

GAO

Fact Sheet for the Honorable
John J. LaFalce, House of
Representatives

January 1992

TOXIC SUBSTANCES

Information on Costs and Financial Aid to Schools to Control Asbestos



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**Resources, Community, and
Economic Development Division**

B-246191

January 15, 1992

The Honorable John J. LaFalce
House of Representatives

Dear Mr. LaFalce:

Airborne asbestos fibers have been shown to cause lung cancer and other serious respiratory diseases. The Environmental Protection Agency (EPA) estimates that over 760,000 public and commercial buildings nationwide contain asbestos in a condition that potentially could be released into the air. Of these, about 30,000 are schools where as many as 15 million children and 1.4 million employees may be exposed to asbestos.

In response to your request and subsequent discussions with your office, this fact sheet presents information on federal requirements to ensure that school children and employees are not exposed to dangerous levels of asbestos fibers in the air during asbestos-abatement work. In addition, on the basis of a sample of 15 school districts in 5 states—Illinois, New Jersey, New York, Ohio, and Pennsylvania—this fact sheet addresses actions the school districts have taken to deal with the problems of asbestos, including (1) whether the schools are removing asbestos-containing material or managing it in place, (2) what the costs to schools are and how much financial assistance they have received to abate asbestos, and (3) whether the school districts are using the same firms to develop asbestos management plans and perform the abatement work, which raises questions about the potential for a conflict of interest. EPA provided us with information on nationwide asbestos-related school costs and available federal financial assistance and on federal safety requirements for asbestos-abatement work. (See sec. 1 for more details on our scope and methodology.)

In summary, regarding federal safety requirements for asbestos, three federal laws, with accompanying regulations, are applicable to schools. EPA's standards under the Clean Air Act prescribe work practices for the removal and disposal of asbestos during the demolition and major renovation of public and commercial buildings, including schools.¹ Under the Occupational Safety and Health Act of 1970, the Occupational Safety and Health Administration (OSHA) issued construction and general industry standards that set permissible exposure limits for workers and other

¹We are performing a concurrent review that addresses asbestos standards under the Clean Air Act. A report is scheduled to be released in early 1992.

employees and establish mandatory requirements if the limits are exceeded. EPA extended these standards to public employees under its worker protection rule. The Asbestos Hazard Emergency Response Act of 1986 (AHERA) requires the use of accredited persons to perform abatement work and the collection of air samples to monitor for residual asbestos fibers.

Officials from the 15 school districts we visited said that their districts had removed asbestos. Among the reasons given for asbestos removal by officials from 13 of the districts were that asbestos was an imminent hazard (in a condition that could result in fibers' being released into the air), their management plan recommended removal, or renovations and demolitions were being performed. Officials from the other two school districts cited a preference for removing asbestos because they did not want to manage it in place.

No comprehensive study exists on the total cost to schools nationwide for asbestos management, control, and abatement response actions. The only nationwide data we identified in our review came from a 1987 EPA analysis of the regulatory impact of the final AHERA regulations. As part of the study, EPA estimated that it would cost about 107,000 potentially affected public and private primary and secondary schools \$3.1 billion over a 30-year period to comply with requirements established under AHERA for asbestos management. EPA's estimate did not include costs for activities such as removing asbestos that can be crumbled or reduced to powder by hand pressure prior to demolitions or for other abatements that EPA believes schools would incur even without AHERA's implementation.

We asked officials from the 15 school districts we contacted to estimate their asbestos abatement costs. The estimated abatement costs from 1988 to mid-1990 for the school districts totaled about \$28 million. During the same period, these 15 school districts received a total of \$142,000 in federal assistance. EPA data show that, nationwide, schools apply for substantially more financial assistance than is available under EPA's asbestos-in-schools loans and grants program.

We found that 14 of the 15 school districts had employed a different contractor to prepare the asbestos management plan and to perform the abatement work. The district that had used the same contractor for both the plan and the work had used competitive bidding to award the

abatement contract, thus minimizing an opportunity for a conflict of interest.

