

LEG. FINANCE - BILLS 1985 - 1986 2291

SSHB 5 cont. 2291

1 * Sec. 3. This Act does not apply to work involving asbestos or the
2 abatement of asbestos health hazards underway on October 1, 1985.

3 * Sec. 4. This Act takes effect October 1, 1985.
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STATE OF ALASKA 1985 LEGISLATIVE SESSION
FISCAL NOTE

Revision Date: _____

REQUEST
Bill/Resolution No.: CSSS for HB5 (Fin) am
Title: "An Act relating to asbestos health hazard abatement"
Sponsor: Rep. Gruenberg
Requestor: Senate Labor & Commerce
Date of Request: 4/8/85

FISCAL DETAIL
Agency Affected: Labor
Program Category Affected: Public Protection
BRU, Program or Subprogram(s) Affected: Occupational Safety & Health

EXPENDITURES/REVENUES: (Thousands of Dollars)

	FY 85	FY 86	FY 87	FY 88	FY 89	FY -90
OPERATING						
100 PERSONAL SERVICES		70.7	28.3	29.4	30.4	31.4
200 TRAVEL		9.0	0	0	0	0
300 CONTRACTUAL		151.7	44.0	7.0	3.0	3.2
400 SUPPLIES		3.2	1.0	1.0	1.1	1.1
500 EQUIPMENT		14.0	0	0	0	0
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS						
800 MISCELLANEOUS						
TOTAL OPERATING		248.6	73.3	37.4	34.5	35.7

CAPITAL						
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REVENUE						
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FUNDING: (Thousands of Dollars)

GENERAL FUND		188.6	73.3	37.4	34.5	35.7
FEDERAL FUNDS		60.0				
OTHER						
TOTAL						

POSITIONS:

FULL-TIME		1	1	1	1	1
PART-TIME						
TEMPORARY		1				

ANALYSIS: Attach a separate page if necessary

The certification program will need 1 temporary industrial hygienist for 10 months to establish the program and a full-time clerk typist to handle the correspondence about the asbestos program.

The school survey program will be handled by contract employees over a two year period.

Prepared By: Robert J. Bacofas, Sr. Phone: 465-4870
Division: Labor Standards & Safety Date: 4/9/85

Approved by Commissioner: Jim Robison Date: 4/9/85
Agency: Labor

- Distribution (by Agency preparing fiscal note):
- Legislative Finance
 - Legislative Sponsor
 - Requestor
 - Office of Management and Budget
 - Impacted Agency(ies)

1.	POSITION TITLE Industrial Hygienist I			RANGE/STLP 19A	BARC. UNIT GGU	PAGE/LINE	GOV.	APPROV.	DISAP.
2.	TYPE OF POSITION Temporary	STAFF MONTHS 10	RP NUMBER	PCN NUMBER	BRU PRIORITY	LOCATION Anch.	ELECTION DISTRICT	LEG.	
3.	CONTINUATION LEVEL			ADDITION	JUSTIFICATION				
4.	TYPE OF EXPENDITURE			AMOUNT					
	1	2	3						
	PERSONAL SERVICES								
5.	Salary	33,360							
6.	Benefits	7,838							
7.	Supplemental Benefits	2,045							
8.	Fixed Benefits	0							
9.	TOTAL PERSONAL SERVICES	01	43,243						
10.	Travel	02	9,000						
11.	Contractual	03	2,000						
12.	Commodities	04	1,500						
13.	Equipment	05	4,700						
14.	Other								
15.	TOTAL COST		60,443						
<p>A temporary Industrial Hygienist will be hired for 10 months to set up the scheduling system for surveying approximately 270 school buildings and for developing guidelines and regulations for the certification program. This position will prepare the reports that will be sent to the school districts with recommendations on how to abate asbestos hazards in the buildings. This employee will also help to publicize and inform employers and other affected organizations of the asbestos certification requirements. This position may also survey some school buildings.</p> <p>Contractual costs include normal costs of \$2,000.</p> <p>Commodities include protective clothing \$1,000 and other costs \$500.</p> <p>Equipment costs include sampling pumps \$2,000, air respirator \$1,000, and other normal costs of \$1,700.</p>									
	RECEIPT CODE	FUNDING SOURCE							
16.		Federal Receipts	1002	39,644					
17.		G.F. Match	1003	9,967					
18.		General Funds	1004	10,832					
19.		I-A Receipts	1005						
20.		Program Receipts	1028						
21.		Other							
<p>FOR BGM USE ONLY</p> <p>KEY NUMBER _____</p>									

**REQUEST FOR
NEW POSITION**

AGENCY Labor

PROGRAM Public Protection

BRU Occupational Safety & Health

COMPONENT Occupational Safety & Health

Page 1 of 2

Revised Date _____

FY 86

1.	POSITION TITLE Clerk Typist III			RANGE/STEP 8B	BARG. UNIT GGU	PAGE/LINE	GOV.	APPROV.	DISAP.
2.	TYPE OF POSITION PFT	STAFF MONTHS 12	RP NUMBER	PCN NUMBER	BRU PRIORITY	LOCATION Anch	ELECTION DISTRICT	LEG.	
3.	CONTINUATION LEVEL			ADDITION	JUSTIFICATION				
4.	TYPE OF EXPENDITURE			AMOUNT					
	1	2	3						
	PERSONAL SERVICES								
5.	Salary		20,136						
6.	Benefits		3,355						
7.	Supplemental Benefits		1,234						
8.	Fixed Benefits		2,732						
9.	TOTAL PERSONAL SERVICES	01	27,457						
10.	Travel	02	0						
11.	Contractual	03	7,000						
12.	Commodities	04	1,000						
13.	Equipment	05	1,700						
14.	Other								
15.	TOTAL COST		37,157						
16.	RECEIPT CODE	FUNDING SOURCE							
17.		Federal Receipts	1002	20,356					
18.		G.F. Match	1003	5,033					
19.		General Funds	1004	11,768					
20.		I-A Receipts	1005						
21.		Program Receipts	1028						
		Other							
FOR B&M USE ONLY KEY NUMBER _____									

This position will keep track of the asbestos samples taken by the industrial hygienists and will assure that these samples are mailed to and returned from the contract laboratory. The clerk typist will take, type, and process the reports and correspondence about the asbestos program to the school districts, contractors, and Department of Education personnel who are required to be informed of the program. This position will also provide the clerical support necessary for the monitoring and evaluation of employer and employee training certification programs.

Contractual costs include normal expenses of \$7,000.

Normal commodities of \$1,000 and equipment of \$1,700 are also included.

