miscellaneous ACM:** Examples include asbestos-containing ceiling or floor tiles, textiles, and other components such as asbestos-cement panels, asbestos siding and roofing materials.

The O&M program can be divided into three types of projects:

- ☐ those which are unlikely to involve any direct contact with ACM;
- ☐ those which may cause accidental disturbance of ACM;
- ☐ those which involve relatively small disturbances of ACM.

The first type may involve routine cleaning of shelves and counter tops or other surfaces in a building (provided ACM debris is not present). Generally, such

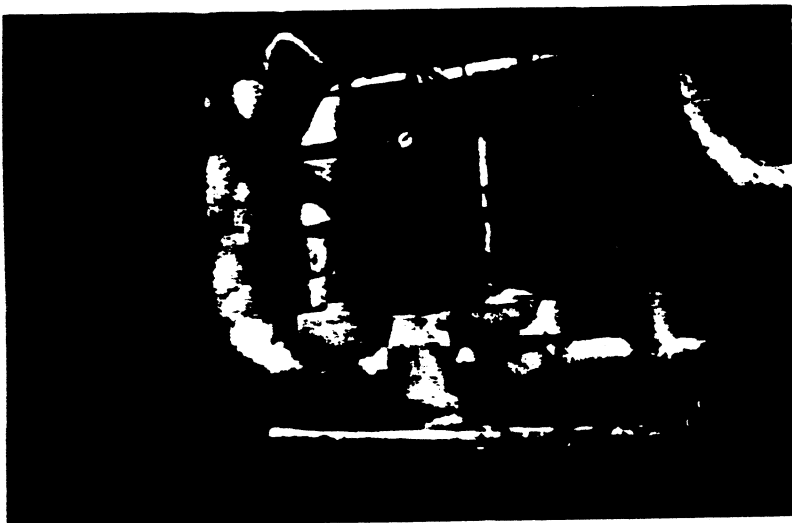
An example of spray-applied surfacing ACM on a metal deck above a suspended ceiling.



The O&M program, when developed and implemented in a particular facility, should include specific direction on how to deal with each of these general categories of ACM. Specific O&M work practices and procedures should be employed by trained personnel during building cleaning, maintenance, renovation, and general operational activities that may involve surfacing, thermal, or miscellaneous ACM. Some elaboration of O&M work practices and procedures is found in Chapter 4.

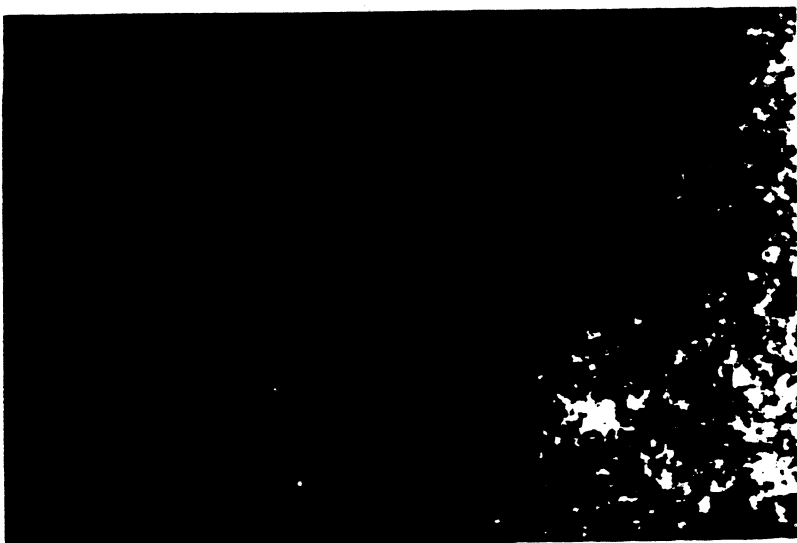
60X

An example of asbestos-containing thermal system insulation on pipes in a building's mechanical room.



activities would not be expected to disturb ACM. The second type of project could include maintenance work above a suspended ceiling in an area that may have surfacing ACM overhead. The third type of project — small-scale, short-duration maintenance, repair, or installation projects involving minor disturbances of ACM — includes activities such as installation of new light fixtures on or in an ACM ceiling. A single glovebag operation to remove a small amount of ACM to repair a pipe in a boiler room is another example of intentional small-scale, short-duration disturbance.

An example of an asbestos-containing cement sheet product (miscellaneous ACM).



Larger projects involving more complex procedures for the intentional removal of ACM are considered asbestos abatement projects. These require asbestos control and abatement procedures that are outside the scope of an O&M program. Before taking action, building owners should consult qualified professionals for advice and alternative solutions. Guidance for building owners on the management of abatement projects is included in EPA's "Guidance for Controlling Asbestos-Containing Materials in Buildings," June 1985, also known as the "Purple Book."

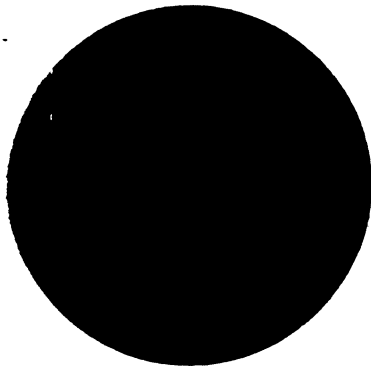
The purpose of an Operations and Maintenance Program is to minimize exposure of all building occupants to asbestos fibers. Through supervised work practices, ACM can be managed in place. Important points to remember are:

ACM can be classified into three categories:

- ☐ Surfacing Material
- ☐ Thermal System Insulation (TSI)
- ☐ Miscellaneous Material

O&M Programs can be divided into three types of projects:

- ☐ Unlikely to involve direct contact with ACM.
- ☐ Accidental disturbance of ACM.
- ☐ Small-scale, short-duration maintenance or repair activity, which may involve intentional disturbance of ACM.



How Does the Program Start?

Laying the Foundation for an Effective O&M Program

A comprehensive asbestos control program for a building should include these basic steps:

- Appoint an Asbestos Program Manager and develop an organizational policy.
- Conduct a physical and visual inspection of the building and take bulk samples of suspect materials to determine if ACM is present, establish an ACM inventory, and assess the ACM's condition and potential for disturbance.
- If ACM is located, develop an O&M program, based on the inspection and assessment data.
- Implement and manage the O&M program conscientiously.
- Select and implement abatement actions other than O&M when necessary.

This chapter provides information about each of these basic steps. In addition, see Appendix F for a chart of references outlining existing EPA guidance for each of these steps.

The Asbestos Program Manager

The position of Asbestos Program Manager (APM) is frequently held by the building engineer, superintendent, facilities manager, or safety and health director. In a small organization, the building owner may have this role. Regardless of who holds this position, EPA stresses the need for the Asbestos Program Manager to be properly qualified, through training and experience, and to be *actively involved* in all asbestos-control activities. EPA accreditation under the Asbestos Hazard Emergency Response Act (AHERA) or state certification as a Building Inspector/Management Planner would be typical of the requisite training.

If the person selected is not adequately prepared, he or she should receive the training necessary to develop and manage an asbestos control program prior to beginning

the job. If for some reason this is not possible, the building owner should strongly consider hiring a properly trained, experienced, and credentialed outside consultant or firm to provide direction to the owner or the Asbestos Program Manager.

In general, the Asbestos Program Manager should have the authority to oversee all asbestos-related activities in the building, including inspections, O&M activities, and other abatement actions. The Asbestos Program Manager will either train building workers in O&M techniques or ensure that such worker training takes place. In addition, he or she should oversee the custodial and maintenance staffs, contractors, and outside service vendors with regard to all asbestos-related activities.

Building Inspection and Assessment

To determine whether an asbestos control and management program should be implemented, the owner should have an initial building inspection performed to locate and assess the condition of all ACM in the building. A trained, experienced and qualified inspector, who is able to perform the sampling of suspect ACM for laboratory analysis, should conduct the inspection. If an inspection is not performed, then certain suspect materials should be assumed to contain asbestos, and treated accordingly. (Refer to Appendix G for a sample list of suspect ACM.)

EPA guidance on how to take "bulk" samples of suspect ACM is contained in several publications (see Appendix H) and from EPA Regional Asbestos Coordinators (listed in Appendix D).

The building inspection by a qualified professional serves as the basis for establishing an effective overall plan for dealing with the asbestos in the building. The inspector should advise the owner and the Asbestos

To determine whether an asbestos control and management program should be implemented, the owner should have an initial building inspection performed to locate and assess the condition of all ACM in the building.



A properly trained and protected building inspector collecting a bulk sample of suspected asbestos-containing thermal system insulation.

Program Manager of inspection findings. Of course, the inspection may show that ACM is *not* present and that an asbestos-control program is not required.

If ACM is found, the material's characteristics, condition, quantity, and location within the building, as well as building use, will affect how the building owner should deal with the ACM. For example, operations and maintenance procedures may be appropriate and sufficient in a particular building for ACM in good condition. But O&M procedures alone are not sufficient for ACM that the inspector determines is significantly damaged, and may not be sufficient for some types of ACM situated in highly accessible areas; in these instances, some form of full scale abatement — repair, encapsulation, enclosure, encasement, or removal — will be necessary. Removal of the ACM may also be appropriate when performed in conjunction with major building renovations, or as part of long-term building management policies (such as staged removal in conjunction with renovation over the life of the building, as covered by the EPA NESHAP requirements for removal before demolition or renovation).

Developing an O&M Program

If ACM is found, the building owner should have an O&M program developed as soon as possible. Either the Asbestos Program Manager or a qualified consult-

ant should develop the O&M program. The written O&M program should state clearly the O&M policies and procedures for that building, identify and describe the administrative line of authority for that building, and should clearly define the responsibilities of key participants, such as the Asbestos Program Manager and custodial and maintenance supervisors and staff. The written O&M program should be available and understood by all participants involved in the management and operations of the building.

In general, the O&M program developed for a particular building should include the O&M program elements discussed in the next chapter. However, the building owner should make sure that the O&M program developed is site-specific and tailored for the building. The O&M program should take into account use, function, and design characteristics of a particular building.

Implementing and Managing an O&M Program

A well-developed O&M program is ineffective unless the building owner is committed to implementing it properly. The building owner should convey this commitment to key personnel involved in a building's management and operations — particularly the Asbestos Program Manager and custodial and maintenance supervisors and staff. The O&M program's success is contingent upon key personnel understanding the O&M program and committing themselves to implementing it effectively.

To the greatest extent possible, the building owner should incorporate the O&M program into the existing system for managing a building's operations. Each building owner, therefore, will determine the appropriate organizational structure on a case-by-case basis. Two possible arrangements are suggested in Figures 1 and 2 in Appendix C.

When managing an O&M program, the Asbestos Program Manager should oversee all asbestos-related activities. In instances where a building owner hires a contractor to perform custodial and maintenance work, the Asbestos Program Manager should ensure that the contractor is qualified to conduct work that may involve ACM. Before hiring a contractor, the Asbestos Program Manager should investigate to determine whether the contractor's staff is qualified, trained and equipped to deal with O&M asbestos activities. Thoroughly checking the references of a contractor is a good recommended practice.

The Asbestos Program Manager should also monitor the work performed in the building by other contractors, such as electricians and plumbers, who might inadvertently disturb ACM. Instituting a work permit system, as discussed in the next chapter, may prevent accidental disturbances of ACM. Under this system, a

contractor must receive a work permit from the Asbestos Program Manager before commencing work. At that time, the Asbestos Program Manager will inform the contractor whether the project could disturb ACM and provide any special instructions to make sure the work is done properly. *Communication between the Asbestos Program Manager and tenants occupying the building is essential to prevent activities that might compromise the O&M program.*

In addition, the Asbestos Program Manager should routinely and frequently check the work being performed in the building by contractors and custodial and maintenance staff to see if their work is disturbing ACM. By maintaining close surveillance over these activities, the Asbestos Program Manager can help ensure that work which may disturb ACM is being done safely. Tenants should be required (by legal agreement or understanding) to notify the building owner or the Asbestos Program Manager before conducting even small planned renovations. This would help prevent building tenants from unknowingly disturbing ACM. For both the work permit system and the renovation notification requirement, clear and effective communications to workers and tenants are crucial to the success of the O&M management program.

The Asbestos Program Manager should periodically review the written O&M plan to determine whether it should be updated. For example, if all ACM were removed from some areas of the building during a recent renovation, or if some ACM was damaged, the O&M program should be revised accordingly. The O&M program should remain in effect as long as there is ACM present in the building.

Cost Considerations

The costs associated with implementing and managing an O&M program may vary significantly depending on the types of ACM, building-specific factors, actual O&M procedures adopted, types of equipment used, and the useful life of the building. Owners may find it more cost-effective to continue a well-supervised and managed O&M program than to incur the costs of immediate, large-scale removal. In addition to the direct costs of removal, other costs related to ACM removal include moving building occupants, arranging alternative space for building occupants during the removal work, and restoring the building after the removal is completed.