Federal Safety Requirements

Various federal laws and regulations applicable to schools are designed to protect workers and other building occupants from exposure to asbestos fibers when abatement work is being performed. Specifically, EPA standards under the Clean Air Act prescribe work practices for the removal and disposal of asbestos during the demolition and major renovation of public and commercial buildings, including schools. OSHA construction industry and general industry standards and EPA's worker protection rule set permissible exposure limits for workers and other employees and establish mandatory requirements if the limits are exceeded. These requirements include using respirators and protective clothing, establishing regulated areas where respirators must be provided and certain activities are prohibited, posting danger signs, using engineering controls and specific work practices, and providing medical examinations.

EPA regulations under AHERA provide additional safety controls specifically for schools. These regulations require schools to, among other things, use EPA-accredited persons to perform asbestos abatement procedures and, after completion of the abatement project, have a qualified person collect air samples to monitor for residual asbestos fibers. (See sec. 2 for more information on these safety requirements.)

Asbestos Removal or In-Place Management

The uncontrolled or improper removal of asbestos-containing materials can release asbestos fibers into the air, creating a potential health problem where one may not have existed before. For this reason, EPA requires asbestos removal only during building demolition or major renovation, when the asbestos would be substantially disturbed if not removed first. Otherwise, EPA recommends that asbestos be managed in place, which involves (1) periodic inspection and surveillance of the condition of asbestos-containing materials and (2) various abatement actions, such as enclosure, encapsulation, or removal if the asbestos is damaged or deteriorates over time.

In a June 1991 study, EPA reported that about 90 percent of the response actions recommended in schools' management plans involve managing asbestos in place, while the remaining 10 percent involve removals.

Officials from the 15 school districts we visited told us that their districts had removed some asbestos. Among the reasons given for asbestos removal by officials from 13 of the districts were that asbestos was an imminent hazard, their management plan recommended removal, or renovations or demolitions were being performed. Officials from the other two school districts cited a preference for removing all asbestos because they did not want to manage it in place. (See sec. 3 for more information on removing and managing-in-place options for dealing with asbestos.)

Costs and Financial Assistance

A complete and current estimate of the cost to address asbestos in schools is not available. However, in 1987 EPA estimated that AHERA regulations requiring initial inspection, development of a management plan, periodic surveillance and reinspection, special operation and maintenance procedures, and abatement response actions would cost schools \$3.1 billion over a 30-year period. Not included in the estimate were asbestos-related activities that EPA believed the schools would incur anyway. For example, asbestos removal during building demolition and renovation were already required under the Clean Air Act to prevent major fiber releases into the air.

Financial assistance for asbestos abatement is available to needy schools under the Asbestos School Hazard Abatement Act of 1984, which was reauthorized in 1990. However, such financial assistance does not meet the needs expressed by school district applicants. For example, in 1988 through 1991, qualified applications were received for financial assistance totaling \$599 million. Of these, EPA awarded \$157.3 million to 586 school districts. EPA is aware of the shortfall in federal assistance but believes that these costs should be borne by state and local governments.

Officials from the school districts we visited told us that they funded asbestos-abatement projects through either bond issues, their capital budgets, or operating budgets. Some officials said that they had to defer or delay maintenance or capital improvements because of asbestos-abatement projects. One official said that renovation projects in his district were delayed because the asbestos had to be abated before the renovation could be completed, and another official said that asbestos-abatement projects delayed the purchase of computers and video equipment for his district. (Sec. 4 contains information on asbestos costs and financial assistance to schools.)