**REQUEST FOR
NEW POSITION**

AGENCY Labor
PROGRAM Public Protection
BRU Occupational Safety & Health
COMPONENT Ocupational Safety & Health

Page 2 of 2
Revised Date _____

FY 86

STATE OF ALASKA 1985 LEGISLATIVE SESSION
FISCAL NOTE

Revision Date: _____

REQUEST

Bill/Resolution No.: CS SS HB5 (L&C)
 Title: "An act establishing an
 asbestos health hazard abatement"
 Sponsor: Gruenberg
 Requestor: House Labor & Commerce
 Date of Request: 2-11-85

FISCAL DETAIL

Agency Affected: Labor
 Program Category Affected: _____
 Public Protection
 BRU, Program or Subprogram(s) Affected:
 Occupational Safety & Health

EXPENDITURES/REVENUES: (Thousands of Dollars)

	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
OPERATING						
100 PERSONAL SERVICES		79.3	84.7	87.7	90.7	93.9
200 TRAVEL		12.0	12.0	12.7	13.5	14.3
300 CONTRACTUAL		171.9	24.8	26.3	27.9	29.5
400 SUPPLIES		4.5	1.6	1.7	1.8	1.9
500 EQUIPMENT		16.4	-0-	-0-	-0-	-0-
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS						
800 MISCELLANEOUS						
TOTAL OPERATING	-0-	284.1	123.1	128.4	133.9	139.6

CAPITAL						
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REVENUE						
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FUNDING: (Thousands of Dollars)

	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
GENERAL FUND		284.1	123.1	128.4	133.9	139.6
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	284.1	123.1	128.4	133.9	139.6

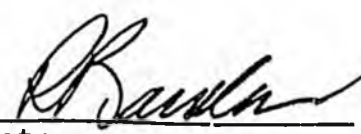
POSITIONS:

	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
FULL-TIME	-0-	2	2	2	2	2
PART-TIME	-0-					
TEMPORARY						

ANALYSIS: Attach a separate page if necessary

(See Attached)

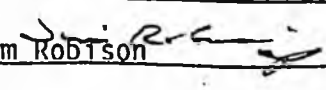
Prepared By: Robert J. Bacolas
 Division: Labor Standards & Safety



Phone: 465-4870

Date: 2/12/85

Approved by Commissioner: Jim Rodtson
 Agency: Department of Labor



Date: 2/12/85

Distribution (by Agency preparing fiscal note):
 Legislative Finance
 Legislative Sponsor
 Requestor
 Office of Management and Budget
 Impacted Agency(ies)

7/1/84

FISCAL NOTE

THE LEGISLATURE OF THE STATE OF ALASKA
FOURTEENTH LEGISLATURE

BILL/RESOLUTION NO: CS SS for HB 5 (House Labor and Commerce Committee)
TITLE: "An Act relating to establishing asbestos health hazard abatement"
AGENCY AFFECTED: Department of Labor

There are approximately 650 school buildings in Alaska. Of these buildings we know that 140 buildings have been surveyed for asbestos. This is based on information from the U.S. Environmental Protection Agency (EPA), that they have made on-site inspections for compliance with their regulations in the Juneau, Anchorage, Fairbanks, Ketchikan, Sitka and Kodiak school districts. These school districts contain approximately 140 buildings. We are estimating that of the approximately 410 other school buildings, that a third have been properly surveyed or a school district will use a private consultant to survey their buildings. We estimate therefore, that the department will be required to make physical inspections of approximately 270 buildings that have either not been surveyed or have been improperly surveyed.

It is important that these school districts survey their buildings within two years to allow them time to budget and plan for the work necessary to abate the asbestos health hazards in their school districts.

It is assumed that the responsibility for training and certification outlined in AS 18.38.030 of CS SS HB 5 (L&C) will mainly be with the employer and that the department will only be responsible for establishing training guidelines and certifying training programs.

A lead industrial hygienist, a clerk typist and monies to enter into a contract for surveying and abatement evaluation will be needed for the first year. To assure that the program is implemented without delay, we would need to hire the industrial hygienist and clerk on July 1, 1985. We estimate that it will take two months to set up the schedule for surveying schools and three months to develop the regulations and guidelines for the certification program. Because of difficulties we anticipate in hiring a full-time position for only 10 months, we would enter into a contract by September with two other health specialists to perform the majority of the surveys. It is estimated that by the end of the first year, we would survey and evaluate potential health hazards in approximately 220 of the 270 school buildings yet to be surveyed. In the first year of operation the one time special costs would include:

- Sampling Pumps (3)	\$5,000.00
- Training Films/Slides	\$4,000.00
- Air Supplied Respirators (3)	\$3,000.00
- Protective Clothing (3)	\$3,000.00
- Contract for Two Health Specialists	\$110,000.00
- Contract to Analyze the Bulk Asbestos Samples (5 per buildings)	\$38,500.00

During the second year only the hygienist and clerk would be maintained to monitor the completion of the program and to continue the certification program. These positions will also be retained in FY 88, 89, and 90 to certify, evaluate, and monitor the training programs of contractors who work with asbestos. It is assumed in FY's 88-90 that personal services costs will increase by 3.5% per year and non-personal services will increase by 6% per year.

1.	POSITION TITLE Clerk Typist III			RANGE/STEP RR	BARG. UNIT GGU	FORM 12 PAGE/LINE	COV.	APPROV.	DISAPP.
2.	TYPE OF POSITION PFT	STAFF MONTHS 12	RP NUMBER	PCN NUMBER	BRU PRIORITY	LOCATION Anch	ELECTION DISTRICT	LEG.	

3.	CONTINUATION LEVEL	ADDITION	
4.	TYPE OF EXPENDITURE		AMOUNT
	1	2	3
	PERSONAL SERVICES*		
5.	Salary	20,136	
6.	Benefits	3,355	
7.	Supplemental Benefits	1,234	
8.	Fixed Benefits	2,732	
9.	TOTAL PERSONAL SERVICES	01	27,457
10.	Travel	02	0
11.	Contractual	03	13,016
12.	Commodities	04	1,000
13.	Equipment	05	1,700
14.	Other		
15.	TOTAL COST		43,173

	RECEIPT CODE	FUNDING SOURCE	
16.		Federal Receipts 1002	
17.		G.F. Match 1003	
18.		General Funds 1004	43,173
19.		I-A Receipts 1005	
20.		Program Receipts 1028	
21.		Other	

JUSTIFICATION

This position will keep track of the asbestos samples taken by the industrial hygienists and will assure that these samples are mailed to and returned from the contract laboratory. The clerk typist will take, type, and process the reports and correspondence about the asbestos program to the school districts, contractors, and Department of Education personnel who are required to be informed of the program. This position will also provide the clerical support necessary for the monitoring and evaluation of employer and employee training certification programs.

Contractual costs include rent of \$3,600, indirect of \$2,400, and other normal expenses, including word processing of \$7,000.

Normal commodities of \$1,000 and equipment of \$1,700 are also included.