Clearly, many factors enter into the decision. Only by conducting a cost-effectiveness analysis of the long-term options (e.g., comparing (a) immediate removal with (b) phased removal plus O&M with (c) removal just before demolition plus lifetime O&M) will owners be truly able to determine which option is most cost-effective for their buildings. The prudent owner may need to consult one or more qualified consultants or firms for advice, if such expertise does not exist within the owner's organization.

Selecting and Implementing Alternative Abatement Actions

In some instances, due to the condition of ACM or upcoming building renovations, a building owner may decide to take other abatement actions to deal with ACM in the building. These response actions could include encapsulation (covering the ACM with a sealant to prevent fiber release), enclosure (placing an air-tight barrier around the ACM), encasement (covering the ACM with a hard-setting sealing material), repair, or removal of the ACM. Qualified, trained, and experienced contractors should be used for any of these actions. EPA's Purple Book discusses most of these alternatives in some detail. In general, repair, encapsulation, enclosure, and encasement, are intended to help prevent the release of asbestos fibers. As aspects of O&M, these techniques manage ACM in place. See Appendix F of this document for additional federal reference sources on asbestos response actions.

When determining which response alternative to select, the building owner and Asbestos Program Manager may consider seeking advice from qualified, independent consultants with specific training and experience in asbestos management.

Asbestos consultants should have a background in engineering, architecture, industrial hygiene, safety, or a similar field. Experts who are Registered and/or with Board Certified backgrounds are recommended. *To help ensure that no "conflict of interest" exists, consultants should not be affiliated with the abatement contractors who may be used on a recommended ACM control project, nor with analytical laboratories which perform sample analyses.* As with other similar business decisions, building owners should interview several consultants and check references.

Renovations (including remodeling or redecorating) of buildings or replacement of utility system increases the potential for disturbing ACM. Before conducting any renovation or remodeling work, the building owner should have the Asbestos Program Manager review asbestos inspection and assessment records to determine where ACM may be located, visually reinspect the area, and evaluate the likelihood that ACM will be disturbed. Any suspect or assumed ACM that could be disturbed during the renovation work should either be sampled and analyzed to determine whether it contains asbestos, or the work should be carried out as if the materials did contain asbestos. The Asbestos Program Manager should also ensure that no new ACM is introduced into the building as part of the renovation work.

Removal of the ACM before renovation begins may be necessary in some instances. Removal is required by the Asbestos NESHAP regulations for projects which would break up more than a specified minimum amount of ACM; specifically, at least 160 square feet of surfacing

**Renovations
(including
remodeling or
redecorating) of
buildings or
replacement of
utility systems
increase the
potential for
disturbing ACM.**



Asbestos-containing thermal system insulation which has sustained significant damage in a mechanical/boiler room of a building.

or miscellaneous material or at least 260 linear feet of thermal system insulation (40 CFR 61.145-147). Building owners and managers are encouraged to contact their state or local health or environmental department for further clarification of these requirements (also, see Chapter 6 of this document). It is important to ensure that new materials placed in the building do not contain asbestos in order to comply with the recent EPA Asbestos Ban and Phase Out rule (see Chapter 6).

In general, building owners should thoroughly consider any decision to remove ACM. *O&M, encapsulation, encasement, enclosure, or repair may be viable alternatives to removal.* Building owners should assess these in-place management techniques carefully before deciding to remove undamaged ACM.

Under certain circumstances, however, such as when some ACM must be removed during building renovations, when the ACM has sustained a great deal of damage, or ACM disturbance will be difficult to manage properly, the building owner may decide to remove ACM in parts of the building.

When removal must occur, only qualified, trained and experienced project designers and contractors should be permitted to design and perform the work. Building

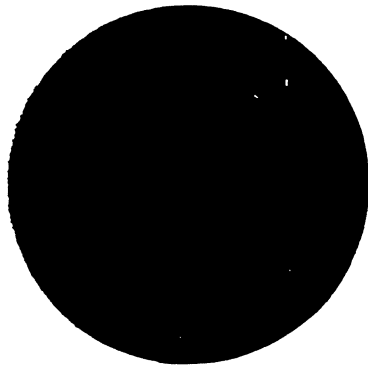
owners might consider contacting local, state, and federal asbestos regulatory agencies to see if prospective contractors have received citations for violating asbestos regulations in the past. In addition, if the building owner and Asbestos Program Manager are not properly qualified themselves, they should retain a qualified and independent project designer and a project monitor with training and experience in asbestos abatement to oversee and ensure that the asbestos abatement work is done safely. When these precautions are taken, asbestos removal is more likely to proceed safely and effectively.

Proper completion of the ACM removal is best evaluated by means of the analytical procedures using transmission electron microscopy (TEM). (These are described in 40 CFR Part 763, Appendix A to Subpart E.) Clearance protocols for statistically comparing asbestos fiber levels inside the work area with outside levels are available. If the measured levels inside are not statistically higher than the average airborne asbestos concentration measured outside the abatement area, the cleanup is considered successful, and the space is judged ready for reoccupancy. (For reference, see Appendix H, U.S. EPA "Guidelines for Conducting the AHERA TEM Clearance Test . . .")

Laying the foundation for a comprehensive asbestos control program for a building includes some basic steps. Important points contained in this discussion are the following:

- An Asbestos Program Manager needs to be properly qualified through training and experience, and be actively involved in all asbestos control and disturbance activities.
- An Asbestos Program Manager should have authority to oversee and to direct custodial/maintenance staff and contractors with regard to all asbestos-related activities.
- An initial building inspection should be performed by a trained, qualified, experienced inspector to locate and assess the condition of all ACM in the building.
- The inspection results serve as the basis for establishing an O&M program. O&M procedures may not be sufficient for certain ACM that is significantly damaged or in highly accessible areas.
- An Asbestos Program Manager or qualified consultant should develop the written O&M program that is site-specific and tailored for individual buildings. The O&M program should take into account use, function and design characteristics of a building.
- The success of any O&M program lies in the commitment by the building owner to implement it properly.
- When outside contractors are used for asbestos-related activities, their references and training should be thoroughly checked and their subsequent work monitored.
- Periodically review written O&M programs.
- Alternatives or control options that may be implemented under an O&M program include:
 - repair
 - encapsulation
 - enclosure
 - encasement
 - removal (minor)
- Removal of ACM before renovations may be necessary in some instances. (See NESHAP and State/Local regulations discussion in Chapter 6.)

The success of any O&M program depends on the building owner's commitment to implement it properly.



What Does an O&M Program Include?

O&M Program Elements

To achieve its objectives, an O&M program should include seven elements. Although these should appear in any O&M program, the extent of each will vary from program to program depending on the building type, the type of ACM present, and the ACM's location and physical condition. For example, if only nonfriable ACM is present, minimal notification might be needed, and custodial or maintenance staff would most likely have fewer work practices to be followed. If friable ACM is present, a more detailed O&M program should be prepared and followed. Each of the first six elements listed below is described in this chapter to provide an illustration of a basic O&M program. The seventh program element, training of the Asbestos Program Manager and custodial and maintenance staff, is very important. If staff are not adequately trained, the O&M program will not be effective. Chapter 5 is devoted exclusively to O&M training topics.

A successful O&M program should include the following elements:

- **Notification:** A program to tell workers, tenants, and building occupants where ACM is located, and how and why to avoid disturbing the ACM. All persons affected should be properly informed.
- **Surveillance:** Regular ACM surveillance to note, assess, and document any changes in the ACM's condition.
- **Controls:** Work control/permit system to control activities which might disturb ACM.
- **Work Practices:** O&M work practices to avoid or minimize fiber release during activities affecting ACM.
- **Recordkeeping:** To document O&M activities.
- **Worker Protection:** Medical and respiratory protection programs, as applicable.
- **Training:** Asbestos Program Manager, and custodial and maintenance staff training.

If staff are not adequately trained, the O&M program will not be effective.

Informing Building Workers, Tenants, and Other Occupants

Building owners should inform building workers, occupants, and tenants about the location and physical condition of the ACM that they might disturb, and stress the need to avoid disturbing the material. Occupants should be notified for two reasons: (1) building occupants should be informed of any potential hazard in their vicinity; and (2) informed persons are less likely to unknowingly disturb the material and cause fibers to be released into the air.

Building owners can inform occupants about the presence of ACM by distributing written notices, posting signs or labels in a central location where affected occupants can see them, and holding awareness or information sessions. The methods used may depend on the type and location of the ACM, and on the number of people affected. Some states and localities have "right-to-know" laws which may require that all occupants, workers, and visitors in buildings with ACM be informed that asbestos is present.

In service and maintenance areas (such as boiler rooms), signs such as "Caution — Asbestos — Do Not Disturb" placed directly adjacent to thermal system insulation ACM will alert and remind maintenance

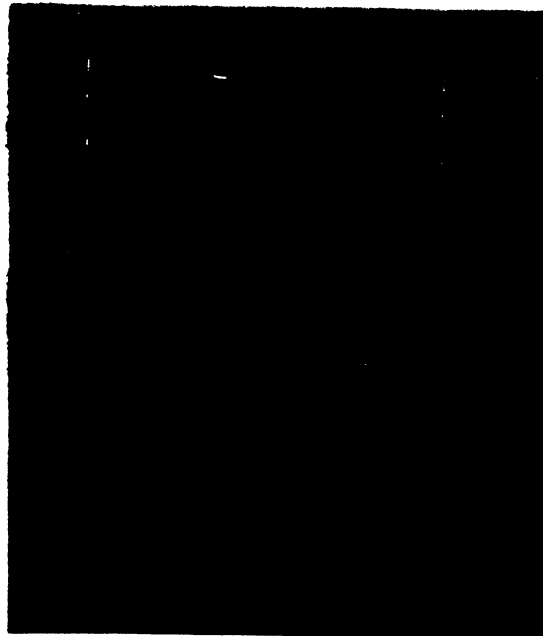
workers not to inadvertently disturb the ACM. In most cases, all boilers, pipes, and other equipment with ACM in service areas where damage may occur should have prominent warning signs placed next to the ACM. As an alternative, color coding can be used to identify the ACM in certain situations provided that all potentially involved parties understand the coding system.

Information sessions reinforce and clarify written notices and signs, and provide an opportunity to answer questions. All employees and tenants or tenant representatives likely to disturb ACM should be included in the notification program on a continuing basis. Building owners should inform new employees about the presence of ACM before they begin work. Owners should provide additional signs and information sessions in languages other than English where a significant number of workers, occupants, or visitors do not speak English. It may be necessary to make special provisions for illiterate workers, such as providing clear verbal information or signs, about potential hazards of disturbing ACM and showing them where ACM is located.

The specific information given to types of building occupants will vary. For example, since service workers carry out certain tasks that office workers or tenants do not perform, they should receive additional information. Most important, O&M workers should receive the training necessary for them to perform their tasks safely.

Whatever its form, the information given to building occupants and workers should contain the following points to the extent they reflect building conditions:

- ACM has been found in the building and is located in areas where the material could be disturbed.
- The condition of the ACM, and the response which is appropriate for that condition.
- Asbestos only presents a health hazard when fibers become airborne and are inhaled. The mere presence of ACM does not represent a health hazard.
- The ACM is found in the following locations (e.g., ceilings in Rooms 101 and G-323, walls in the lobby, above suspended ceilings in the first floor corridor, on columns in the main entry, on pipes in the boiler room).
- Do not disturb the ACM (e.g., do not push furniture against the ACM, do not damage TSD).
- Report any evidence of disturbance or damage of ACM to (name, location, and phone number of Asbestos Program Manager).



Routine maintenance activities can cause disturbance of ACM if workers are not properly trained in operations and maintenance procedures. Here, a worker carelessly contacts ACM, possibly damaging it.

- Report any dust or debris that might come from the ACM or suspect ACM, any change in the condition of the ACM, or any improper action (relative to ACM) of building personnel to (name, location, and phone number of Asbestos Program Manager).
- Cleaning and maintenance personnel are taking special precautions during their work to properly clean up any asbestos debris and to guard against disturbing ACM.
- All ACM is inspected periodically and additional measures will be taken if needed to protect the health of building occupants.



It is important to undertake an honest and open approach to the ACM notification procedure. Owners should strive to establish clear lines of communication with all building occupants regarding asbestos issues. People who are informed of the presence, location and condition of ACM in a building where they work or live, who understand that the mere presence of ACM is not necessarily hazardous to them, and who accept that ACM can often be managed effectively in place, can be

An example of an asbestos caution sign placed directly on a section of asbestos-containing duct insulation. Signs such as this help to ensure that workers will not inadvertently disturb ACM.

very helpful to the owner in eliminating or reducing hysteria on the part of other less informed building occupants. On the other hand, if occupants suspect the building owner is not being honest about asbestos activities in the building, that owner's credibility may be questioned and the situation can become far more difficult to manage. *If and when asbestos incidents occur, it is especially important for the building owner to deal with occupants and contractors openly and honestly, for that is the best way to maintain occupant/tenant confidence in both the owner and the building's asbestos program.*

EPA recommends a visual and physical evaluation of ACM during the reinspections to note the ACM's current condition and physical characteristics. Through this reinspection, it is possible to determine both the relative degree of damage and assess the likelihood of future fiber release. Maintenance of a set of visual records (photos or video tape) of the ACM over time can be of great value during reinspections.