Potential for Conflict of Interest

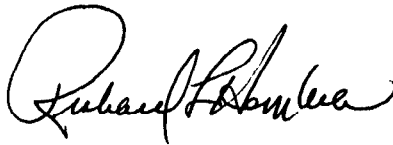
Officials in 14 of the 15 school districts we visited told us that their management planners, who inspected for asbestos-containing materials and recommended abatement actions needed, did not perform abatement work for the schools. The other school district said that the management planner did perform some small abatement jobs. However, this school district and 13 of the other 14, used competitive bidding to award abatement contracts. The remaining school district told us that it works with a single contractor for all abatement jobs.

We discussed the results of our work with officials representing EPA's Office of Toxic Substances, who generally agreed with the information presented. However, as requested, we did not obtain written agency comments on a draft of this fact sheet.

As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this fact sheet until 15 days after the date of this letter. At that time, we will provide copies to the Administrator of EPA; the Director, Office of Management and Budget; appropriate congressional committees; and other interested parties. We will make copies available to others on request.

If you or your staff have any questions, please contact me on (202) 275-6111. Major contributors to this fact sheet are listed in appendix I.

Sincerely yours,



Richard L. Hembra
Director, Environmental
Protection Issues

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Abbreviations

ACM	asbestos-containing material
AHERA	Asbestos Hazard Emergency Response Act
ASHAA	Asbestos School Hazard Abatement Act
EPA	Environmental Protection Agency
GAO	General Accounting Office
OSHA	Occupational Safety and Health Administration

Background

Airborne asbestos fibers have been shown to cause lung cancer and other serious respiratory diseases. About 30,000 schools nationwide contain friable asbestos (asbestos that can be crumbled or reduced to powder by hand pressure). Fibers can be released into the air when asbestos in this condition is damaged or disturbed, perhaps adversely affecting the health of building workers, students, teachers, and other building occupants.

Asbestos and Its Use in Buildings

Asbestos is a naturally occurring mineral found in deposits throughout the world. When mined and processed, it typically separates into very thin fibers that are strong, will not burn, resist corrosion, and insulate well. These characteristics made asbestos a popular commercial building product. In the United States, asbestos commercial use began in the early 1900s and peaked between World War II and the 1970s.

Asbestos-containing material (ACM) in buildings usually can be classified in the following categories:

- **Surfacing material:** ACM sprayed or troweled onto surfaces, such as decorative plaster on ceilings; acoustical ACM on the underside of concrete slabs or decking; or fireproofing materials on structural members.
- **Thermal system insulation:** ACM applied to pipes, boilers, tanks, and air conditioning and heating ducts to prevent heat loss or gain or condensation.
- **Miscellaneous ACM:** Including asbestos-containing ceiling or floor tiles, textiles, and other components, such as asbestos-cement panels, asbestos siding, and roofing materials.

The Environmental Protection Agency (EPA) and others distinguish between friable and nonfriable forms of ACM. If disturbed, both kinds can release fibers into the air, where they can remain for hours because they are so small and light. However, friable ACM is thought to release fibers into the air more readily than nonfriable ACM. The fibrous or fluffy asbestos materials sprayed on the surfaces of many buildings for fireproofing, insulating, or decorating purposes are generally considered friable. Some materials, like vinyl asbestos floor tiles, are unlikely to emit airborne fibers unless subjected to sanding or cutting operations.

Four alternative abatement techniques or options are currently used to prevent or reduce the release of asbestos fibers in schools and other buildings: (1) an operations and maintenance plan or in-place

management, (2) encapsulation, (3) enclosure, and (4) removal. An operations and maintenance plan involves periodic reinspection of ACM that is in good condition. Encapsulation involves sealing asbestos with tape or other sealants to prevent the release of friable materials. Enclosure involves the construction of an airtight, impermeable barrier to prevent the release of asbestos fibers. Removal involves taking ACM out of a building in a manner that prevents disturbance of asbestos fibers or their release into the air.