FOR B&M USE ONLY
4A KEY NUMBER _____

13 REQUEST FOR
NEW POSITION

AGENCY Labor
PROGRAM Public Protection
BRU Occupational Safety & Health
COMPONENT Occupational Safety & Health

FY 86

Page 2 of 2
Revised Date _____

LEG:F:34

1.	POSITION TITLE Industrial Hygienist I			RANGE/STEP 19A	BARG. UNIT GGU	FORM 12	PAGE/LINE	GOV.	APPROV.	DISAPT.
2.	TYPE OF POSITION PFT	STAFF MONTHS 12	RP NUMBER	PCN NUMBER	BRU PRIORITY	LOCATION Anch.	ELECTION DISTRICT	LEG.		
3.	CONTINUATION LEVEL			ADDITION	JUSTIFICATION					
4.	TYPE OF EXPENDITURE			AMOUNT	<p>As lead position of the Asbestos Health Hazard Abatement Program, this position will set up the scheduling system for surveying approximately 270 buildings and develop guidelines for the certification program. This position will survey approximately 50 buildings the 1st year and 50 buildings the 2nd year. In the second year this position would be maintained to monitor and evaluate the certification program; provide information and training to contractors, their workers, and other interested parties of the potential health hazards of asbestos.</p> <p>Contractual costs include rent \$3,600, indirect costs \$4,800 and other normal costs of \$2,000.</p> <p>Commodities include protective clothing \$1,000 and other costs \$500.</p> <p>Equipment costs include sampling pumps \$2,000, air respirator \$1,000, and other normal costs of \$1,700.</p>					
	1	2	3							
	PERSONAL SERVICES									
5.	Salary		40,032							
6.	Benefits		6,669							
7.	Supplemental Benefits		2,454							
8.	Fixed Benefits		2,732							
9.	TOTAL PERSONAL SERVICES	01		51,887						
10.	Travel	02		12,000						
11.	Contractual	03		10,404						
12.	Commodities	04		1,500						
13.	Equipment	05		4,700						
14.	Other									
15.	TOTAL COST			80,491						
	RECEIPT CODE	FUNDING SOURCE								
16.		Federal Receipts	1002							
17.		G.F. Match	1003							
18.		General Funds	1004	80,491						
19.		I-A Receipts	1005							
20.		Program Receipts	1028							
21.		Other								
FOR B&M USE ONLY										
4A KEY NUMBER _____										

13 REQUEST FOR
NEW POSITION

AGENCY Labor
PROGRAM Public Protection
BRU Occupational Safety & Health
COMPONENT Occupational Safety & Health

FY 86

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Revised Date _____

LEG:F:31

BREAKDOWN OF ASBESTOS PROJECTS
FUNDED FROM CHAPTER 24, SLA 1984

Cordova City Schools - \$48,870.79- Asbestos Removal from Mt. Eccles Elementary School basement. PROJECT COMPLETE.

Delta/Greely School District - \$99,500 - Survey & Removal of asbestos at Delta Junction and Ft. Greely Schools. Final inspection and reinsulation.

Tanana City School District - \$285,104.25 - Removal of asbestos in main boiler room, classrooms, teachers lounge, bathroom, and fan room , above ceiling tiles, water lines and heating pipes . Reinsulation with fiberglass. Encapsulation of asbestos in hallway boiler room. Clean up and final inspections. PROJECT COMPLETE.

Petersburg City Schools - \$107,000 - Removal of asbestos from old high school building.

Alaska Gateway School District - \$75,206.26 - Specifications, technical, and professional services for the removal and encapsulation of asbestos containing material at Tok School. Final inspection. PROJECT COMPLETE.

Lake & Peninsula School District - \$6995.00 - Inspection of 14 school sites and abatement at three sites where asbestos was identified.

Kodiak Island Borough Schools - \$89,673.76 - Funds were spent as follows:

Kodiak Jr. High - demolition phase of remodel for asbestos removal.

Port Lions School - Removal of asbestos pipe insulation at elementary school.

Old Main Elementary - Removal of asbestos pipe insulation.

Kodiak High School - Removal of asbestos fireproofing from roof beam above Gym and cost estimate and analysis for total high school project.

ALL OF THE ABOVE PROJECTS ARE COMPLETE

Sitka Borough Schools - \$150,000 - Asbestos removal from boiler rooms at Sitka High School, Blatchley Jr. High and Etolin St. Elementary School.

Juneau Borough Schools - \$400,000 - Survey of 11 schools in the district and removal of all asbestos found.

Fairbanks North Star Borough School District - \$697,000 - Removal of all asbestos containing structural materials throughout the school district. Fairbanks has requested an additional \$500,000 for completion of this project.

Mat-Su Borough Schools - \$225,000 - Funds applied for 3/85 for asbestos abatement.

STATE OF ALASKA

MEMBER
FINANCE COMMITTEE
SPECIAL COMMITTEE ON FISHERIES



POUGH
JUNEAU ALASKA 99811
(907) 485-4117
PO BOX 1205
BETHEL ALASKA 99559
(907) 541-2122

REPRESENTATIVE JOHNE BINKLEY

MEMORANDUM

March 22, 1985

TO: Representative Al Adams

From: Representative Johne Binkley
Chair of Subcommittee on HB 5

A handwritten signature in dark ink, appearing to read "John Binkley".

RE: House Bill 5

The subcommittee on House Bill 5 is recommending that the full committee adopt the proposed House Finance Committee Substitute with a revised fiscal note dated March 21, 1985.

This fiscal note would increase the contractual line item in order to hire two industrial hygienist for a two year period to carry out the survey program, particularly in small school districts, as the large districts have for the most part complied. Personal Services would be provided to hire a temporary industrial hygienist for the certification program for ten months to do regulations and start the program.

The Department of Labor will try to run the program with the FY87 amounts indicated in the fiscal note. The subcommittee indicated that if that amount was not sufficient additional funds should be requested in the FY 87 budget.

Hein/Levy
3/13/85

KEYs

[] = language deleted

Original sponsors: Gruenberg, Goll,
Davis, et al

1 IN THE HOUSE

BY THE FINANCE COMMITTEE

2 CS FOR SPONSOR SUBSTITUTE FOR HOUSE BILL NO. 5 (Finance)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 FOURTEENTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act establishing a program for the abatement of
7 asbestos health hazards in public schools and the
8 University of Alaska; providing for certification of
9 asbestos workers; and providing for an effective
10 date."

11 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

12 * Section 1. AS 14.03.030 is amended to read:

13 Sec. 14.03.030. SCHOOL TERMS. A [THE] school term begins and
14 ends on the dates fixed by the governing body of a [THE] school dis-
15 trict. A school [HOWEVER, THE] term shall include not less than 180
16 days in session, except that, with [SUBJECT TO] the approval of the
17 commissioner,

18 (1) a day used for in-service training of teachers may be
19 substituted for a day in session, up to a maximum of 10 days; [AND]

20 (2) an "emergency closure day" may be substituted for a day
21 in session because of conditions posing a threat to the health or
22 safety of students; and

23 (3) a school board may adopt a school term of not less than
24 150 days for a school if the commissioner finds that

25 (A) the shorter term is necessary for abating asbestos
26 health hazards in the school; and

27 (B) the school board has submitted an acceptable plan
28 under which students will receive the approximate educational
29 equivalent of a 180-day term.

* Sec. 2. AS 18 is amended by adding a new chapter to read:

CHAPTER 28. ASBESTOS.

ARTICLE 1. ASBESTOS HEALTH HAZARD ABATEMENT PROGRAM.