Some asbestos consultants recommend examining settled dust for accumulations of asbestos fibers as another surveillance tool in an O&M program. While no universally accepted standardized protocols currently exist for sampling and analysis of settled dust, positive results (i.e., ACM is present in the dust) may indicate the need for special cleaning of the affected area, or other action. Because the results of this testing are difficult to interpret and evaluate at this time, building owners should carefully consider the appropriateness of this testing to their situation.

Visual reinspections of asbestos materials at regular intervals can detect changes in material condition. Here, surfacing ACM has delaminated from a ceiling in a building; O&M routines can keep small problems from becoming big problems.

ACM Surveillance

Reinspection and Periodic Surveillance

A visual reinspection of all ACM should be conducted at regular intervals as part of the O&M program. Combined with ongoing reports of changes in the condition of the ACM made by service workers, the reinspections should help ensure that any ACM damage or deterioration will be detected and corrective action taken.

Supplement to Visual/Physical Evaluation

As part of an O&M program, a carefully designed air monitoring program to detect airborne asbestos fibers in the building may provide useful supplemental information when conducted along with a comprehensive visual and physical ACM inspection and reinspection program. If the ACM is currently in good condition, increases in airborne asbestos fiber levels at some later time may provide an early warning of deterioration or disturbance of the material. In that way, supplemental air monitoring can be a useful management tool. If an owner chooses to use air monitoring in an "early warning" context, a knowledgeable and experienced individual should be consulted to design a proper sampling strategy. Appendix H contains a reference to a useful guide to monitoring airborne asbestos, which can be consulted for further discussion of this subject.

If supplemental air monitoring is done, a baseline airborne asbestos fiber level should be established soon after the O&M program is initiated. Representative, multiple air samples should be collected throughout the building during periods of normal building operation. This should be done over a long enough period of time to be representative of existing conditions, in order to adequately characterize prevailing fiber levels in the building. *This air monitoring should supplement, not replace, physical and visual inspection.* Visual inspection can recognize situations and anticipate future exposure (e.g., worsening water damage), whereas air monitoring can only detect a problem after it has occurred, and fibers have been released.

Note that the collection of air samples for supplementary evaluation *should not* use aggressive air sampling methods. Aggressive sampling methods, in which air is deliberately disturbed or agitated by use of a leaf blower or fans, should be used at the completion of an asbestos removal project when the building or area is unoc-



According to recent EPA regulations covering schools (the Asbestos Hazard Emergency Response Act, "AHERA"), an accredited inspector must reinspect school buildings at least once every three years to reassess the condition of ACM. The AHERA regulations for schools also require a routine surveillance check of ACM every six months to monitor the ACM's condition. The AHERA Rule permits this surveillance to be conducted by a trained school custodian or maintenance worker. While these intervals are mentioned here as a guide, they may also be appropriate for other buildings. The Asbestos Program Manager should establish appropriate intervals, based on consultation with the building owner and any other qualified professionals involved in the O&M program.

cupied, not for routine monitoring.

The most accurate and preferred method of analysis of air samples collected under an O&M program would require the use of transmission electron microscopy (TEM). Phase contrast microscopy (PCM), which is commonly used for personal air sample analysis and as a screening tool for area air monitoring, cannot distinguish between asbestos fibers and other kinds of fibers which may be present in the air. PCM analysis also cannot detect thin asbestos fibers, and does not count short fibers. TEM analysis is approximately ten times more expensive than PCM analysis. However, the more accurate information on actual levels of airborne asbestos fibers should be more beneficial to the building owner who elects to use supplemental air monitoring in the asbestos management program. TEM analysis is most reliably performed by laboratories accredited by the National Institute for Standards and Technology (NIST; see Appendix D for telephone number), and who follow EPA's quality assurance guidelines. (Appendix H, U.S. EPA, Dec. 1989, "Transmission Electron Microscopy Asbestos Laboratories: Quality Assurance Guidelines.")

Selection of a reliable and experienced air monitoring firm and analytical laboratory is important, if the building owner elects to conduct supplemental air monitoring under the O&M program. A consultant knowledgeable in air sampling and analysis protocols can be contacted for recommendations if the building owner or Asbestos Program Manager has limited knowledge in this area.

Periodic air monitoring, conducted simultaneously with the visual reinspections or surveillance, would then be used to see if asbestos levels have changed relative to the baseline. Some building owners may wish to present current air monitoring results to building occupants in addition to information regarding the physical reinspections. Although this supplemental use of air monitoring as part of an O&M program may provide useful information, it is likely to be very expensive, particularly if the more accurate and recommended TEM analysis is used. Use of only a small number of measurements or measurements taken only at one time may be misleading (i.e., overestimate or underestimate of fiber levels), and can lead to inappropriate decisions.

It should be noted that some of the exposures of persons to airborne asbestos fibers in buildings may result from episodic events, such as repair work or the accidental disturbance of the ACM or of ACM debris by maintenance activities inside the building. Air monitoring may not be done frequently enough to include such episodic events; this can lead to a misleading interpretation of air sampling results. In particular, air sampling may underestimate the exposure of O&M workers and building occupants. A good reference sourcebook for additional information on air sampling and analysis for asbestos fibers is "A Guide to Monitoring Airborne Asbestos in Buildings" (see Appendix H).

Work Control/Permit System

The O&M program should include a system to control all work that could disturb ACM. Some building owners have had success using a "work permit" program, which requires the person requesting the work to submit a Job Request Form to the Asbestos Program Manager (Appendix B, Form 2) before any maintenance work is begun. The form gives the time and location of the requested work, the type of maintenance needed, and available information about any ACM in the vicinity of the requested work. The contractor or other person authorized to perform the work should be identified on the work request.



An example of a maintenance worker conducting activities near a friable asbestos-containing ceiling. Under a proper permitting system, the building Asbestos Program Manager would evaluate and authorize projects such as this prior to beginning work.

Upon receiving a pre-work Job Request Form, the Asbestos Program Manager should take the following steps:

- 1 Refer to written records, building plans and specifications, and any building ACM inspection reports to determine whether ACM is present in the area where work will occur. If ACM is present, but it is not anticipated that the material will be disturbed, the Asbestos Program Manager should note the presence of the ACM on the permit form and provide additional instruction on the importance of not disturbing the ACM.
- 2 If ACM is both present and likely to be disturbed, the Asbestos Program Manager or a designated supervisor qualified by training or experience, should visit the site and determine what work practices should be instituted to minimize the release of asbestos fibers during the maintenance activity.
- 3 This determination should be recorded on the Maintenance Work Authorization Form (see example in Appendix B, Form 3), which is then sent to the in-house maintenance supervisor or to the maintenance contractor to authorize the work.
- 4 The Asbestos Program Manager should make sure that a copy of both the request and the authorization forms (if granted) are placed in the permanent file.

- 5 Where the task is not covered by previously approved standard work practices, the Asbestos Program Manager should make sure that the appropriate work practices and protective measures are used for the job.
- 6 For all jobs where contact with ACM is likely, the Asbestos Program Manager or a designated supervisor qualified by training or experience should visit the work site when the work begins to see that the job is being performed properly. For lengthy jobs where disturbance of ACM is intended or likely, periodic inspections should be made for the duration of the project.
- 7 The Asbestos Program Manager's observations should be provided on an *Evaluation of Work Form* (see Appendix B, Form 4). Any deviation from standard and approved work practices should be recorded immediately on this form and the practices should be immediately corrected and reported to the Asbestos Program Manager.
- 8 Upon completion of the work, a copy of the evaluation form should be placed in the permanent asbestos file for the building.

Building owners should consider using asbestos O&M work control forms similar to those which already may be in use for non-ACM work in their facilities, or expanding the existing forms to include the content of the request, approval, and evaluation forms illustrated in Appendix B.

It is important to undertake an honest and open approach in ACM notification.

The O&M management system should also address work conducted by outside contractors. Many building owners contract for at least some custodial and maintenance services. A building's asbestos work control/permit system, as described above, should also cover contract work.

At a minimum, contracts with service trades or abatement companies should include the following provisions to ensure that the service or abatement workers can and will follow appropriate work practices:

- Proof that the contractor's workers have been properly notified about ACM in the owner's building and that they are properly trained and accredited (if necessary) to work with ACM.
- Copies of respiratory protection, medical surveillance, and worker training documentation as required by OSHA, EPA and/or state regulatory agencies.
- Notification to building tenants and visitors that abatement activity is underway (performed by owner).

- Written work practices must be submitted by the vendor or contractor for approval or modification by the Asbestos Program Manager. The vendor or contractor should then agree to abide by the work practices as finally accepted by the Asbestos Program Manager.
- Assurance that the contractor will use proper work area isolation techniques, proper equipment, and sound waste disposal practices.
- Historical air monitoring data for representative examples of the contractor's previous projects, with emphasis on projects similar to those likely to be encountered in the building.
- Provisions for inspections of the area by the owner's representative to ensure that the area is acceptable for re-entry of occupants/tenants.
- A resume for each abatement contractor/supervisor or maintenance crew chief, known as the "competent person" in the OSHA standard and EPA Worker Protection Rule.
- Criteria to be used for determining successful completion of the work (i.e., visual inspections and air monitoring).
- Any other information deemed necessary by the owner's legal counsel.
- Notification to EPA (and other appropriate agencies) if the abatement project is large enough (see Chapter 6).

O&M Work Practices

- The O&M program focuses on a special set of work practices for the custodial, maintenance, and construction staff. The nature and extent of any special work practices should be tailored to the likelihood that the ACM will be disturbed and that fibers will be released. In general, four broad categories of O&M work practices are recognized:
 - 1 **Worker Protection Programs** — These work practices help ensure custodial and maintenance staff are adequately protected from asbestos exposure.
 - 2 **Basic O&M Procedures** — Basic procedures are used to perform routine custodial and maintenance tasks that may involve ACM.
 - 3 **Special O&M Cleaning Techniques** — Special techniques to clean up asbestos fibers on a routine basis.

4 Procedures for Asbestos Fiber Release Episodes — If moderate to relatively large amounts of ACM are disturbed, the building owner should use these procedures to address the hazard.

A brief synopsis of worker protection and O&M work practices follows. (Note: A more detailed, technically oriented O&M "work practices" manual specifically addressing topics such as work practices, worker protection, and specific information on how to carry out O&M plans, is being developed, with publication expected in 1991.)

Worker Protection Programs

A worker protection program includes engineering controls, personal exposure monitoring, medical surveillance, and personal protection. While engineering controls are the preferred method of worker protection, there are few engineering control options available for O&M work. This section discusses two key aspects of personal protection: use of respiratory protection and protective clothing for workers in an asbestos O&M program. According to OSHA regulations (see Chapter 6), a written respiratory protection program is necessary whenever an O&M program specifies that service workers wear respirators, or where respirators are made available to employees. OSHA regulations also require a respirator program whenever workers are exposed, or are likely to be exposed, to fiber levels above OSHA's "permissible exposure limits" such as the 8-hour time weighted average (TWA) limit or the 30-minute "excursion limit" (EL). The 8-hour TWA limit and the EL are described in more detail in Chapter 6. In addition, OSHA requires workers to wear special protective clothing under the same circumstances.

Respiratory Protection/Worker Protection Programs The selection of approved respirators, suitable for the hazards to which the worker is exposed, is only one aspect of a complete respiratory protection program. Other elements include written operating procedures for respirator use; outlining personnel responsibilities for respirator cleaning, storage, and repair; medical examination of workers for respirator use; training in proper respirator use and limitations; respirator fit testing; respirator cleaning and care; and work-site supervision. All of these are described in detail in the OSHA respirator standard, 29 CFR 1910.134. The O&M respirator program can be administered by the facility safety and health manager or the Asbestos Program Manager, if properly qualified.

Proper respiratory protection is an integral part of all custodial and maintenance activities involving potential exposure to asbestos. When in doubt about exposure during a certain work operation, building owners should provide respiratory protection to custodial and maintenance workers. OSHA specifies general types of

respirators for protection against airborne asbestos during "construction" activities, which include abatement, renovation, maintenance, repair, and remodeling.