Health Problems Caused by Asbestos

Asbestos fibers can cause serious health problems. Specific diseases that have been linked to asbestos exposure are (1) lung cancer; (2) asbestosis, a fibrous scarring of the lungs which makes breathing progressively more difficult and can lead to death; and (3) mesothelioma, a cancer of the lining of the chest or abdominal cavity, which almost never occurs without exposure to asbestos and is currently incurable. These diseases do not develop immediately after inhalation of asbestos fibers, and symptoms may not appear for 20 years or more.

In general, the more asbestos fibers a person inhales, the more he or she risks developing an asbestos-related disease. Thus far, most of the 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 high levels of asbestos in the air. These employees worked directly with asbestos materials on a regular basis and for long periods of time. Currently, concern is growing for the health and safety of construction, renovation, and building maintenance personnel, who may be exposed periodically on the job to elevated levels of asbestos fibers when they work on asbestos-containing materials.

A September 1991 study¹ performed by the Health Effects Institute-Asbestos Research² found that there does not appear to be sufficient justification, based on risk to the health of building occupants, to arbitrarily remove intact ACM in good condition from well-maintained buildings. According to the Institute, measures to control the release of

¹Asbestos in Public and Commercial Buildings: A Literature Review and Synthesis of Current Knowledge, *Health Effects Institute-Asbestos Research* (1991).

²The Institute is an independent, nonprofit organization formed to support research to determine airborne asbestos exposure levels in buildings, to characterize peak exposures and their significance, and to evaluate the effectiveness of asbestos management and abatement strategies. The Institute is operating under congressional mandate.

asbestos fibers from the disturbance of ACM, dust, or debris should be employed routinely where needed during the operation and maintenance of buildings, and the uncontrolled disturbance of ACM should be avoided whenever possible.

Federal Legislation and Regulations

In October 1986, the Asbestos Hazard Emergency Response Act of 1986 (AHERA), P.L. 99-519, was enacted into law. The act's provisions include directing EPA to establish regulations on identifying, evaluating, and controlling ACM in schools. The regulations, which became effective on December 14, 1987, require that all public and private elementary and secondary schools (kindergarten through grade 12) inspect for both friable and nonfriable asbestos, submit management plans to state governors or designated agencies, and implement response or control actions. Schools were given until October 12, 1988 (unless they requested a deferral to May 9, 1989) to submit their management plans. States then had 90 days to approve or disapprove them. The plans were required to go into effect on or before July 9, 1989. In September 1991, EPA completed a survey that determined that approximately 98 percent of about 40,000 public school districts and private schools that were required to complete asbestos inspections and develop management plans had done so.

The regulations also require schools to conduct surveillance and reinspect every 6 months to monitor the condition of any ACM remaining in schools. In addition, schools must have an accredited inspector reinspect and reassess the condition of any remaining ACM every 3 years and determine whether the condition of the materials requires a new response. Schools that previously conducted inspections consistent with AHERA regulations and determined that no ACM was present were exempted from the reinspection requirements. Schools built after October 12, 1988, are also exempt if an architect, project engineer, or accredited inspector certifies that no ACM has been specified for use in construction documents.

Federal assistance in the form of either a grant, an interest free loan, or some combination of both is available to schools for asbestos-abatement projects under the Asbestos School Hazard Abatement Act (ASHAA), which was enacted in August 1984 and subsequently reauthorized in 1990. In administering the program, EPA awards funds to schools considered to have serious asbestos problems and demonstrated financial need. From its inception in 1985 to 1991, about \$291.5 million has been awarded under the program.