Sec. 18.28.010. PROGRAM ESTABLISHED. The asbestos health hazard abatement program is established in the Department of Labor to coordinate efforts of state departments and agencies to abate asbestos health hazards in schools in the state. The program applies to all work in public schools and the University of Alaska involving

(1) demolition, removal, encapsulation, salvage, repair, transportation, disposal, storage, and containment of asbestos products;

(2) construction, alteration, repair, maintenance, or renovation that will cause asbestos fibers to become airborne.

Sec. 18.28.020. DUTIES OF THE DEPARTMENT OF LABOR. In order to abate asbestos health hazards from public schools and from the University of Alaska the Department of Labor shall

(1) in a school district or regional educational attendance area that has not complied with Environmental Protection Agency asbestos regulations (40 C.F.R. Part 763), inspect school buildings to determine the presence of asbestos, take samples as needed, answer inquiries on the subject, ensure quality control of asbestos sampling, or enter into contracts for these purposes;

(2) distribute, retrieve, and store training materials concerning inspection and sampling for asbestos;

(3) establish guidelines, in conformity with Environmental Protection Agency asbestos regulations (40 C.F.R. Part 763), for abating asbestos health hazards, for inspecting and collecting samples of suspected asbestos, and for analyzing the samples;

(4) evaluate analysis results and distribute the results to

1 affected schools;

2 (5) coordinate efforts by state departments and agencies
3 and by school officials to identify and abate asbestos health hazards;

4 (6) cooperate with the Department of Education to adminis-
5 ter state money appropriated for the asbestos health hazard abatement
6 program;

7 (7) establish classifications of asbestos health hazards
8 according to the severity of the hazard and determine on the basis of
9 those classifications the order in which abatement projects should
10 proceed;

11 (8) review and approve all asbestos health hazard abatement
12 projects relating to respirator use and employee training, including
13 training materials;

14 (9) oversee an employee certification program;

15 (10) establish guidelines and procedures to prevent damage
16 to asbestos products in daily operations;

17 (11) whenever the department is informed of scheduled work
18 to abate an asbestos health hazard, inform the contractors and other
19 concerned persons of the health hazards of asbestos;

20 (12) assist the University of Alaska in its efforts to abate
21 asbestos health hazards; and

22 (13) adopt regulations necessary to implement the provisions
23 of this chapter.

24 Sec. 18.28.030. DUTIES OF THE DEPARTMENT OF EDUCATION. To
25 assist in implementing the asbestos health hazard abatement program,
26 the Department of Education shall

27 (1) cooperate with the Department of Labor, school dis-
28 tricts, and regional educational attendance areas to ensure inspection
29 of public schools for asbestos health hazards and to ensure that

→ [reimburse school districts and REAAs for asbestos health hazard abatement work undertaken on or after 1/1/85, with other than federal or state funds;]

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identified asbestos health hazards are abated;

(2) maintain records, files, and reports on asbestos health hazards in public schools;

(3) administer state money appropriated to finance renovation contracts under AS 18.28.040(5);

(4) in accordance with priorities established by the Department of Labor under AS 18.28.020(7), distribute grants to school districts and regional educational attendance areas for the abatement of health hazards in public schools; and

(5) inform the Department of Labor when renovation contracts are awarded under AS 18.28.040(5), to enable the Department of Labor to advise contractors and other concerned persons of the health hazards of asbestos that may be encountered in the renovation project.

Sec. 18.28.040. DUTIES OF SCHOOL OFFICIALS. To assist in implementing the asbestos health hazard abatement program, each city or borough school district and each regional educational attendance area shall

(1) maintain records of all inspections, including sample dates, location, condition, and analysis of materials;

(2) notify school personnel of the location of asbestos materials and ways to reduce exposure;

(3) notify the parents of students about the results of asbestos inspections in their children's schools;

(4) either

(A) contract for the inspection of its school buildings in compliance with Environmental Protection Agency asbestos regulations (40 C.F.R. Part 763) and in accordance with guidelines established by the Department of Labor and under the supervision of the Department of Labor; or

1 (B) notify the Department of Labor that the school
2 district or regional educational attendance area has not entered
3 and does not intend to enter into a contract for an inspection
4 for asbestos health hazards; and

5 (5) contract for renovating school buildings to abate
6 asbestos health hazards, and supervise and monitor the renovation
7 contracts, applying the standards in AS 18.60.075 to protect the
8 health of persons who renovate the school buildings.

9 Sec. 18.28.050. REPAYMENT OF GRANT FUNDS. A school district or
10 regional educational attendance area that receives a state grant for
11 the abatement of asbestos health hazards in schools shall repay the
12 grant from any money the district or the regional educational atten-
13 dance area recovers from asbestos manufacturers or other parties in a
14 claim for damages arising from the use of asbestos in a school.
15 Repayment shall be made after deducting legal fees and other costs
16 associated with the claim for damages.

17 ARTICLE 2. CERTIFICATION OF ASBESTOS WORKERS.

18 Sec. 18.28.200. CERTIFICATION PROGRAMS. (a) The Department of
19 Labor shall

20 (1) establish guidelines for employee training certifica-
21 tion programs, including respiratory and competency tests to be com-
22 pleted successfully, to ensure that a person who is employed to work
23 with asbestos is trained to do the work safely and is informed about
24 the danger of working with asbestos;

25 (2) review certification programs proposed by contractors,
26 labor organizations, public and private vocational training programs,
27 and others for persons who will be employed to work with asbestos;

28 (3) approve proposed certification programs that meet the
29 department's guidelines under this subsection;

1 (4) assist in meeting the certification guidelines those
2 whose certification program proposals have been found unacceptable.

3 (b) Before a contractor may undertake work involving asbestos,
4 the contractor shall

5 (1) propose to the Department of Labor a plan for the
6 certification of its employees as adequately trained to handle asbes-
7 tos in a safe and knowledgeable way;

8 (2) receive approval from the department of that plan; and

9 (3) certify that each person who will work with asbestos is
10 adequately trained to handle asbestos in a safe and knowledgeable way.

11 (c) A person may not be employed to work with asbestos unless
12 the person has been certified in a program approved by the Department
13 of Labor under (a) of this section.

14 (d) A contractor who violates (b) or (c) of this section is
15 subject to a civil penalty not to exceed \$1,000, as determined by the
16 commissioner of labor.

17 (e) A contractor who violates (b) of this section is guilty of a
18 class A misdemeanor.

19 (f) A contractor who violates (c) of this section is guilty of a
20 class B misdemeanor.

21 ARTICLE 3. MISCELLANEOUS PROVISIONS.

22 Sec. 18.28.500. DEFINITIONS. In this chapter

23 (1) "asbestos" means chrysotile, amosite, crocidolite,
24 fibrous tremolite, fibrous anthophyllite, and fibrous actinolite;

25 (2) "asbestos health hazard" means the presence of material
26 containing asbestos that carries a risk of releasing asbestos fibers
27 into the atmosphere;

28 (3) "asbestos product" means a product that produces air-
29 borne asbestos.

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* Sec. 3. This Act does not apply to work involving asbestos or the abatement of asbestos health hazards underway on October 1, 1985.