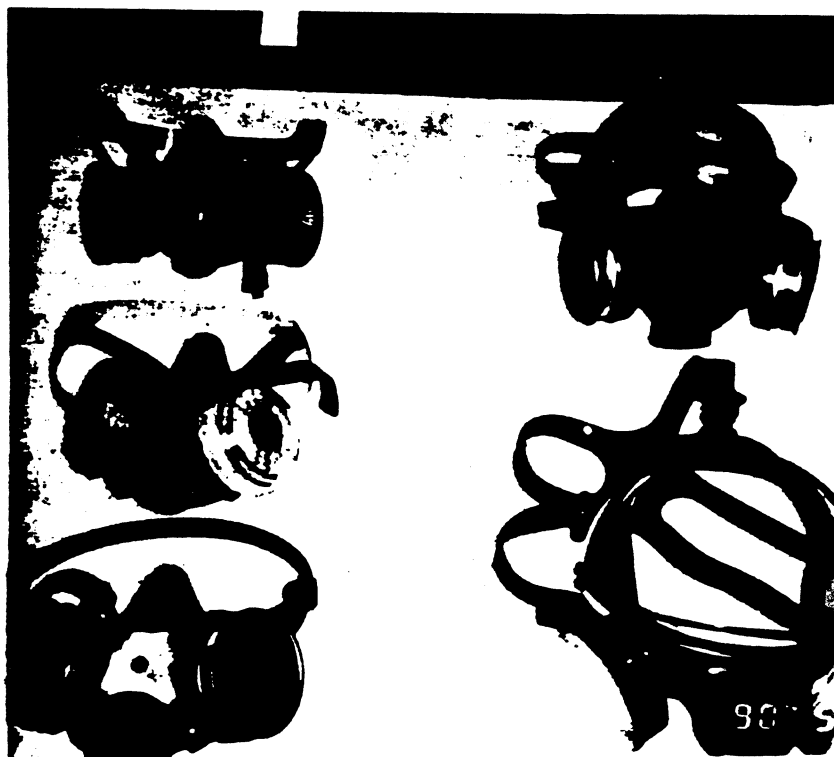
Personal air sampling is not the same as area air monitoring. Personal air sampling (required by OSHA) is designed to measure an individual worker's exposure to fibers while the worker is conducting tasks that may disturb ACM. The sampling device is worn by the worker and positioned so that it samples air in the worker's breathing zone. In contrast, area (or ambient) air sampling is conducted to get an estimate of the numbers of airborne asbestos fibers present in a building. It is used as an assessment tool in evaluating the potential hazard posed by asbestos to all building occupants. (See the previous discussion of area air monitoring on page 14.)

When adequate care is taken to prevent or minimize and control fiber release, routine, small-scale/short-duration maintenance or custodial tasks are not likely to generate high levels of airborne asbestos compared to large asbestos removal projects; and respirators which filter breathing air may be used. OSHA, EPA, and NIOSH are on record as *not* recommending single use, disposable paper dust masks for use against asbestos; in fact, OSHA has *disallowed* their use against airborne asbestos fibers.

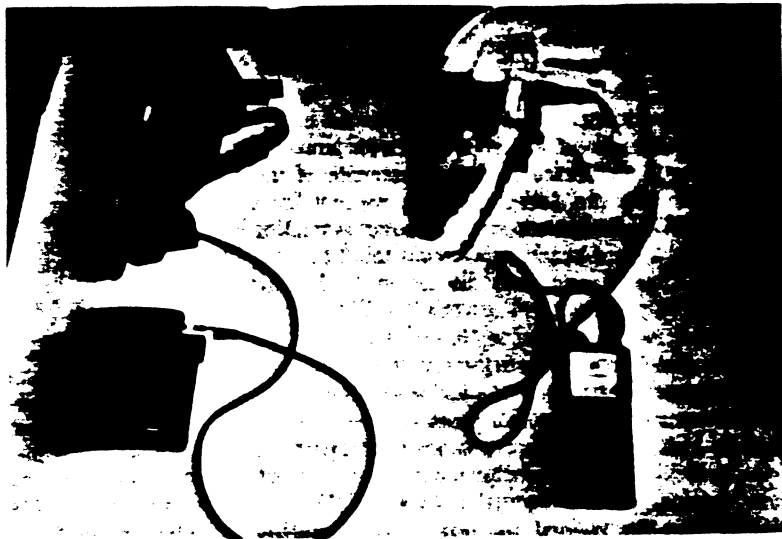
The options that may be used include:

- A half-face or full facepiece, negative pressure, air-purifying respirator with replaceable high-efficiency filters.

Pictured below are different examples of air-purifying, negative pressure respirators equipped with high-efficiency cartridges which can be used to protect workers against asbestos exposure. On the left are examples of half-mask facepieces equipped with high-efficiency cartridges, and on the right are examples of full facepiece, high-efficiency masks.



- A half or full facepiece powered air-purifying respirator (PAPR) with replaceable high-efficiency filters. This has a battery powered pump which assists breathing and provides positive pressure in the facepiece.



Pictured above are two different types of powered air-purifying respirators (PAPR's) equipped with high-efficiency filters. On the left is an example of a tight fitting, full facepiece PAPR, and on the right is an example of a loose-fitting helmet style PAPR.

Under the OSHA standards for asbestos, any employee required to wear a negative pressure respirator can request a powered air-purifying respirator, and the employer is required to provide a fully functional and approved unit, provided it will afford the worker at least equal protection.

Currently, only respirators approved by NIOSH and the Mine Safety and Health Administration (MSHA) are permitted for use. If they are air-purifying respirators, the filtration device(s) must be rated as "high-efficiency."

Selecting the most appropriate respirator for each O&M task requires knowledge of the levels of airborne asbestos fibers and other possible air contaminants generated by the task or likely to be present where the task is performed. This knowledge is best gained through personal air monitoring conducted during worker performance of the actual task. (Obviously, the workers must have respiratory protection while this initial personal air sampling is carried out.) In fact, OSHA and EPA require air monitoring under certain circumstances (see Chapter 6). To learn more about the different types of respirators available and the degree of protection they provide, see Appendix E. Owners may also wish to contact the nearest OSHA office, a local trained and qualified industrial hygienist (preferably Certified), or an occupational health professional for more information on respirators. The expertise of these specialists should be used to ensure proper selection, fit testing, and training of workers in respirator use.

Building owners and other facility managers may not be familiar with some of the terms used in discussions of respirators, airborne fiber levels, and related topics.

Appendix E contains more information on these topics, and gives the ~~minimum~~ EPA-recommended levels of respiratory protection to be provided during typical O&M tasks.

For additional information on respirator programs, respirator types, and respirator use, the building owner or Asbestos Program Manager may want to use the following references:

- "Respiratory Protection: An Employer's Manual," NIOSH, October 1978;
- "A Guide to Respiratory Protection for the Asbestos Abatement Industry," EPA/NIOSH, 1986;
- OSHA respirator standard (29 CFR 1910.134);
- OSHA asbestos regulations (29 CFR 1910.1001 and 1926.58);
- "Occupational Exposure Sampling Strategy Manual," NIOSH #77-173, January 1977.
- "Respirator Decision Logic," NIOSH, May 1987; and
- "NIOSH Guide to Industrial Respiratory Protection," September 1, 1987.

Protective Clothing/Worker Protection Programs In addition to the use of respirators, some O&M procedures may require workers to wear protective clothing. Most often, protective clothing is disposable and consists of coveralls, a head cover, and foot covers made of a synthetic fabric which does not allow asbestos fibers to pass through. This type of clothing prevents workers' regular clothing from becoming contaminated with asbestos fibers. Contaminated clothing could be taken home, creating a possible risk to the worker's family members.

OSHA and EPA regulations require workers to wear protective clothing whenever they are exposed, or likely to be exposed, to fiber levels above OSHA's permissible levels (see Chapter 6). It is important that workers be properly trained in the use, removal and disposal of protective clothing after use. All O&M activities may not require the use of protective clothing. It is important for the Asbestos Program Manager to assess this need on a case-by-case basis.

Basic O&M Procedures

Basic O&M procedures to minimize and/or contain asbestos fibers may include wet methods, use of mini-enclosures, use of portable power tools equipped with special local ventilation attachments, and avoidance of certain activities, such as sawing, sanding,

and drilling ACM. Maintenance activities can be divided into three categories with regard to their potential for disturbing ACM:

- 1 Those which are unlikely to involve any direct disturbance of ACM; for example, cleaning shelves or counter tops with a damp cloth.
- 2 Those which may cause accidental disturbance of ACM; for example, working on a fixture near a ceiling with surfacing ACM.
- 3 Those which involve intentional small-scale manipulation or disturbance of ACM; for example, removing a small segment of TSI ACM to repair a pipe leak.

The O&M program should include work practices for each type of ACM that is present in the building (surfacing, TSI, and miscellaneous) as well as for each type and category of maintenance activity performed (e.g., general cleaning, electrical work, plumbing).

Special work practices such as wet wiping, area isolation, and HEPA vacuuming, and the use of personal protective equipment such as respirators and protective clothing, may be needed where disturbance of ACM is likely. The need for these practices varies with the situation. For example, removing light fixtures located near surfacing ACM may disturb the material and might involve the use of special cleaning, possibly area isolation, and respiratory protection. Periodic emptying of a trash can near heavily encapsulated asbestos-containing plaster may not disturb the material at all, so no special work practices would generally be necessary. These work practices and procedures are intended to ensure that disturbance of any ACM during O&M activities should be minimized, or carried out under controlled conditions when the disturbance is required by the nature of a specific O&M task.

In addition, ACM may readily release asbestos fibers into the air when certain mechanical operations are performed directly on it. For example, fiber releases can occur when workers are drilling, cutting, sanding, breaking, or sawing vinyl asbestos floor tile.

The *action* of drilling, cutting, abrading, sanding, chipping, breaking, or sawing is the critical factor here, since it is likely to cause a release of fibers. Maintenance or repair operations involving those actions should be eliminated or carefully controlled with basic O&M procedures in order to prevent or minimize asbestos fiber release.

Certain activities that occur in the vicinity of ACM can also cause damage which may result in asbestos fiber release. For example, maintenance and custodial staff may damage ACM accidentally with broom handles, ladders, and fork lifts while performing other tasks. Activities performed in the vicinity of ACM should always be performed cautiously to prevent fiber release.

To summarize, if in doubt about the possibility of disturbing ACM during maintenance activities, adequate precautions should be taken to minimize fiber release; these will protect workers as well as the building environment. Basic O&M procedures, including use of wet methods and specially equipped tools, should be used to protect building occupants.

O&M Cleaning Practices

Special cleaning practices are appropriate for a building with exposed surfacing or thermal system insulation ACM, especially if the ACM is friable. If gradual deterioration or damage of ACM has occurred or is occurring, asbestos-containing dust or debris could be present. If the building inspection has determined that asbestos-containing dust or debris is present in some areas, then the O&M program should include special cleaning practices to collect residual asbestos dust. Routinely cleaning floors using wet methods is an example of one such practice. Custodial and maintenance workers in the course of normal work can also identify and report areas which are in need of special cleaning or repair. *Special cleaning techniques should supplement, not replace, repair or abatement actions for damaged, friable ACM.* The cleaning program should include an initial cleaning followed, as needed, by subsequent periodic or episodic cleanings.

Building owners and custodial and maintenance staff should ensure that special O&M cleaning is done correctly. Proper cleaning is important for two reasons:

- The use of improper techniques to clean up asbestos debris caused by previous deterioration or damage may result in widespread contamination, and potentially increase airborne asbestos fiber levels in the building.
- Improper cleaning may cause damage to the ACM, thus releasing more airborne asbestos fibers.

Proper O&M cleaning will involve the use of wet cleaning or wet-wiping practices to pick up asbestos fibers. Dry sweeping or dusting can result in asbestos fibers being re-suspended into the building's air and therefore should not be used. Once wet cloths, rags, or mops have been used to pick up asbestos fibers, they should be properly discarded as asbestos waste while still wet. They should not be allowed to dry out, since the collected fibers might be released at some later time when disturbed. The use of special vacuum cleaners, commonly referred to as HEPA vacuums, may be preferable to wet cleaning in certain situations. These vacuums are equipped with filters designed to remove very small particles or fibers — such as asbestos — by filtering those particles from the air passing through the vacuum. Since the exhaust air from an ordinary vacuum cleaner is not filtered sufficiently, it is possible for tiny asbestos fibers to pass through the filter and back into the building air.

If in doubt about the possibility of disturbing ACM during maintenance activities, adequate precautions should be taken to minimize fiber release.

Special procedures are generally needed to minimize the spread of fibers in the building after asbestos fiber release occurs.

It is important for O&M workers to use caution when emptying HEPA vacuums and changing the filters. Exposures could result from such activities. Workers should move the HEPA vacuum to a physically isolated area of the facility and put on proper personal protective equipment before emptying the dust and debris into properly labeled, sealed, and leak-tight containers for disposal as asbestos-containing waste. When custodial workers do not work with ACM, trained maintenance workers can be used to empty the HEPA vacuums and change their filters. Decisions regarding special cleaning practices should be based on the building inspection and ACM assessment data, including the potential for ACM disturbance. In general, the building would not need special O&M cleaning when the building contains only nonfriable (not easily crumbled) ACM; ACM which has been encapsulated, encased, or enclosed behind airtight barriers; or ACM known to be undamaged/undisturbed since the last special cleaning. Furthermore, where ACM is confined to a single room or area, special cleaning of just that area rather than other parts of the building may be sufficient.

If ACM has been released onto a carpeted area of a building, it may not always be possible to adequately clean the carpeted area. "Steam" cleaning and HEPA vacuuming methods are sometimes employed for this purpose. A preliminary study carried out by EPA in 1989 showed that hot water vacuums were more effective in carpet cleaning than HEPA vacuums, under the test conditions. Further field studies are planned to confirm these findings.

Here, a worker uses a HEPA vacuum (backpack type) to clean ACM debris from one of several carpeted areas in a room where surfacing material had fallen.