Objectives, Scope, and Methodology

Representative John J. LaFalce, concerned about the potential adverse health effects of asbestos in schools and the costs the schools will incur in dealing with asbestos, asked us to provide information on asbestos abatement in schools. As agreed with his office, the information provided in this fact sheet is based on interviews we conducted with officials from 15 school districts in 5 states, discussions with EPA officials, and a review of pertinent documents and reports. Specifically, we agreed to furnish information on the following:

- Federal safety requirements, including air monitoring, to protect school building occupants from exposure to asbestos fibers during abatement projects.
- Whether the selected school districts are managing asbestos in place or removing it, the reasons they choose removal when they do, and the role EPA plays in the school districts' decision-making process.
- Asbestos-abatement costs and funding, including (1) the 15 selected school districts' costs for asbestos-abatement projects from 1988 through mid-1990, as obtained in our interviews; (2) the source of the school districts' funding for these projects; (3) the amount of overall federal funding that was available in 1988 through 1991 to assist school districts; (4) the amount of federal and state funding received by the selected school districts; (5) whether the school districts need more financial assistance; and (6) EPA's estimate of the total costs of managing or removing asbestos in schools and the basis for the estimate.
- The extent to which the firms conducting asbestos inspections at the school districts also performed the asbestos-abatement services, thus providing an opportunity for a conflict of interest. Also, the extent that competitive bidding for asbestos removal work was used by the districts.

The information we obtained on the amount of financial assistance received from the federal or state governments, the schools' decisions to remove asbestos or manage it in place, and the potential for a conflict of interest among the firms preparing management plans and performing abatement work at schools is based on structured interviews that we conducted with 15 school districts (3 each in Illinois, New Jersey, New York, Ohio, and Pennsylvania). These interviews were conducted from May through August 1990. At each school district, we interviewed the official responsible for asbestos-abatement activities.

In our interviews, we also obtained information on the costs the school districts incurred for asbestos abatement for 1988 and 1989. In addition,

Section 1
Background

we obtained information on abatement costs during the first several months of 1990. In this regard, we conducted interviews during May through August of 1990, and some of the districts provided us with cost data inclusive of January through May while others provided cost data through August.

To avoid imposing a burden on the school districts to research and summarize actual costs, we asked the school district officials to estimate their asbestos abatement costs for the period 1988 through mid-1990. It appears that some school districts provided actual costs, while others estimated their costs. We did not verify the information provided.

To select the sample of school districts in each state, we reviewed EPA Regions II, III, and V inspection files, identifying school districts that had recently abated asbestos, and we obtained directories of school districts and samples of press coverage of districts abating asbestos. We then selected a cross-section of school districts on the basis of their size, urban and rural characteristics, geographic location, and receipt of federal asbestos funding. We did not use a statistically valid sample that can be projected to the universe of public and private schools.

During the period July through September 1991, we obtained information on the amount of federal funding available in 1988 through 1991 to assist the school districts with asbestos abatement, EPA's estimate of the total costs of managing or removing asbestos in schools and the basis for this estimate, and the safety requirements for abatement in schools. To obtain the information, we talked with officials of EPA's Environmental Assistance Division, Office of Toxic Substances, and reviewed pertinent documents and reports.

We discussed the information contained in this fact sheet with responsible EPA officials. These officials generally agreed with the facts presented, and their views have been incorporated in the report where appropriate. As requested, we did not obtain official agency comments on a draft of this fact sheet.

Asbestos Safety Requirements for Schools

Various federal laws and regulations help provide protection against exposure to airborne asbestos fibers during asbestos-abatement work. Under the Clean Air Act, EPA has issued national emission standards for asbestos. These standards establish control procedures and work practices to be followed by building owners and contractors during the major renovation and demolition of public and commercial buildings, including schools, that contain asbestos. These requirements, such as keeping asbestos-containing material wet until sealed in a leak-tight container, are designed to prevent visible emissions to the outside air.

The Occupational Safety and Health Administration (OSHA) has established standards to protect workers from asbestos. The OSHA construction industry standards for asbestos generally apply to workers who carry out demolition, removal, encapsulation, repair, maintenance, alteration, and renovation work if asbestos is involved. OSHA's general industry standards generally apply to other employees in the building when asbestos work is being done. EPA's worker protection rule covers public sector employees, such as city or county government employees and certain school employees that are not covered by the OSHA standards or a state standard.