* Sec. 4. This Act takes effect October 1, 1985.

INFORMATION FOR NANCY BENNETT, Health Education and Social Services Committee.

The following information augments Les Riedlinger's January 25th's testimony regarding the need to ensure that the \$26,000,000.00 proposed by HB57 has sufficient provision to accommodate \$2,000,000.00 in additional funding for asbestos removal at the Fairbanks North Star Borough School District.

ITEM 1

Of the 31 major buildings managed by FNSBSD, 11 remain to be addressed in terms of asbestos removal. The amounts needed for each of the eleven is as follows:

\$247,000	-	Barnette Elementary School
160,000	-	University Park Elementary School
342,000	-	Hunter Elementary School
209,000	-	Hutchison Career Center
37,000	-	Joy Elementary School
915,000	-	Lathrop High School
397,000	-	Mair School
229,000	-	Nordale Elementary
214,000	-	North Pole Elementary
257,000	-	Ryan Junior High School
10,000	-	West Valley High School

\$3,017,000	-	Total Cost
1,052,000	-	LESS: Funds on hand from prior Legislative Appropriations

\$1,965,000	-	Additional Asbestos Removal Need. This amount takes into account total project costs, i.e. sampling, bid documents, construction award, consultants, etc.

ITEM II

With respect to a gross cost estimating guide for asbestos removal, the FNSBSD has developed the following format. It is based upon bid experience; advice from consultants and in-house technical expertise.

It can be applied, however, only in those instances where the need is to remove insulation from pipe, conduits, ducts, boilers, etc. It can not be used for costing asbestos removal associated

with its use as an acoustical control, fire protection, or any other spray application.

The format works as follows:

- . Calculate the total number of linear feet of pipe insulation and the total number of square feet associated with boiler, hot water tank wrapping, etc.
- . Each of these linear and square feet than is assigned the value of one unit.
- . For each unit that is openly accessible, calculate \$45.00/unit for total removal, replacement and all other project related costs such as bid documents, sampling, monitoring, consultant fees, contingencies, etc..
- . For each unit that concealed, i.e. inaccessible without first demolishing rigid barriers such as floors, ceilings, and walls, calculate \$75.00/unit. This amount covers all associated project related costs including replacement.

ITEM III

Finally, Mr. Riedlinger addressed that Fairbanks in conjunction with its consultants had developed a model set of asbestos removed technical specifications which incorporated all EPA rules and guidelines. They are attached.

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X

1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101



MAR 14 1985

REPLY TO
ATTN OF:

M/S 524

MAR 1 1985

Jim Robison, Commissioner
Alaska Department of Labor
P. O. Box 1149
Juneau, Alaska 99802

Dear Mr. Robison:

The U.S. Environmental Protection Agency (EPA) has been given the responsibility for implementation of the Asbestos School Hazard Abatement Act of 1984 (ASHAA). This Act addresses asbestos abatement procedures and the disbursement of financial assistance for schools performing asbestos abatement projects. It does not include identification, recordkeeping and notification requirements for friable asbestos in school buildings. These tasks are incorporated in the Asbestos-in-Schools Identification and Notification Rule promulgated in accordance with the Toxic Substance Control Act (TSCA).

The Asbestos Action Program in the EPA Office of Pesticides and Toxic Substances has been given the authority to fund cooperative agreements with some states whose projects fall within the funding limits imposed by ASHAA. The disbursement of funds under this program is contingent upon a 25% match by the respective recipient.

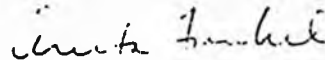
Projects which are eligible for funding include: 1) development of a state license/certification program for asbestos abatement contractors and maintenance personnel (EPA can provide a model abatement contract specification, and a model state contractor licensing regulation for state use), 2) asbestos abatement training for contractors and supervisory personnel, 3) voluntary technical assistance to schools in assessing hazards and deciding on abatement strategies, 4) dissemination of asbestos information to school employees, teachers, school administrators, and parents.

If the State of Alaska intends to request federal funding under this program, a pre-application proposal (Enclosure A) should be submitted to EPA as soon as possible. The project(s) identified in your pre-application will be reviewed. If the projects are approved you will be requested to submit completed application forms to EPA by April 15, 1985. The application forms can be obtained from our EPA Juneau Office (907) 586-7619.

Both the pre-application and the ensuing completed application proposals should be submitted to: Asbestos Action Program, U.S. EPA, TS-788A, 401 M Street S.W., Washington, D. C. 20460, Attn: Stephen Schanamann. Copies of the proposal should be sent to Kathryn Pazera, EPA, Alaska Operations Office, 3200 Hospital Drive, Suite 101, Juneau, Alaska 99801, and John Seitz, Office of Compliance Monitoring, U.S. EPA, 401 M Street, S.W., Washington, D.C. 20460.

If you should have any questions on this material, please contact Kathryn Pazera, 586-7619.

Sincerely,



Anita Frankel, Chief
Pesticides and Toxic Substances Branch

Enclosure

cc: Bill Ross, Department of Environmental Conservation
Rich Arab, Department of Labor

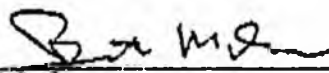
Position Paper
CS for HB 162 (Judiciary)

The bill provides for the addition of a utility consumer representation function to the Office of Public Advocacy. The office will represent the interests of residential consumers before regulatory bodies and would have the ability to seek judicial review. Such offices in 37 other states have successfully intervened and achieved substantial savings for utility consumers.

While the current staff of the Office of Public Advocacy has little experience and no expertise in the highly complex and specialized field of utility consumer representation, the placement of this function within an existing division of the Department of Administration will allow the realization of savings from the sharing of office facilities. The Office of Public Advocacy would therefore create, as contemplated by the bill, a separate unit devoted exclusively to utility consumer representation. A serious recruiting effort would be launched in order to assure the employment of experience staff.

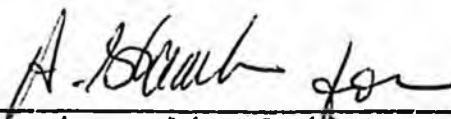
The bill's provision for the creation of an independent subprogram or element of the budget will help to minimize interference with OPA's current statutory mandate.

The OPA must be fully operational on or before July 1, 1985. An effective date of October 1, 1985 would therefore be preferable in order to avoid the difficulty of meeting identical deadlines.



Brant McGee
Public Advocate

3-15-85
Date



Commissioner Lisa Rudd
Department of Administration

3-15-85
Date

SECTIONAL ANALYSIS

CSSSHB 5 (L&C) - An Act establishing a program for the abatement of asbestos health hazards in public schools and the University of Alaska; providing for certification of asbestos workers; efd.

Section 1 Allows the Commissioner of the Department of Education to designate a shorter school term, of at least 150 days, in a particular school for the sole purpose of abating an asbestos health hazard.

Section 2 18.28.010

Establishes the asbestos health hazard abatement program in the Department of Labor, applicable to public schools and the University of Alaska for all work involving asbestos products.