For carpets, successful cleaning will likely depend on factors such as the amount of ACM released onto the carpet, how long the situation has existed, traffic over the area, as well as the structure and composition of the carpet itself. It is prudent to evaluate individual situations on a case-by-case basis. The Asbestos Program Manager should consider the need for workers engaged in cleaning asbestos fiber-contaminated carpets to wear proper respiratory protection. It may also be prudent to arrange for this type of cleaning to be done after normal working hours or when the facility is less occupied. Additionally, it may be more cost effective to properly dispose of contaminated carpets and other fabrics as asbestos-containing waste if a permanent asbestos control option is being undertaken in the building.

Where the ACM is damaged and located in an "air plenum" — where fibers can be transported by the heating, ventilation, or air conditioning (HVAC) system throughout the building — special cleaning practices may be extended to the entire building, including the HVAC system itself.

Procedures for Asbestos Fiber Release Episodes

Special procedures are generally needed to minimize the spread of fibers throughout the building

after asbestos fiber releases occur, such as the partial collapse of an ACM ceiling or wall. These procedures are needed whether the ACM disturbance is intentional or unintentional. To provide building owners with some guidance, under EPA regulations for schools a "major fiber release" is defined as one involving more than three square or linear feet of ACM. The procedures to be followed will vary according to the site of the major release episode, the amount of ACM affected, the extent of fiber release from the ACM, the relationship of the release area to the air handling systems, and whether the release site is accessible to building occupants. Depending on the severity of the episode, asbestos abatement consultants and contractors may be needed to develop a strategy for conducting the clean-up operations.

In general, for major fiber releases, the area should be isolated by closing doors and/or erecting temporary barriers to restrict airflow as well as access to the site. Signs should be posted as necessary immediately outside the fiber release site to prevent persons not involved in the cleanup operation from inadvertently entering the area. If asbestos fibers could enter the HVAC system, the system should be modified to prevent fiber entry, or should be shut down and sealed off. The final step should be to employ thorough cleanup procedures to properly control the ACM, a careful visual inspection, and final clearance air monitoring to verify satisfactory cleanup.

Similar procedures can be used for much smaller fiber release events; where the amount of ACM is on the

order of three square or linear feet or less. The HEPA vacuuming, wet wiping, and worker protection procedures outlined in this guidance document, as well as wetting ACM wastes and properly placing them in an appropriate leak-tight container (such as a properly labeled, 6-mil-thick plastic bag), are examples of some of the procedures which could be used for both major and minor fiber releases.

It is important to recognize that different levels of training are needed for workers involved with fiber release episodes. A major release will generally require "asbestos abatement worker training," rather than the

degree of training considered adequate for O&M workers.

EPA suggests that building owners and Asbestos Program Managers consult with state and local regulatory officials before establishing formal training procedures for each type of situation.

The following table should be useful in determining when to apply certain O&M work practices in buildings. The table illustrates the O&M work practices that should be used by custodial and maintenance staff, depending on the likelihood of ACM disturbance.

		Likelihood of ACM Disturbance	
		Contact Unlikely	Disturbance Intended or Likely
		Accidental Disturbance Possible	
Need Pre-Work Approval from Asbestos Program Manager	Review by Program Manager	Yes	Yes
Special Scheduling or Access Control	No	Yes	Yes
Supervision Needed	No	Initial, At Least	Yes
HVAC System Modification	None	As Needed ¹	Shut Down ¹
Area Containment	None	Drop Cloths, Mini-enclosures	Yes ²
Respiratory Protection	Available For Use	Yes	Yes
Protective Clothing	None	Review by Asbestos Program Manager	Yes
Use of Wet Methods	No	As Needed	Yes
Use of HEPA Vacuum	Available For Use	Available For Use	As Needed

¹ In the area where work takes place
² Type of containment may vary. For example, small-scale, short-duration tasks may not require full containment.

Recordkeeping

EPA recommends that building owners make available all written elements of the O&M program to the building's O&M staff as well as to tenants and other building occupants.

All the building asbestos management documents discussed in this Guide (inspection and assessment reports, O&M program plan, work practices and procedures, respirator use procedures, fiber release reports, application for maintenance work and work approval forms, evaluations of work affecting ACM, and reinspections/surveillance of ACM) should be stored in permanent files. In addition, for employees engaged in asbestos-related work, federal regulations (see Chapter 6) require that employers retain:

- ☐ personal air sampling records, for at least 30 years. Personal air samples are those collected in the worker's breathing zone during performance of work involving asbestos exposures.
- ☐ objective data used to qualify for exemptions from OSHA's initial monitoring requirements for the duration of the exemption.
- ☐ medical records for each employee subject to the medical surveillance program for the duration of their employment plus 30 years.

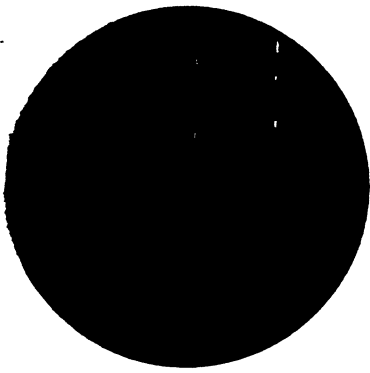
- ☐ all employee training records for one year beyond the last date of each worker's employment.

In addition, OSHA requires that employers provide to each employee their record of exposure and medical surveillance under the Records Access Standard (29 CFR 1910.20) and the Hazard Communication Standard (29 CFR 1910.1200). See the OSHA Construction Rule (29 CFR 1926.58) or the EPA Worker Protection Rule (40 CFR 763 Subpart G) for more details of recordkeeping requirements.

EPA recommends that building owners make available all written elements of the O&M program to the building's O&M staff as well as to tenants and other building occupants, if applicable. Building owners are also encouraged to consult with their legal counsel concerning appropriate recordkeeping strategies as a standard part of their O&M programs. Additionally, state and local regulations may also require additional recordkeeping procedures.

Although the elements discussed in this chapter should appear in any O&M program, the extent to which each applies will vary depending on the building type, the type of ACM present, and the ACM's location and physical condition. To achieve its objectives an O&M program should include the following:

- ☐ A notification program to inform building occupants, workers, and tenants about the location of ACM and how to avoid disturbing ACM.
- ☐ Periodic surveillance and reinspection of ACM at regular intervals by trained workers or properly trained inspectors. Air monitoring to detect airborne asbestos fibers in the building may provide useful supplemental information when conducted along with a comprehensive visual and physical ACM inspection/ reinspection program. Air samples are most accurately analyzed using transmission electron microscopy (TEM).
- ☐ A "work control/permit" system, which some building owners have used successfully to control work that could disturb ACM. This system requires the person requesting work to submit a Job Request Form to the Asbestos Program Manager before any work is begun.
- ☐ O&M work practices to avoid or minimize fiber release during activities affecting ACM.
- ☐ Recordkeeping. OSHA and EPA have specific requirements for workers exposed to asbestos.



What O&M Training Is Necessary?

Types of Training

Training of custodial and maintenance workers is one of the keys to a successful O&M program. If building owners do not emphasize the importance of well-trained custodial and maintenance personnel, asbestos O&M tasks may not be performed properly. This could result in higher levels of asbestos fibers in the building air and an increased risk faced by both building workers and occupants.

OSHA and EPA require a worker training program for all employees exposed to fiber levels (either measured or anticipated) at or above the action level (0.1 f/cc, 8-hour *time-weighted average* — the TWA) and/or the excursion limit (1.0 f/cc, 30-minute TWA — see Chapter 6). According to the EPA regulations governing schools, all school staff custodial and maintenance workers who conduct any activities that will result in the disturbance of ACM must receive 16 hours of O&M training. Some states and municipalities may also have specific training requirements for workers who may be exposed to asbestos, or who work in a building with ACM present.

With proper training, custodial and maintenance staff can successfully deal with ACM in place, and greatly reduce the release of asbestos fibers. Training sessions should provide basic information on how to deal with all types of maintenance activities involving ACM. However, building owners should also recognize that O&M workers in the field often encounter unusual, "non-textbook" situations. As a result, training should provide key concepts of asbestos hazard control. If these concepts are clearly understood by workers and their supervisors, workers can develop techniques to address

a specific problem in the field. Building owners who need to provide O&M training to their custodial and maintenance staff should contact an EPA environmental assistance center (see Appendix D) or equally qualified training organization for more information.

At least three levels of maintenance worker training can be identified:

LEVEL 1: AWARENESS TRAINING. For custodians involved in cleaning and simple maintenance tasks where ACM may be accidentally disturbed.

For example, fixing a light fixture in a ceiling covered with surfacing ACM. Such training may range from two to eight hours, and may include such topics as:

- Background information on asbestos.
- Health effects of asbestos.
- Worker protection programs.
- Locations of ACM in the building.
- Recognition of ACM damage and deterioration.
- The O&M program for that building.
- Proper response to fiber release episodes.

Training of custodial and maintenance workers is one of the keys to a successful O&M program.



A properly protected and trained worker conducts a glovebag removal job on a section of thermal system insulation. Under a proper operations and maintenance program, any worker involved in such activities would have Level 1 and 2 training.

LEVEL 2: SPECIAL O&M TRAINING. For maintenance workers involved in general maintenance and asbestos material repair tasks.

For example, a repair or removal of a small section of damaged TSI, or the installation of electrical conduit in an air plenum containing ACM or ACM debris. Such training generally involves at least 16 hours. This level of training usually involves more detailed discussions of the topics included in Level 1 training as well as:

- Federal, state, and local asbestos regulations.
- Proper asbestos-related work practices.
- Descriptions of the proper methods of handling ACM, including waste handling and disposal.
- Respirator use, care, and fit-testing.
- Protective clothing donning, use, and handling.
- Hands-on exercises for techniques such as glovebag work and HEPA vacuum use and maintenance.
- Appropriate and proper worker decontamination procedures.

LEVEL 3: ABATEMENT WORKER TRAINING. For workers who may conduct asbestos abatement.

For example, conducting a removal job, constructing an enclosure, or encapsulating a surface containing ACM. This work involves direct, intentional contact with ACM. The recognized "abatement worker" training courses approved by EPA or states, under the EPA AHERA model accreditation plan for schools, which involve 24 to 32 hours of training, would fulfill this level of training.

If this level of training is provided to in-house staff, it may save time and money in the long run to use these individuals to perform such activities. This level of training is much more involved than Levels 1 and 2, although it should include some of the same elements (e.g., health effects of asbestos). It will typically include a variety of specialized topics, such as:

- Pre-asbestos abatement work activities.
- Work area preparation.
- Establishing decontamination units.
- Personal protection, including respirator selection, use, fit-testing, and protective clothing.
- Worker decontamination procedures.
- Safety considerations in the abatement work area.
- A series of practical hands-on exercises.
- Proper handling and disposal of ACM wastes.

The Asbestos Program Manager should consider conducting the training program for Levels 1 and 2 if he or she has sufficient specific asbestos knowledge and training. If the Asbestos Program Manager does not conduct the training, the building owner should hire an outside consultant or send workers to an appropriate O&M training course. A trained (preferably Certified) industrial hygienist or equally qualified safety and health professional should conduct the training on respirator use and fit-testing. A health professional should conduct the training on health effects.

OSHA or EPA Regional Offices, as well as state and local agencies and professional associations, may be able to suggest courses or direct you to listings of training providers for each of the three levels. Appendix D provides the addresses and/or phone numbers for OSHA, EPA, and EPA-sponsored training providers.

Where custodial and maintenance services are performed by a service company under contract, or where some installation or repairs are performed by employees of trade or craft contractors and subcontractors, those workers may need to have training at level 1, 2, or 3 as appropriate for their work. The Asbestos Program Manager or building owner should verify that these employees receive appropriate training before they begin any work.

This is an example of a large-scale asbestos removal project (note missing scaffold safety rolls). Such projects are well beyond the scope of an O&M program. The EPA NESHAP regulations require that asbestos materials be removed from buildings prior to demolition or renovation when the asbestos will be disturbed.



In summary, good training is crucial to the success of an O&M program. Strong support for O&M training by the building owner should convince custodial and

maintenance workers that following the appropriate work procedures is critical to protecting their own health as well as the health of other building occupants.

Properly trained custodial and maintenance workers are critical to a successful O&M program. The following items are highlighted training requirements:

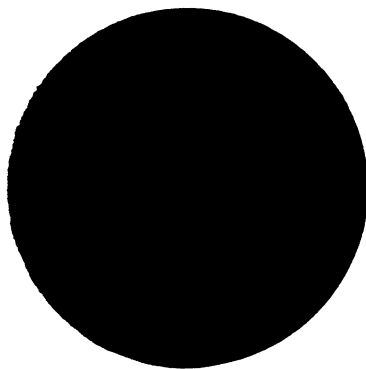
- OSHA and EPA require worker training program for all employees exposed to fiber levels at or above the action level (0.1 f/cc, 8-hr. TWA) and/or the excursion limit (1.0 f/cc, 30-minute TWA — see Chapter 6).
- Some states and municipalities may have specific worker training requirements.
- At least three levels of maintenance worker training can be identified:

Level 1 Awareness training for workers involved in activities where ACM may be accidentally disturbed. May range from 2-8 hours.