The OSHA standards and EPA's worker protection rule establish permissible exposure limits to airborne asbestos fibers that trigger mandatory requirements if air monitoring determines that these levels are exceeded. These requirements include using respirators and protective clothing, establishing regulated areas, posting danger signs, and using engineering controls and specific work practices. Worker training and medical surveillance may also be required under OSHA's construction industry standards. OSHA also requires medical examinations under the general industry standards for other employees receiving certain levels of exposure.

Public and private elementary and secondary schools must follow additional safety requirements under the AHERA regulations. AHERA operations and maintenance requirements provide for the cleanup of any asbestos releases and help ensure the general safety of school maintenance and custodial workers, as well as all other school building occupants, by mandating specific work practices. Under AHERA, the following are also included:

- At the conclusion of any action to remove, encapsulate, or enclose ACM, a person designated by the school district must visually inspect the area

where an abatement action has taken place to determine whether the action was completed properly.

- School districts must have a qualified person collect air samples to monitor for residual asbestos levels. These air samples must be sent to accredited laboratories that follow mandatory methods for analysis.
- School districts must use EPA-accredited persons to perform all abatement procedures, including inspecting the school for ACM, preparing a management plan, designing the abatement action, and performing and supervising the abatement work.

Options for Reducing Asbestos Exposure: Asbestos Removal or In-Place Management

The complete removal of ACM appears to be the only certain way to ensure that asbestos fibers will not be released into the air at some future date. However, according to EPA, ACM removals, by their nature, tend to elevate the airborne level of asbestos fibers, which must be carefully controlled during the removal process. Thus, an ill-timed or poorly conducted removal can make asbestos a problem when it was not a problem before. EPA requires ACM removal only when needed to prevent significant public exposure to airborne fibers during building demolition or renovation activities.

According to EPA, when ACM in buildings is properly managed, the 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. Managing asbestos in place involves regular reinspection and periodic surveillance of the material's condition. It also involves controls and procedures to help ensure that maintenance work does not disturb the asbestos and procedures to address the hazard when moderate to relatively large amounts of ACM are disturbed. If asbestos is damaged or disturbed, or its condition deteriorates over time, abatement in the form of encapsulation, enclosure, or removal may be needed to prevent or reduce the release of asbestos fibers.

EPA recommends managing asbestos in place whenever it is discovered in a building. EPA officials said that the Agency has taken various actions to communicate this position to the schools, including mailing its new guidance document Managing Asbestos in Place, and sending an advisory on asbestos to about 43,000 public school districts and private schools in the fall of 1990 and in March 1991, respectively. The advisory emphasized EPA's recommendation to manage asbestos in place. We surveyed 15 school districts about a year before EPA sent out its advisory. Eight believed that EPA preferred that they manage asbestos in-place, three believed that EPA preferred that they remove the asbestos, and four were unsure of what EPA preferred.

In EPA's June 1991 report on AHERA, EPA said that about 90 percent of the response actions recommended in the management plans of the nation's schools involve managing asbestos in place, while the remaining 10 percent involve removals. EPA also pointed out that about 16 percent of school buildings have already had full or partial asbestos removals.

Section 3
Options for Reducing Asbestos Exposure:
Asbestos Removal or In-Place Management

At the time of our visits, the officials from all of the 15 school districts said that their districts had removed asbestos. Among the reasons given for asbestos removal by officials from 13 of the districts were that asbestos was an imminent hazard (in a condition that could result in fibers' being released into the air), their management plan recommended removal, or renovations and demolitions were being performed. The other two school districts cited a preference for removing asbestos because they did not want to manage it in place.

Asbestos Costs and Federal Assistance Available to Schools

No comprehensive study exists on the total cost to schools nationwide to manage, control, and abate asbestos. However, from the data that are available, it is clear that asbestos abatement can be costly. For example, the schools' requests for federal assistance for asbestos abatement substantially exceed the funding available under the Asbestos School Hazard Abatement Act program. EPA is aware of this funding shortfall but believes that the costs should be borne at the state and local levels.