18.28.020

Provides that the duties of the Department of Labor are to: inspect and test for asbestos hazards in any school not in compliance with EPA regulations; establish guidelines for abatement; analyze and distribute test results; coordinate efforts of agencies and departments; establish classifications of identified hazards and make funding recommendations; review and oversee certification training programs; assist the University in abating asbestos hazards and adopt regulations.

18.28.030

Provides that the duties of the Department of Education are to: cooperate with the Department of Labor and inform them when asbestos projects are undertaken by schools; maintain records, files and reports; administer any state money appropriated for asbestos hazard abatement and distribute grants in accordance with the priority list established under 18.28.020.

18.28.040

Provides that the duties of school officials are to: maintain records and files; notify school personnel and parents of asbestos hazards; contract for inspection and testing in compliance with EPA regulations or inform the Department of Labor of their intent not to do the work so that it can be completed by the Department; contract for abatement work and monitor the work under existing worker safety laws.

18.25.050

Provides that districts shall repay any state funds received for asbestos abatement from any money recovered for damages from manufacturers or other parties after deducting costs and legal fees.

18.28.060

Provides that the duties of the Department of labor relating to employee certification programs are to: establish training program guidelines; review contractors' program proposals; approve those programs meeting their requirements and give assistance to those needing help in getting their programs approved.

Before contractors may begin an abatement project they must propose and receive approval for their training program and certify the training for each employee. A person cannot work with asbestos unless certified. Contractors who violate these provisions are liable for a civil penalty up to a \$1,000. A contractor who violates the training provisions is guilty of a class A misdemeanor, and a class B misdemeanor if a non-certified employee is hired.

18.28.500

Definitions

- Section 3 Provides that this act does not apply to projects underway on October 1, 1985.
- Section 4 Immediate effective date.

PROPOSED FY86 CIP BUDGET

1 DEPARTMENT OF PUBLIC SAFETY (CONT.)			
2		APPROPRIATION	APPROPRIATION FUND SOURCES
3	ALLOCATIONS	ITEMS	GENERAL FUND OTHER FUNDS
4	SEXUAL ASSAULT INVESTIGATION EQUIPMENT	59,700	59,700
5	*****	*****	
6	***** DEPARTMENT OF TRANSPORTATION/PUBLIC FACILITIES *****		
7	*****	*****	
8	TRANSPORTATION		
9	ANNUAL HIGHWAY PLANNING WORK PROGRAM	1,930,000	500,000 1,430,000
10	STATEWIDE RESEARCH PROGRAM	1,250,000	600,000 650,000
11	SMALL STREAMS FLOOD INVESTIGATION	150,000	10,000 140,000
12	SURVEY EQUIPMENT REPLACEMENT	150,000	150,000
13	PAYMENT OF CONSTRUCTION CLAIMS	500,000	500,000
14	DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION BONUS	850,000	402,300 447,700
15	CENTRAL REGION ADVANCED PROJECT DEFINITION	630,000	130,000 500,000
16	NORTHERN REGION ADVANCED PROJECT DEFINITION	1,102,000	150,000 952,000
17	SOUTHEAST REGION ADVANCED PROJECT DEFINITION	150,000	50,000 100,000
18	ASBESTOS ASSESSMENT	500,000	500,000
19	STATEWIDE EQUIPMENT FLEET REPLACEMENT PROGRAM	15,800,000	15,800,000
20	STATEWIDE HIGHWAYS	8,390,000	1,310,000 7,080,000
21	BRIDGE REHABILITATION AND REPLACEMENT PROGRAM	4,600,000	
22	SAFETY IMPROVEMENT PROGRAM	3,790,000	
23	STATEWIDE UMTA TRANSIT GRANTS	320,000	320,000
24	CENTRAL REGION HIGHWAYS	133,493,400	33,963,400 99,530,000
25	CENTRAL REGION GENERAL FUND MATCH AND RELATED COSTS FOR APPROPRIATED FY86 FEDERAL AID HIGHWAY PROJECTS	5,765,000	

See back

01/16/85

STATE OF ALASKA -- CAPITAL PROJECT DETAIL (CONTINUED)

11:56

- 8 DEPARTMENT OF TRANSPORTATION/PUBLIC FACILITIES
REVIEW AND RESULTING STATE POLICIES REGARDING BIDDING. EACH INDIVIDUAL PROJECT IS HANDLED SEPARATELY ON COST ACCOUNTING PROCESSES.

PROJECT TITLE		LOCATION	ELECTION DIST.	AGENCY PRIORITY	--- PROJECT --- START DURATION		PFT POSITIONS	IT
STWD ASBESTOS ASSESSMENT		STATEWIDE	99		FY86	0 MOS.		09-14
FUNDING		REQUESTED	REVISED	OPERATING COSTS				
1004 GENERAL FUND		2500.0						
***** TOTAL COSTS		2500.0						

→ changed to \$500.0

PROJECT DESCRIPTION:

APPROPRIATED TO STATE AGENCY

- 1 ASBESTOS IS A MATERIAL WHICH IN THE RECENT PAST HAS BECOME A DOCUMENTED CANCER CAUSING AGENT. THE DANGER OF ASBESTOS STEMS DIRECTLY FROM ITS ABILITY TO CREATE HIGHLY DEBILITATING CANCERS MANY YEARS AFTER VERY MODERATE EXPOSURES. ASBESTOS IN AN AIRBORNE FORM WHEN INHALED REMAINS IN THE LUNGS AND RELATED TISSUES, AND MANY YEARS LATER MAY ERUPT FORMS OF CANCER WITH HIGH MORTALITY RATES.

**S* THIS CAPITAL PROJECT IS TO FUND AN IN-DEPTH INVESTIGATION AND INVENTORY OF ASBESTOS PROBLEMS IN STATE-FUNDED SCHOOLS. THE \$2.5 MILLION REQUEST IS BASED UPON THE DEPARTMENT'S HISTORICAL EXPERIENCE IN CONDUCTING SIMILAR SURVEYS FOR ENVIRONMENTAL AUDITS AND BUILDING CONDITION INVENTORIES. THE \$2.5 MILLION WILL ALLOW FOR THE DETAILED INVESTIGATION OF 6.6 MILLION SQUARE FEET OF STATE SCHOOLS. AT THE CONCLUSION OF THIS PROJECT, PROBLEM AREAS WILL BE IDENTIFIED AND AN ESTIMATE OF THE EXTENT OF THE CLEANUP EFFORT WILL BE PRODUCED.

- 3 DESIGN AND ASBESTOS REMOVAL EFFORTS ARE NOT COVERED IN THIS BUDGET AMOUNT. THIS LATTER EFFORT WILL APPEAR IN FUTURE YEAR BUDGETS ONCE THE INVENTORY AND INVESTIGATION EFFORTS TO BE FUNDED WITH THIS PROJECT ARE COMPLETED.