Level 2 Special O&M training for maintenance workers involved in general maintenance and incidental ACM repair tasks. At least 16 hours.

Level 3 Abatement worker training for workers who may conduct asbestos abatement. This work involves direct, intentional contact with ACM. "Abatement worker" training courses that involve 24 to 32 hours of training fulfill this level of training.

Strong support by the building owner can convince workers that following appropriate procedures is critical to protecting their own health as well as the health of other building occupants.



What Regulations Affect Asbestos Management Programs in Buildings, Especially O&M Programs?

Federal, State, and Local Regulations Affecting O&M Programs

Building owners are governed by a variety of federal, state, and local regulations which influence the way they must deal with ACM in their facilities. Some of these regulations, particularly at the state and local level, may change frequently. Building owners should contact their state and local government agencies, in addition to organizations such as the National Conference of State Legislatures (NCSL), the National Institute of Building Sciences (NIBS), or EPA environmental assistance centers, for updated information on these requirements. (Appendix D lists phone numbers for these organizations.)

Building owners are governed by a variety of federal, state, and local regulations which influence the way they must deal with ACM in their facilities.

OSHA Regulations and the U.S. EPA Worker Protection Rule

There are several important Occupational Safety and Health Administration (OSHA) and EPA regulations that are designed to protect workers. They are summarized here, as guidance. OSHA has specific requirements concerning worker protection and procedures used to control ACM. These include the OSHA construction industry standard for asbestos (29 CFR 1926.58), which applies to O&M work, and the general industry asbestos standard (29 CFR 1910.1001). State-delegated OSHA plans, as well as local jurisdictions, may impose additional requirements.

For most operations and maintenance activities in building areas where only non-friable ACM is present or where friable ACM is in good condition, applicable OSHA permissible exposure limits are not likely to be exceeded. However, it is possible that some O&M activities will disturb ACM to such an extent that the OSHA limits are exceeded, unless good work practices are followed.

The OSHA standards generally cover private sector workers, and public sector employees in states which have an OSHA state plan. Public sector employees, such as city or county government employees, or certain school employees, who are not already subject to a state OSHA plan are covered by the EPA "Worker Protection Rule" (Federal Register: February 25, 1987; 40 CFR 763 Subpart G, Asbestos Abatement Projects; Worker Protection, Final Rule). *Note: As this document goes to press, OSHA is considering a substantial number of changes to its regulations.*

The OSHA standards and the EPA Worker Protection Rule require employers to address a number of items which are triggered by exposure of employees to asbestos fibers. Exposure is discussed in terms of fibers per cubic centimeter (cc) of air. A cc is a volume approximately equivalent to that of a sugar cube.

Two main provisions of the regulations fall into the general category of "Permissible Exposure Limits (PELs)" to airborne asbestos fibers. They are:

- 1 **8-Hour Time-weighted average limit (TWA)**—0.2 fiber per cubic centimeter (f/cc) of air based on an 8-hour time-weighted average (TWA) sampling period. This is the maximum level of airborne asbestos, on average, that any employee may be exposed to over an 8-hour period (normal work shift).
- 2 **Excursion limit (EL)**—1.0 f/cc as averaged over a sampling period of 30 minutes.

These levels trigger mandatory requirements, which include the use of respirators and protective clothing, the establishment of "regulated areas," the posting of danger signs as well as the use of engineering controls and specific work practices.

OSHA regulations also establish an "Action Level": 0.1 f/cc for an 8-hour TWA. Employee training is required once the action level of 0.1 f/cc and/or the "Excursion Limit" is reached. This training must include topics specified by the OSHA rules. If an employee is exposed at or above the action level for a period of 30 days or more in a calendar year, medical surveillance is required according to the OSHA construction industry asbestos standard.

OSHA also requires medical examinations under its "General Industry Standard" for any employee exposed to fiber levels in the air at or above the OSHA "action level" (0.1 f/cc) and/or the "excursion limit" (1.0 f/cc). In both cases—the action level and excursion limit—the OSHA medical examination requirement applies if the exposure occurs for at least one day per year.

The OSHA "Construction Industry Standard" (29 CFR 1926.58) for asbestos, is generally applicable for the workers who carry out the kinds of work discussed in this O&M guidance document. The OSHA construction industry asbestos standard applies to demolition and asbestos removal or encapsulation projects, as well as to repair, maintenance, alteration, or renovation if ACM is involved. ACM spills or emergency clean-up actions are also covered by this regulation.

According to those regulations, participation in a medical surveillance program is required for any employee who is required to wear a negative pressure, air-purifying respirator. Preplacement, annual, and termination physical exams are also required for these employees. However, a termination exam is only necessary under the construction industry standard (which applies to custodial and maintenance employees) if a physician recommends it. While not mandatory, EPA and NIOSH recommend physical examinations, including cardiac and pulmonary tests, for any employee required to wear a respirator by the building owner. These tests determine whether workers will be unduly stressed or uncomfortable when using a respirator.

Additional requirements of the OSHA asbestos standards, such as the use of air filtration systems and hygiene facilities, involve procedures which are most applicable to large-scale asbestos abatement projects. However,

these rules also include a number of recommendations for procedures which might be appropriate for a variety of O&M programs for buildings.

Small-scale, Short-duration Projects

"Appendix G" which is specified as a non-mandatory section to the OSHA regulation 29 CFR 1926.58, may become mandatory under certain circumstances where "small-scale, short-duration" asbestos projects are conducted. These projects are not precisely defined in terms of either size or duration, although their nature and scope are illustrated by examples presented in the text of the regulation. Properly trained maintenance workers may conduct these projects. Examples may include removing small sections of pipe insulation or covering for pipe repair, replacing valves, installing electrical conduits, or patching or removing small sections of drywall. OSHA issued a clarification of the definition of a "small-scale, short-duration" (SS/SD) project in a September 1987 asbestos directive. The directive focuses on intent, stating that in SS/SD projects, the removal of ACM is not the primary goal of the job. If the purpose of a small-scale, short-duration project is maintenance, repair, or renovation of the equipment or surface behind the ACM—not abatement of ACM—then the appendix provisions may apply. If the intent of the work is abatement of the ACM, then the full-scale abatement control requirements apply.

In any event, this appendix section of the OSHA construction standard outlines requirements for the use of certain engineering and work practice controls such as glovebags, mini-enclosures, and special vacuuming techniques. Similar information on these procedures may be found in the EPA's AHERA regulations for schools. (See final AHERA rule, Appendix B, for SS/SD projects.)

U.S. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR 61 Subpart M)

EPA's rules concerning the application, removal, and disposal of ACM, as well as manufacturing, spraying and fabricating of ACM, were issued under the asbestos NESHAP. The asbestos NESHAP regulation governs asbestos demolition and renovation projects in all facilities. The NESHAP rule usually requires owners or operators to have all friable ACM removed before a building is demolished, and may require its removal before a renovation. For renovation projects where friable ACM will be disturbed, the NESHAP rule may require appropriate work practices or procedures for the control of emissions. It is prudent to note that any ACM which may become friable poses a potential hazard that should be addressed. The building owner should consider that in many instances, the removal of friable ACM prior to demolition could be less expensive than removals while the building is still occupied and being used. Some revisions to the current NESHAP rule are anticipated by the end of 1990.

In general, applicable OSHA permissible exposure limits are not likely to be exceeded for most O&M activities in building areas where only non-friable ACM is present or where friable ACM is in good condition.

Notification

EPA or the state (if the state has been delegated authority under NESHAP) must be notified before a building is demolished or renovated. The following information is required on the NESHAP notice:

- 1 Name and address of the building owner or manager;
- 2 Description and location of the building;
- 3 Estimate of the approximate amount of friable ACM present in the facility;
- 4 Scheduled starting and completion dates of ACM removal;
- 5 Nature of planned demolition or renovation and method(s) to be used;
- 6 Procedures to be used to comply with the requirements of the regulation; and
- 7 Name, address, and location of the disposal site where the friable asbestos waste material will be deposited.

Depending on project size, EPA or the state must be notified before a building is demolished or renovated.

The notification requirements do not apply if a building owner plans renovation projects which will disturb less than the NESHAP limits of 160 square feet of friable ACM on facility components or 260 linear feet of friable ACM on pipes (quantities involved over a one-year period). For renovation operations in which the amount of ACM equals or exceeds the NESHAP limits, notification is required as soon as possible.

Emissions Control and Waste Disposal

The NESHAP asbestos rule prohibits visible emissions to the outside air by requiring emission control procedures and appropriate work practices during collection, packaging, transportation or disposal of friable ACM waste. All ACM must be kept wet until sealed in a leak-tight container that includes the appropriate label. The following table provides a simplified reference for building owners regarding the key existing NESHAP requirements.

Resource Conservation and Recovery Act Regulations (RCRA); and Comprehensive Environmental Response, Compensation, and Liability Act Regulations (CERCLA, or "Superfund")

Under expanded authority of RCRA, a few states have classified asbestos-containing waste as a hazardous waste, and require stringent handling, manifesting, and disposal procedures. In those cases, the state hazardous

waste agency should be contacted before disposing of asbestos for approved disposal methods and recordkeeping requirements, and for a list of approved disposal sites.

Friable asbestos is also included as a hazardous substance under EPA's CERCLA regulations. The owner or manager of a facility (e.g., building, installation, vessel, landfill) may have some reporting requirements. Check with your EPA Regional Office for further information. (See Appendix D for telephone numbers.)

The Asbestos Hazard Emergency Response Act Regulations (AHERA)

In October 1987, EPA issued final regulations to carry out the Asbestos Hazard Emergency Response Act of 1986 (AHERA). The AHERA regulatory requirements deal *only with public and private elementary and secondary school buildings*. The regulations require schools to conduct inspections, develop comprehensive asbestos management plans, and select asbestos response actions to deal with asbestos hazards. The AHERA rules *do not* require schools to remove ACM.

A key element of the AHERA regulations requires schools to develop an O&M program if friable ACM is present. The AHERA O&M requirements also cover non-friable ACM which is about to become friable. For example, drilling through an ACM wall will likely result in friable ACM. Under the AHERA O&M provisions, schools must carry out specific O&M procedures which provide for the clean-up of any ACM releases and help ensure the general safety of school maintenance and custodial workers, as well as all other school building occupants. The AHERA regulation's O&M requirements mandate that schools employ specific work practices including wet wiping, HEPA vacuuming, proper waste disposal procedures, and specific training for custodial and maintenance employees who work in buildings with ACM.

U.S. EPA Asbestos Ban and Phaseout Rule

Bans on some uses and applications of asbestos under the Clean Air Act were briefly described in Chapter 1. In July 1989, under the Toxic Substances Control Act (TSCA), EPA promulgated an Asbestos Ban and Phaseout Rule. The complete rule was published in the *Federal Register* on July 12, 1989.

Beginning in 1990 and taking effect in three stages, the rule prohibits the importation, manufacture, and processing of 94 percent of all remaining asbestos products in the United States over a period of seven years.

	Demolition		Renovation	
AMOUNT* (in 1 yr.)	≥260 ln.ft. or ≥ 160 sq. ft.	<260 ln.ft. or <160 sq.ft.	≥260 ln.ft. or ≥ 160 sq. ft.	<260 ln.ft. or <160 sq. ft.
NOTIFICATION	YES	YES	YES	NOT REQUIRED
HOW FAR IN ADVANCE*	10 DAYS	20 DAYS	AS SOON AS POSSIBLE	NOT REQUIRED
EMISSION CONTROLS (Work Practices)	YES	NOT REQUIRED	YES	NOT REQUIRED
DISPOSAL STANDARD	YES	NOT REQUIRED	YES	NOT REQUIRED
*May be changed on promulgation of Revised NESHAP Rule in 1990				

A variety of federal, state, and local regulations govern the way building owners must deal with ACM in their facilities. State and local regulations may be more stringent than federal standards and often change rapidly. Building owners should periodically check with the appropriate Federal, State, and local authorities to determine whether any new asbestos regulations have been developed or whether current regulations have been amended. Specific federal regulations that may affect asbestos-related tasks and/or workers are highlighted here:

- ☐ OSHA Construction Industry Standard for Asbestos (29 CFR 1926.58).
- ☐ OSHA General Industry Standard for Asbestos (29 CFR 1910.1001).
- ☐ OSHA Respiratory Protection Standard (29 CFR 1910.134).
- ☐ EPA Worker Protection Rule (40 CFR 763 Subpart G).
- ☐ EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR 61 Subpart M).
- ☐ EPA Asbestos Hazard Emergency Response Act (AHERA) Regulations (40 CFR 763 Subpart E).
- ☐ EPA Asbestos Ban and Phaseout Rule (40 CFR 763 Subpart D).

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Appendix A.