Available Cost Estimates Are Outdated or Incomplete

In 1987, EPA estimated that it would cost schools \$3.1 billion over 30 years to implement AHERA. EPA's estimate included the cost of (1) initial inspection and air sampling, (2) development and implementation of management plans, (3) periodic surveillance, (4) reinspection, (5) special operations and maintenance, and (6) abatement response actions. According to the estimate, the major asbestos-related costs to individual schools would be for inspection (\$1,100 to \$1,600), special operations and maintenance (\$3,800 to \$5,100 per year), development of a management plan (\$1,000 to \$1,400), and response actions for which the costs would vary considerably depending on project size and the response action taken. The estimates did not include costs for asbestos-related activities that EPA believed the schools would incur without implementing AHERA. These costs include asbestos removal that would occur even if AHERA had not been enacted and the costs of removing friable asbestos prior to demolition, as required by EPA's national emission standards for asbestos under the Clean Air Act.

Another estimate that we identified suggests that the costs may be higher. During 1988 and 1989, the New York State Coalition of Small City School Districts conducted a survey of asbestos cost estimates for its 57-member school districts. The survey attempted to capture the costs of executing management plans and ordinary operations and maintenance related to asbestos. The Coalition used the cost estimates from the 57 small school districts to project the costs for all of the 731 school districts in the state, excluding New York City. The Chairman of the Coalition said New York City was excluded from the estimate because the Coalition was not able to project the former's asbestos costs. According to the Chairman, by extrapolation, the survey concluded that it will cost the state of New York, excluding New York City, over \$2 billion to implement management plans and manage asbestos in-place. The study did not specify the time frame for performing the work.

Federal Assistance

According to EPA officials, from 1985 through 1991, EPA made loans or grants under ASHAA in excess of \$290 million. This assistance went to more than 1,100 school districts for more than 2,600 abatement projects in approximately 1,900 school buildings. An EPA official said that despite the fact that EPA has never requested program funding, the Congress appropriated funds for each of the 7 years of the program. EPA believes that decisions on the management of asbestos, including the funding of abatement programs, are most appropriately handled at the state or local level. According to EPA, federal funding is not a necessary component of the asbestos-abatement program, since the regulations require local school districts to take the appropriate abatement actions.

During the 4-year period from 1988 through 1991, EPA received 2,707 applications for ASHAA loans and grants. After EPA reviewed the requests, it determined that 1,746 applicants were qualified to receive \$599 million in funding under the program. EPA awarded \$157.3 million to 586 school districts that it considered to have the worst asbestos problems. Table 4.1 shows the number and total dollar amount of funding requests, the total qualified applicants, and the number of school districts and funding received in each of the 4 years.

**Section 4
Asbestos Costs and Federal Assistance
Available to Schools**

Table 4.1: ASHAA Loans and Grants Requested and Awarded by EPA in 1988-91

Dollars in millions

	Year				Total
	1988	1989	1990	1991	
Total applications					
Number of applications submitted	328	1,110	863	406	2,707
Total funding requested	\$170.3	\$367.7	\$403.0	\$230.5	\$1,171.5
Total qualified applications based on EPA's review					
Number of qualified applications	185	682	633	246	1,746
Total funding requested for qualified applications	\$ 79.0	\$123.2	\$262.2	\$134.6	\$ 599.0
Total awards of funding					
School districts receiving funds	103	231	129	123	586
Loans	\$ 15.4	\$ 25.4	\$29.8	\$33.5	\$ 104.1
Grants	\$ 7.2	\$ 19.6	\$13.6	\$12.8	\$ 53.2
Total federal funding	\$ 22.6	\$ 45.0	\$43.4	\$46.3	\$ 157.3
Awards of funding as a percentage of funding requested					
For total applications	13	12	11	20	13
For qualified applications	29	37	17	34	26

Source: GAO, based on EPA's data.