1 DEPARTMENT OF EDUCATION (CONT.)			
2		APPROPRIATION	APPROPRIATION FUND SOURCES
3		ALLOCATIONS	GENERAL FUND OTHER FUNDS
4	KLAWOCK SCHOOL DISTRICT		
5	ELEMENTARY SCHOOL ADDITION PHASE I	800,000	800,000
6	YAKUTAT CITY SCHOOL DISTRICT		
7	ELEMENTARY SCHOOL CLASSROOM ADDITION/REMODELING	300,000	300,000
8	CORDOVA PUBLIC SCHOOLS		
9	HIGH SCHOOL ROOF RETROFIT	500,000	500,000
10	ANCHORAGE SCHOOL DISTRICT		
11	DISTRICTWIDE ASBESTOS REMOVAL	11,000,000	11,000,000
12	MATANUSKA-SUSITNA BOROUGH SCHOOL DISTRICT		
13	PALMER/WASILLA JUNIOR/SENIOR HIGH SCHOOL	12,000,000	12,000,000
14	PALMER HIGH SCHOOL ADDITION/REMODEL	3,000,000	3,000,000
15	FAIRBANKS NORTH STAR BOROUGH SCHOOL DISTRICT		
16	DISTRICTWIDE INTRUDER ALARM SECURITY SYSTEM	200,000	200,000
17	NORTHWEST ARCTIC SCHOOLS		
18	DISTRICTWIDE RENOVATION/REPAIR	3,000,000	3,000,000
19	KOTZEBUE ELEMENTARY REMODEL/REPLACEMENT	4,800,000	4,800,000
20	NOME CITY SCHOOLS		
21	NOME ELEMENTARY SCHOOL PHASE II	10,000,000	10,000,000
22	LOWER YUKON SCHOOLS		
23	DISTRICTWIDE HEALTH/LIFE SAFETY UPGRADE	950,000	950,000
24	MOUNTAIN VILLAGE ELEMENTARY SCHOOL COMPLETION	860,000	860,000
25	IDITAROD SCHOOL DISTRICT		
26	GRAYLING SCHOOL COMPLETION PHASE 2	1,450,000	1,450,000

FY85 appropriation to DOE

01/23/84

STATE OF ALASKA -- CAPITAL PROJECT DETAIL (PROPOSED PROJECTS)

17:03

CLASSIFICATION: 02 756 02 01

EDUCATION

PROGRAM: FRIABLE ASBESTOS

ITEM#: 2

PROJECT TITLE	LOCATION	ELECTION DIST(S)	START DATE	COMPLET'N DATE	BCN
ASBESTOS IDENTIFICATION AND REPLACEMENT	STATEWIDE	99	7/84	6/85	01-05-01-85-0

--- OPERATIONAL COST ---

FUNDING	GOVERNOR REC	1ST YEAR	FULL YR
1004 GENERAL FUND	5000.0		
***** TOTAL COSTS	5000.0		

This was changed to \$2.5M,
Passed in FY85 budget.
APPROPRIATED TO STATE AGENCY

PROJECT DESCRIPTION:

- 1 STATEWIDE ASBESTOS IDENTIFICATION AND REMOVAL. PROVIDE FUNDING TO DISTRICTS TO IDENTIFY AND CORRECT FRIABLE ASBESTOS BUILDING MATERIALS INSTALLATION. FRIABLE ASBESTOS IS A KNOWN DANGER TO SCHOOL BUILDING OCCUPANTS. THIS WILL BE A STATEWIDE PROGRAM.
- 2 THIS PROJECT IS NEEDED TO CONTAIN OR REPLACE FRIABLE ASBESTOS WHICH IS DANGEROUS TO THE HEALTH AND WELFARE OF THE BUILDING OCCUPANTS. NO ALTERNATIVES AVAILABLE. COST ESTIMATE PREPARED BY THE DEPARTMENT OF EDUCATION. THIS PROJECT HAS A HIGH PRIORITY.

Additional FY85 asbestos removal appropriations:

- ① Clark Jr. high 351.0
- ② East high 26.0
- ③ Anch. districtwide 6,101.3
- ④ Anch. districtwide 4,000.0
- ⑤ Fairbanks districtwide 1,385.0

TOTAL \$14,368.5M

ALASKA CHAPTER
ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.

Position Statement
on legislation establishing
AN ASBESTOS HEALTH HAZARD ABATEMENT PROGRAM (CSSH5)

February 18, 1985

POSITION PAPER ON CSSSHB5

The Alaska Chapter, Associated General Contractors of America, Inc. (A.G.C.) represents more than 900 companies, including most of the general contracting companies engaged in Alaska's commercial construction. We appreciate the opportunity to comment on CSHB5.

The A.G.C. agrees with the intention of this bill - the abatement of asbestos health hazards. Many A.G.C. contractors are or have been involved in this very important safety effort. There is, however, a section of the bill that unnecessarily duplicates existing safety regulations and should, therefore, be deleted.

Before continuing it may be worth noting that the term certification is semantically incorrect. The correct term for government approval or permission is license. Webster's New World Dictionary defines license as: formal permission to do something; especially authorization by law to do some specified thing.

Specifically, we draw your attention to Section 18.28.030, Certification Programs. In this section, the Department of Labor is given authority to license contractors and employees who intend to conduct asbestos abatement.

What the bill essentially requires is a State license to do asbestos work. But is there a need for such a license? We think not.

There are literally thousands of potentially hazardous substances that are handled safely in today's workplace without a license. Asbestos should not be treated any differently than any of these substances.

Another serious concern that needs to be addressed is that of liability.

Asbestos work is plagued with lawsuits. The Government is frequently named as the defendant in these suits witness the recent Bartlett High School suit.

Through the proposed Department of Labor licensing program, the State may become party to these suits by licensing contractors, employees and labor organizations as competent to undertake this work, the State may have liability if an employer or employee is licensed improperly. We suggest an opinion from the attorney general's office be obtained prior to passage of this bill from committee.

Finally, in examining the fiscal requirements of this proposed licensing program, it appears that millions of dollars would be needed for its administration, rather than the proposed \$300,000. It is virtually impossible to competently administer the proposals contained in HB 5 for \$300,000. We suggest that an inadequately administered program is worse than no program at all. A realistic fiscal note must be developed so that lawmakers may assess the true costs of proposed legislation.

We believe once the true cost of this program is known, the question will arise: What does a licensing program provide that is not already enforceable under existing DOSH general safety code regulations? The answer is "nothing." Sufficient asbestos health standards already exist, including requirements for employer training and proper respirator usage.

In conclusion, we request this committee to thoroughly determine the fiscal costs of the proposed legislation, including potential State liability and to balance that cost against the benefits received. A.G.C. contends that for the licensing program, the dollar cost will be high and without significant benefit due to the existence of sufficient asbestos health standards presently exist.

We strongly urge the deletion of the licensing section of CSSSHB5.