Glossary of Terms

ACM	Asbestos-Containing Material. Any material containing more than one percent asbestos.
Asbestos Program Manager	A building owner or designated representative who supervises all aspects of the facility asbestos management and control program.
Air Plenum	Any space used to convey air in a building or structure. The space above a suspended ceiling is often used as an air plenum.
Asbestos Abatement	Procedures to control fiber release from asbestos-containing materials in a building or to remove it entirely. These may involve removal, encapsulation, repair, enclosure, encasement, and operations and maintenance programs.
Delamination	Separation of one layer from another.
EPA	U.S. Environmental Protection Agency
Friable Asbestos	Any materials that contain greater than one percent asbestos, and which can be crumbled, pulverized, or reduced to powder by hand pressure. This may also include previously non-friable material which becomes broken or damaged by mechanical force.
Glovebag	A polyethylene or polyvinyl chloride bag-like enclosure affixed around an asbestos-containing source (most often, TSI) so that the material may be removed while minimizing release of airborne fibers to the surrounding atmosphere.
HEPA Filter	High-Efficiency Particulate Air Filter. Such filters are rated to trap at least 99.97% of all particles 0.3 microns in diameter or larger.
Industrial Hygienist	A professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.
Medical Surveillance	A periodic comprehensive review of a worker's health status. The required elements of an acceptable medical surveillance program are listed in the Occupational Safety and Health Administration standards for asbestos.
Miscellaneous ACM	Interior asbestos-containing building material on structural components, structural members or fixtures, such as floor and ceiling tiles; does not include surfacing material or thermal system insulation.
NESHAP	National Emission Standard for Hazardous Air Pollutants—EPA Rules under the Clean Air Act.
NIOSH	The National Institute for Occupational Safety and Health, which was established by the Occupational Safety and Health Act of 1970. Primary functions of NIOSH are to conduct research, issue technical information, and test and certify respirators.
Personal Air Samples	An air sample taken with a sampling pump directly attached to the worker with the collecting filter and cassette placed in the worker's breathing zone. These samples are required by the OSHA asbestos standard and the EPA Worker Protection Rule.
Prevalent Level Samples	Air samples taken under normal conditions (also known as ambient background samples).
Surfacing ACM	Asbestos-containing material that is sprayed-on, troweled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.
TSI	Thermal system insulation — asbestos-containing material applied to pipes, fittings, boilers, breeching, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.
TWA	Time-weighted Average. In air sampling, this refers to the average air concentration of contaminants during a particular sampling period.

Appendix B.

Sample Recordkeeping Forms

Form 1. A sample form for recording information during ACM reassessment.

Reinspection of Asbestos-Containing Materials

Location of asbestos-containing material (address, building, room, or general description):

Type of asbestos-containing material(s):

1. Sprayed- or troweled-on ceilings or walls
2. Sprayed- or troweled-on structural members
3. Insulation on pipes, tanks, or boiler
4. Other (describe):

Abatement Status:

1. The material has been encapsulated _____, enclosed _____, neither _____, removed _____.

Assessment:

1. Evidence of physical damage: _____

2. Evidence of water damage: _____

3. Evidence of delamination or other damage: _____

4. Degree of accessibility of the material: _____

5. Degree of activity near the material: _____

6. Location in an air plenum, air shaft, or airstream: _____

7. Other observations (including the condition of the encapsulant or enclosure, if any): _____

*Recommended Action: _____

Signed: _____ Date: _____
(evaluator)

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Form 2. A sample application form for maintenance work approval.

Job Request Form for Maintenance Work

Name: _____ Date: _____

Telephone No. _____ Job Request No. _____

Requested starting date: _____ Anticipated finish date: _____

Address, building, and room number(s) (or description of area) where work is to be performed:

Description of work:

Description of any asbestos-containing material that might be affected, if known (include location and type):

Name and telephone number of requestor:

Name and telephone number of supervisor:

Submit this application to:

(The Asbestos Program Manager)

NOTE: An application must be submitted for all maintenance work whether or not asbestos-containing material might be affected. An authorization must then be received before any work can proceed.

Granted (Job Request No. _____)
With conditions*
Denied

*Conditions: _____

Form 3. A sample maintenance work authorization form.

Maintenance Work Authorization Form

No. _____

AUTHORIZATION

Authorization is given to proceed with the following maintenance work:

PRESENCE OF ASBESTOS-CONTAINING MATERIALS

- _____ Asbestos-containing materials are not present in the vicinity of the maintenance work.
- _____ ACM is present, but its disturbance is not anticipated; however, if conditions change, the Asbestos Program Manager will re-evaluate the work request prior to proceeding.
- _____ ACM is present, and may be disturbed.

Work Practices If Asbestos-Containing Materials Are Present

The following work practices shall be employed to avoid or minimize disturbing asbestos:*

Personal Protection If Asbestos-Containing Materials Are Present**

The following equipment/clothes shall be used/worn during the work to protect workers:

(manuals on personal protection can be referenced)

Special Practices and/or Equipment Required:

Signed: _____ Date: _____
(Asbestos Program Manager)

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Form 4. A sample work evaluation form

Evaluation of Work Affecting Asbestos-Containing Materials

This evaluation covers the following maintenance work:

Location of work (address, building, room number(s), or general description):

Date(s) of work:

Description of work:

Work approval form number:

Evaluation of work practices employed to minimize disturbance of asbestos:

Evaluation of work practices employed to contain released fibers and to clean up the work area:

Evaluation of equipment and procedures used to protect workers:

Personal air monitoring results; (in-house worker or contract?)

Worker name _____ Results: _____

Worker name _____ Results: _____

Handling or storage of ACM waste:

Signed: _____ Date: _____

(Asbestos Program Manager)

Illustrative Organization Charts

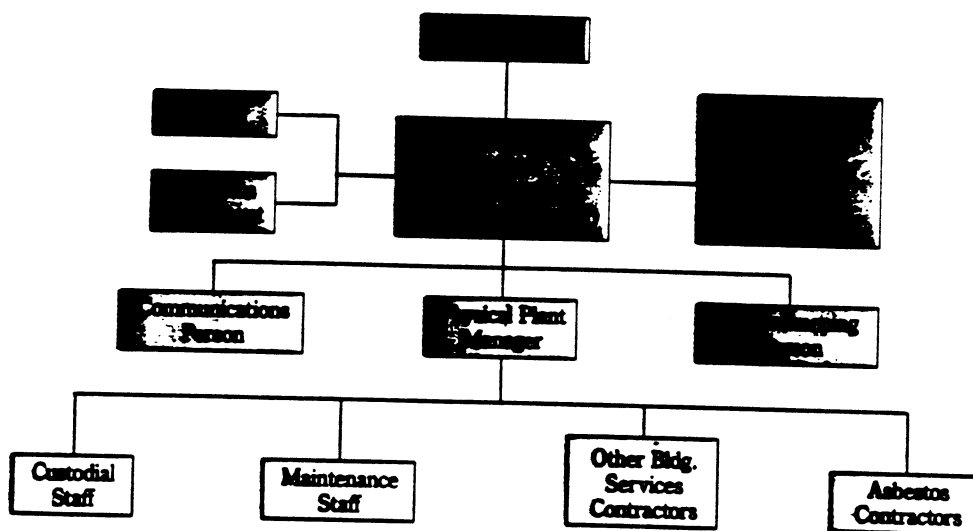


Figure 1. A sample organization for a building owner with a large in-house management staff. Shaded boxes indicate outside assistance.

Owners and Managers Who Employ an Extensive In-house Management Staff

IN-HOUSE STAFF (FIGURE 1)

Asbestos Program Manager: Has authority and overall responsibility for the asbestos control program. May develop the O&M program. Coordinates all activities. May also administer the respiratory protection program.

Physical Plant Manager: (may also be the Asbestos Program Manager) Participates in establishing work practices for cleaning and maintenance activities, and in training custodial and maintenance staff to use them. Assists in implementing the O&M program and in conducting periodic reinspections of the ACM. Ensures that outside contractors follow O&M procedures.

Communications Person: (Public Affairs Officer, Nurse, Physician, Industrial Hygienist) Assists in preparation and distribution of information about ACM in the building. Person should be a good speaker and communicator.

Recordkeeping Person: (Executive Assistant, Secretary) Responsible for maintaining records.

OUTSIDE ASSISTANCE

EPA Regional Asbestos Coordinator, NESHAP Coordinator and State/Local Government Advisors: Provide general guidance and answer specific questions.

OSHA Regional Office: May be helpful in answering questions about existing regulations, and providing guidance for worker protection.

Asbestos Consultant(s)*: (Industrial Hygienists, Health Professionals, Architects, Engineers, and others) May assist in various aspects of the asbestos O&M program, including its development and implementation. May also conduct material inspections and provide work practice recommendations.

Lawyer: Provides advice on legal requirements (such as laws and statutes) and liability aspects of the program.

Asbestos Contractor*: May provide services for ACM abatement and for building decontamination following a fiber release episode.

*It is important for owners and Asbestos Program Manager's to consider potential "conflict of interest" issues pertaining to those persons or firms used to sample, inspect, assess, analyze, recommend response actions, design response actions, and conduct asbestos response actions.

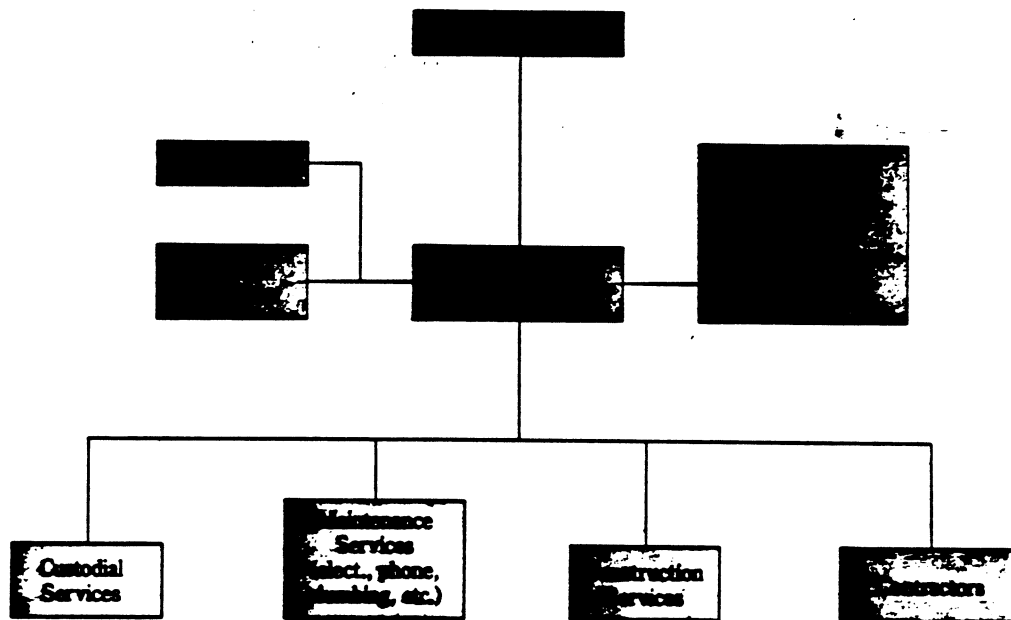


Figure 2. A sample organization for owners of buildings where services are provided by contract. Shaded boxes indicate outside assistance.

Owners and Managers Who Contract For Services

IN-HOUSE STAFF (FIGURE 2)

Asbestos Program Manager: Has overall responsibility for the asbestos control program. May develop and implement the O&M program. Establishes training and experience requirements for contractor's workers. Supervises and enforces work practices with assistance of work crew supervisors. Conducts periodic reinspections and responsible for recordkeeping. This person should be properly trained in O&M program development and implementation (see Chapter 5).

OUTSIDE ASSISTANCE

EPA Regional Asbestos Coordinator and State/Local Government Advisors: Provide general guidance and answer specific questions.

OSHA Regional Office: May be helpful in answering questions about existing regulations and providing guidance for worker protection.

Asbestos Consultant(s)*: (Industrial Hygienists, Health Professionals, Architects, Engineers, and others) May assist Asbestos Program Manager in various aspects of the asbestos O&M program, including development and implementation. May also conduct the inspection and provide work practices recommendations.

Lawyer: Provides advice on legal requirements (laws and statutes) and liability aspects of the program.

Asbestos Contractor*: May provide services for ACM abatement and building decontamination following a fiber release episode.

*It is important for owners and Asbestos Program Manager's to consider potential "conflict of interest" issues pertaining to those persons or firms used to sample, inspect, assess, analyze, recommend response actions, design response actions, and conduct asbestos response actions.

APPENDIX D.