Table 4.2 shows the ASHAA funding requested and received by school districts in Illinois, New Jersey, New York, Ohio, and Pennsylvania in 1988 through 1991. All the states requested substantially more funds than they received.

**Section 4
Asbestos Costs and Federal Assistance
Available to Schools**

Table 4.2: Total Qualified ASHAA Funding Requested and Received by the Five States in 1988-91

Dollars in millions

State	Funding requested				Funding received			
	1988	1989	1990	1991	1988	1989	1990	1991
Ill.	\$35.4	\$43.3	\$71.0	\$62.6	\$4.0	\$9.2	\$13.7	\$16.1
N.J.	4.8	1.8	6.2	1.0	.7	.2	.8	.3
N.Y.	11.2	14.3	32.8	6.9	3.6	1.6	3.3	1.4
Ohio	15.9	31.6	29.3	7.2	4.4	3.4	2.2	1.5
Pa.	10.8	22.9	16.2	4.2	.5	1.7	.3	.7
Total	\$78.1	\$113.9	\$155.5	\$81.9	\$13.2	\$16.1	\$20.4^a	\$19.9^a

^aNumbers do not add to total because of rounding.

Source: Environmental Protection Agency.

Selected School Districts' Estimated Asbestos Costs and Assistance

During our survey of selected school districts, we asked officials to estimate their districts' costs for asbestos abatement for the period 1988 through mid-1990. The data provided by these officials indicated that the districts' total abatement costs were about \$28 million during the period. The individual district-estimated costs ranged from a low of around \$36,000 to a high of \$12 million, with an average estimated cost of almost \$1.9 million per district.

Although we did not verify the information provided by district officials, we noted that, in estimating their abatement costs, some districts may have included costs, such as engineering costs and consultant fees, that other districts may not have included. In addition, a major factor in abatement costs can be whether a school district removes asbestos or uses abatement techniques, such as encapsulation or enclosure. All 15 school districts had performed some removals as part of their abatement activities during the period covered by our survey. Table 4.3 shows these estimated asbestos-abatement costs for the 15 school districts by the state in which they are located.

**Section 4
Asbestos Costs and Federal Assistance
Available to Schools**

**Table 4.3: 15 School Districts'
Estimated Asbestos-abatement Costs
From 1988 to Mid-1990, by State**

Dollars in millions	
Location of school district ^a	Estimated asbestos-abatement cost
Illinois	\$2.4
New Jersey	.9
New York	2.4
Ohio	9.6
Pennsylvania	12.9
Total	\$28.2

^aWe surveyed three school districts for each of the states.

The school district officials also told us that their districts received a total of more than \$142,000 in ASHAA funding and \$213,000 in state funding during the 1988 through mid-1990 period. Of the 15 school districts, officials from 3 said that they received ASHAA funding during the period, officials from 4 said that they applied for but did not receive any ASHAA funding, and officials from 8 said that they did not apply for or were not eligible to receive funding.

The officials also told us that they funded asbestos-abatement projects through either bond issues, their capital budgets, or operating budgets. Some officials said that they had to defer or delay maintenance or capital improvements because of asbestos-abatement projects. One official said that renovation projects in his district were delayed because the asbestos had to be abated before the renovation could be completed, and another official said that asbestos-abatement projects delayed the purchase of computers and video equipment for his district.

Major Contributors to This Fact Sheet

**Resources,
Community, and
Economic
Development Division,
Washington, D.C.**

**Peter F. Guerrero, Associate Director
Edward A. Kratzer, Assistant Director
Raymond H. Smith Jr., Assignment Manager
Frank J. Gross, Evaluator-in-Charge
Rebecca L. Johnson, Evaluator**

**Philadelphia Regional
Office**

**Richard E. Schultz, Regional Assignment Manager
Lisa A. DiChiara, Advisor**

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