Additional Assistance and Training

EPA REGIONAL CONTACTS

Additional assistance can be obtained from your U.S. EPA Regional Asbestos Coordinators, NESHAP Regional Coordinators, and OSHA Regional Offices. Their telephone numbers are listed below:

EPA Region I: (CT,ME,MA,NH,RI,VT)

Asbestos Coordinator (617) 565-3835
NESHAP Coordinator (617) 565-3265

EPA Region II: (NJ,NY,PR,VT)

Asbestos Coordinator (201) 321-6671
NESHAP Coordinator (212) 264-6770

EPA Region III: (DE,DC,MD,PA,VA,WV)

Asbestos Coordinator (215) 597-3160
NESHAP Coordinator (215) 597-6550

EPA Region IV: (AL,FL,GA,KY,MS,NC,SC,TN)

Asbestos Coordinator (404) 347-5014
NESHAP Coordinator (404) 347-2904

EPA Region V: (IL,IN,MI,MN,OH,WI)

Asbestos Coordinator (312) 886-6003
NESHAP Coordinator (312) 353-2088

EPA Region VI: (AR,LA,NM,OK,TX)

Asbestos Coordinator (214) 655-7244
NESHAP Coordinator (214) 655-7229

EPA Region VII: (IA,KS,MO,NE)

Asbestos Coordinator (913) 551-7020
NESHAP Coordinator (913) 551-7020

EPA Region VIII: (CO,MT,ND,SD,UT,WY)

Asbestos Coordinator (303) 293-1442
NESHAP Coordinator (303) 294-7685

EPA Region IX: (AZ,CA,HI,NV,AS,GU)

Asbestos Coordinator (415) 556-5406
NESHAP Coordinator (415) 556-5526

EPA Region X: (AK,ID,OR,WA)

Asbestos Coordinator (206) 442-4762
NESHAP Coordinator (206) 442-1757

OSHA REGIONAL OFFICES

Region I — Boston, MA: (617) 223-6710

Region II — New York, NY: (212) 944-3432

Region III — Philadelphia, PA: (215) 596-1201

Region IV — Atlanta, GA: (404) 347-3573

Region V — Chicago, IL: (312) 353-2220

Region VI — Dallas, TX: (214) 767 4731

Region VII — Kansas City, MO: (816) 374-5861

Region VIII — Denver, CO: (303) 844-3061

Region IX — San Francisco, CA: (415) 995-5672

Region X — Seattle, WA: (206) 442-5930

Toxic Substances Control Act (TSCA) Assistance Hotline

Copies of the EPA Guidance Documents, Technical Bulletins, and other publications cited here can be obtained by calling the TSCA Assistance Hotline, in Washington, D.C., at: (202) 554-1404.

Approved Training Centers

Certain training centers and satellite centers were initially funded by EPA to develop asbestos training courses. They, and other training providers approved by EPA or states, offer courses for professionals such as asbestos inspectors and management planners involved with ACM detection and control, for asbestos abatement project designers, project supervisors and abatement workers, and others. In general, qualified professionals trained as inspectors and asbestos management planners would be good choices to design an O&M plan. Original training centers are located at the following sites:

Georgia Institute of Technology
GTRI/EDL/ESTD
29 O'Keeffe Building
Atlanta, GA 30332
(404) 894-3806

Tufts University
Curtis Hall
Asbestos Information Center
474 Boston Avenue
Medford, MA 02155
(617) 381-3531

University of Kansas
Asbestos Training Center
6600 College Blvd. Suite 315
Overland Park, KS 66211
(913) 491-0181

University of Illinois at Chicago
Midwest Asbestos Information Center
Box 6998
Chicago, IL 60680
(312) 996-8904

Pacific Asbestos
Information Center
University CA/Extension
2223 Fulton St.
Berkeley, CA 94720
(415) 643-7143

Additional training providers are listed in the *Federal Register* on a regular basis. Call (202) 554-1404 for information. In addition, information on how to receive a copy of an O&M Course produced by an EPA contractor may be obtained at the same number.

OTHER ORGANIZATIONS

National Conference of State Legislatures (NCSL)
Denver, CO — (303) 623-7800

National Institute of Building Sciences (NIBS),
Washington, D.C. — (202) 289-7800

American Board of Industrial Hygiene (ABIH),
Lansing, MI — (517) 321-2638

National Institute for Standards and Technology (NIST),
Gaithersburg, MD — (contact for lab accreditation) —
(301) 975-4016

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APPENDIX E:

Respiratory Protection Recommendations

EPA recommends that the following guidelines be followed for respiratory protection during various custodial and maintenance tasks. These guidelines are issued to cover tasks that do not always create routine fiber levels high enough to trigger OSHA respiratory protection requirements. Therefore, building owners should note they go *beyond* OSHA requirements.

- **Routine maintenance where contact with ACM is unlikely.** No respiratory protection required. (Air-purifying respirator with high-efficiency filters should be available if needed; half-face or full facepiece).
- **Routine maintenance where there is reasonable likelihood of ACM disturbance.** Air-purifying respirator with high-efficiency filters (half-face or full facepiece).
- **Maintenance or repair involving intentional small-scale disturbance of ACM.** Powered air-purifying respirator with high-efficiency filters, or air-purifying respirator with high-efficiency filters (half-face or full facepiece). If glove bags are used to contain the ACM during disturbance, either half-face or full facepiece air-purifying respirators with high-efficiency filters may be used.
- **Any O&M activity requiring sawing, cutting, drilling, abrading, grinding, or sanding ACM.** (NOTE: specially equipped tools with local exhaust ventilation should be used for these activities. See 29 CFR 1910.) Powered air-purifying respirator with high-efficiency filters, or full facepiece, air-purifying respirator equipped with high-efficiency filters should be used.
- **Cleanup after a minor asbestos fiber release.** Air-purifying respirator with high-efficiency filters (half-face or full facepiece).
- **Cleanup after a major asbestos fiber release.** Air-supplied respirators, either the "Type C" airline respirator equipped with a backup high-efficiency filter or SCBA (Self-Contained Breathing Apparatus).

The U.S. EPA, in collaboration with NIOSH, has issued a guidance document, "A Guide to Respiratory Protection for the Asbestos Abatement Industry," which recommends levels of respiratory protection for those engaged in large-scale asbestos abatement projects that are beyond routine O&M procedures. Air-supplied self-contained, and "type C" airline respirators are the focus of the EPA/NIOSH document. These respirators allow workers to breathe fresh air supplied through hoses and face masks, and are generally used only by asbestos abatement workers engaged in large-scale asbestos removal projects. They are usually not considered either practical or necessary for most custodial and maintenance jobs.

An industrial hygienist or environmental/occupational health professional should assist workers with respirator selection and fitting, and train them in respirator use. Fit-testing (which means determining whether a particular brand and size of respirator properly fits an individual worker) is essential, since respirators which leak at the face seal provide significantly less protection. OSHA requires fit-testing initially and every six months for employees required to wear a negative pressure respirator for protection against asbestos, or for individuals exposed at or above the OSHA-specified limits.

A respirator's effectiveness is also influenced by how it is handled, cleaned, and stored. Custodial and maintenance staff should clean their respirators after each use, and disinfect their respirators at the end of a day's use. This improves comfort, and also reduces the chances of skin irritation or infection. After cleaning the respirator, custodial and maintenance staff should place the respirator (with the worker's name) in a clean and sanitary location and store the unit in a secure place for future use. Respirators should be visually inspected by the user before and after each use, during cleaning and at least monthly when not in use. Inspection records should be maintained accordingly. When the respirator's high-efficiency filters are discarded, they should be disposed of as asbestos waste.

APPENDIX F

Existing EPA Guidance for Each Step That a Building Owner May Take to Control ACM

Action	Existing EPA Guidance/Regulations*
Appoint Asbestos Program Manager and Develop an Organizational Policy.	"Guidance for Controlling Asbestos-Containing Materials in Buildings" ("Purple Book") EPA publication number: 560/5-85-024
Inspect the facility to determine if ACM is present. Take bulk samples of suspect ACM and assess the material's condition.	"Guidance for Controlling Asbestos-Containing Materials in Buildings" ("Purple Book", chapter 2) EPA publication number: 560/5-85-024 "Simplified Sampling Scheme for Surfacing Materials" ("Pink Book") EPA publication number: 560/5-85-030a "Asbestos-Containing Materials in Schools; Final Rule and Notice" (Asbestos Hazard Emergency Response Act, or AHERA). <i>Federal Register</i> —October 30, 1987. (sections 763.85 to 763.88) Model training course materials for accrediting asbestos building inspectors in accordance with AHERA (inspection/assessment materials).
Establish an O&M program.	"Purple Book", Chapter 3 AHERA regulations, sections 763.91 and 763.92 EPA Guidance for Service and Maintenance Personnel. EPA publication number 560/5-85-018
Implement and Conscientiously Manage the O&M Program; Assess the Potential for Exposure to Asbestos and Select Response Actions.	"Purple Book", Chapter 4 Model training course materials for accrediting asbestos management planners in accordance with AHERA (assessment materials). AHERA regulations, section 763.88 and 793.92
Select and Implement Abatement Actions Other Than O&M When Necessary.	"Purple Book", Chapter 6 AHERA regulations, section 763.93 (including 763.85 through 763.92) AHERA regulation, appendix A; Determining Completion of Response Actions-Methods. "Abatement of Asbestos-Containing Pipe Insulation" U.S. EPA; Asbestos-in-Buildings Technical Bulletin 1986-2. U.S. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Regulations (40 CFR 61) Model training course materials for accrediting asbestos management planners in accordance with AHERA (assessment materials).

*Most of these guidance materials are available through EPA's TSCA Assistance Hotline, at (202) 554-1404.

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APPENDIX G:

Sample List of Suspect Asbestos-Containing Materials

- Cement Pipes
- Cement Wallboard
- Cement Siding
- Asphalt Floor Tile
- Vinyl Floor Tile
- Vinyl Sheet Flooring
- Flooring Backing
- Construction Mastics (floor tile, carpet, ceiling tile, etc.)
- Acoustical Plaster
- Decorative Plaster
- Textured Paints/Coatings
- Ceiling Tiles and Lay-in Panels
- Spray-Applied Insulation
- Blown-in Insulation
- Fireproofing Materials
- Taping Compounds (thermal)
- Packing Materials (for wall/floor penetrations)
- High Temperature Gaskets
- Laboratory Hoods/Table Tops
- Laboratory Gloves
- Fire Blankets
- Fire Curtains
- Elevator Equipment Panels
- Elevator Brake Shoes
- HVAC Duct Insulation
- Boiler Insulation
- Breeching Insulation
- Ductwork Flexible Fabric Connections
- Cooling Towers
- Pipe Insulation (corrugated air-cell, block, etc.)
- Heating and Electrical Ducts
- Electrical Panel Partitions
- Electrical Cloth
- Electric Wiring Insulation
- Chalkboards
- Roofing Shingles
- Roofing Felt
- Base Flashing
- Thermal Paper Products
- Fire Doors
- Caulking/Putties
- Adhesives
- Wallboard
- Joint Compounds
- Vinyl Wall Coverings
- Spackling Compounds

NOTE: This list does not include every product/material that may contain asbestos. It is intended as a general guide to show which types of materials may contain asbestos.

APPENDIX H:

References

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FEB 23 1990

MEMORANDUM

SUBJECT: Clarification of EPA NESHAP Policy Nonfriable ACM

FROM: Jack R. Farmer, Director
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John S. Seitz, Director
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Associate Enforcement Counsel for Air Enforcement (LE-134A)

TO: See Below

This memorandum clarifies the requirements of the Asbestos NESHAP regarding nonfriable asbestos containing material (ACM), such as floor tile, roofing material, packing, and gaskets.

BACKGROUND

The issue of friability and the intent of the original standards for demolition and renovation activities have been the source of many questions and comments. In recent months, we have spent considerable time discussing this issue and reviewing subsequent interpretations of the standards. The rulemaking proposed on January 10, 1989 only addresses administrative changes or clarifications to the original standards. Thus, the final rulemaking can not result in a change that would affect the stringency of the original standards.

In the original rule, published in 1973, a distinction was made between building materials that would release a significant amount of asbestos fibers and materials that would not. Floor tile, roofing material, packings, and gaskets were identified as materials that would not release significant amounts of fiber when disturbed. The term "friable" was used to make this distinction. In December 1985, we issued a determination which stated that if nonfriable ACM could be damaged to the extent that it would be crumbled, pulverized, or reduced to powder, it should be removed prior to demolition. The 1985 determination was intended to affect only practices and ACM that could result in the release of significant quantities of asbestos. While it was unclear whether this determination was intended to affect ACM such as floor tile, roofing material, packings and gaskets that are not friable, some delegated enforcement agencies were inferring this material must be removed prior to demolition to ensure compliance with the NESHAP.

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Although no research has been conducted on the conditions which will cause nonfriable materials to become friable, it is considered probable that some conditions (e.g. severe weathering, prolonged exposure to harsh chemicals) will cause this effect. Furthermore, certain practices such as burning, sanding, or grinding could crumble, pulverize, or reduce to powder nonfriable ACM.

POLICY

Therefore, we recommend the following approach:

- Floor tile, roofing material, packing, and gaskets (normally nonfriable ACM) must be inspected before demolition to determine if the ACM is in poor condition, indicated by peeling, cracking, or crumbling of the material. If normally nonfriable ACM is in poor condition, then the material must be tested for friability. If the ACM is friable, it must be handled in accordance with the NESHAP. The above four nonfriable ACM should be removed before demolition only if they are in poor condition and are friable.

- If the nonfriable ACM is subjected to sanding, grinding, or abrading as part of demolition or renovation, then the nonfriable ACM must be handled in accordance with the NESHAP. If a building is demolished by burning, all ACM must be removed prior to the demolition.

We believe that this approach is consistent with the original rule and the 1985 interpretation.

PLANNED FUTURE ACTION

After passage of Title III of the new Clean Air Act amendments we intend to review the asbestos NESHAP. This will allow us to further consider appropriate changes to this NESHAP.

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