WES/ec/85



ALASKA CHAPTER A.G.C.
EDUCATION COMMITTEE

presents a

CONSTRUCTION INDUSTRY SEMINAR
"ASBESTOS REMOVAL"

A timely safety seminar for:

- * GENERAL CONTRACTORS
- * SAFETY PROFESSIONALS
- * SUBCONTRACTORS
- * INSURANCE BROKERS
- * PUBLIC ADMINISTRATORS
- * BUILDING OWNERS

*NOTE: Date change
Anchorage only



HOTEL CAPTAIN COOK
ANCHORAGE, ALASKA
APRIL 18, 1984



FAIRBANKS INN
FAIRBANKS, ALASKA
APRIL 20, 1984



SEMINAR OBJECTIVE:



ALASKA CHAPTER A.G.C. EDUCATION COMMITTEE

presents a

CONSTRUCTION INDUSTRY SEMINAR "ASBESTOS REMOVAL"

A timely safety seminar for:

- * GENERAL CONTRACTORS
- * SAFETY PROFESSIONALS
- * SUBCONTRACTORS
- * INSURANCE BROKERS
- * PUBLIC ADMINISTRATORS
- * BUILDING OWNERS

*NOTE: Date change
Anchorage only



HOTEL CAPTAIN COOK
ANCHORAGE, ALASKA
APRIL 18, 1984



FAIRBANKS INN
FAIRBANKS, ALASKA
APRIL 20, 1984



SEMINAR OBJECTIVE:

THIS SEMINAR IS PRESENTED FOR GENERAL CONTRACTORS, SUBCONTRACTORS, SAFETY PROFESSIONALS, PUBLIC ADMINISTRATORS, BUILDING OWNERS AND OTHERS INVOLVED IN OR CONSIDERING ASBESTOS REMOVAL WORK. PARTICIPANTS WILL LEARN ASBESTOS HEALTH HAZARDS; ASBESTOS REGULATIONS, ABATEMENT PROCEDURES, PROTECTIVE EQUIPMENT, MONITORING, EMPLOYEE TRAINING, SIGNING AND WASTE DISPOSAL PROCEDURES.

MATERIALS:

COPY OF THE ASBESTOS REGULATIONS, SAMPLE PERMIT FORMS AND RESPIRATOR USAGE CHART, BIDDER PREQUALIFICATION FORMS. REQUIRED BY SOME OWNERS, EPA SCHOOL ASBESTOS REMOVAL PROGRAM.

REGISTRATION FORM

We will attend the Asbestos Abatement Procedures Seminar in _____ Anchorage - April 18
_____ Fairbanks - April 20

The following people will be attending from our company:

Registration Fee: \$25 per person
(Includes Lunch)

Check enclosed in the amount of \$ _____ for # _____ registrations.

Signature: _____

Company: _____

RETURN TO:
Alaska Chapter, A.G.C.
P. O. Box 4-2500
Anchorage, Alaska 99509

Or call Eddie at the A.G.C. office - 561-5354

AGENDA:

- 11:30 to 12:00 - Registration
- 12:00 to 12:30 - Lunch
- 12:30 PROGRAM
 - I. Asbestos in the Workplace
 - a. Source
 - b. Uses
 - II. Standards
 - III. Health Hazards
 - IV. Locations
 - V. Survey
 - VI. Identification
 - VII. Abatement Procedures and Removal Techniques
 - a. Types
 - b. Design
 - c. Procedures
 - VIII. Monitoring
 - a. Why
 - b. How
 - c. Standards
 - IX. Personal Protective Equipment
 - a. Clothing
 - b. Respirators
 - 1. Types
 - 2. Demonstration
 - X. Employee Training
 - XI. Legal Liability
 - XII. Insurance
 - XIII. EPA Demolition and Renovation Regulations
 - XIV. Waste Disposal Procedures and Permits
 - XV. Contractor Prequalification Requirements
 - XVI. Pending Legislation
 - XVII. Questions and Answers

COORDINATOR:

William E. Schneider, Assistant Manager, Alaska Chapter, A.G.C.

SPEAKERS:

Wayne Tansil
Project Manager
Gobbell, Hays, Pickering
Memphis, Tennessee

Les Lauinger
Training Director
Alaska Laborers Training School
Anchorage, Alaska

Steve Zrake
Environmental Field Officer
Alaska State Department
of Environmental Conservation

Max Andrews
Environmental Consultant
Department of Occupational Safety
and Health
Alaska State Department of Labor

Kathy Pazera
Environmental Protection Specialist
U. S. Environmental Protection Agency
Juneau, Alaska

ASBESTOS
SAFETY AND HEALTH WORK PRACTICES GUIDE



A Safety Service of the:

Alaska Chapter Associated General Contractors
3201 Sparrard Road
P.O. Box 4-2500(99509)
Anchorage, Alaska
(907) 561-5334

In conjunction with:

OSH
Alaska Department of Labor
3301 Eagle Street
Pouch 7-022.(99510)
Anchorage, Alaska
(907) 264-2599

Reprinted with permission from the:

Milwaukee Construction Industry Safety Council
2733 W. Wisconsin Avenue
P.O. Box 08374
Milwaukee, WI 53208
(414) 933-7661

Respirator use, allowed under this section, is on a sliding scale according to exposure levels. Respirator use is allowed as follows, provided that they have NIOSH and MSHA approval:

1. Any respirator must be an approved type. Approval currently is a combined MSHA/NIOSH designation, which means that respiratory equipment is jointly approved by the Mine Safety and Health Administration and the National Institute of Occupational Safety and Health. In the future, it is possible that respirators will be approved only by NIOSH. All approved respirators carry an approval number. Respirators are approved only for specific types of hazard and within certain contamination limits. Make sure that respirators you are using are designed and approved for the hazard encountered and the concentration at which it is encountered.
2. Re-usable or single-use air purifying respirators for use in atmospheres with exposure up to 10 times that limit of 2 fibers per cubic centimeter (cc) of air for an 8-hour exposure or 10 times the limit of 10 fibers per cc for a short exposure.
3. Powered air purifying respirators for up to 100 times the limit.
4. Type C supplied air or pressure demand type respirators where the exposure exceeds 100 times the limit.

Disposable clothing is suggested for employees working in asbestos atmospheres (See Appendix C). In addition, monitoring of exposure levels on both an initial and continuing basis must be performed. Caution signs are required in work areas and all debris must be bagged and labeled before disposal in accordance with the provisions of 04.0102. Medical monitoring is another important part of the program. Every employee exposed to asbestos in concentrations greater than 0.1 fiber per cubic centimeter (f/cc) must have a medical examination made available to him within 30 days of his first exposure and annually thereafter. If an

employee terminates his employment, or is terminated, a medical exam must be available to him within 30 days of the termination. All medical records must be retained by employer for 20 years.

APPLICATION OF STANDARDS

The OSH code as written is extremely hard to comply with in the construction industry. They were written for static industrial applications. The entire 04.0102 asbestos standard is part of the 01.0101 verticalized standard and must be adhered to. The effects of asbestos do not show until as late as 20 years after the initial exposure. The legal and moral ramifications of not providing proper protection for employees are enormous. Liability suits in the millions of dollars have already been awarded to exposed employees and their associated costs far overshadow OSH penalties. We are then faced with a two-fold problem in construction operations. First and foremost is whether or not employees are adequately protected and secondarily, are we in compliance with OSH standards? Since the existence of asbestos cannot be determined in the field, and many construction operations which come in contact with asbestos are of short duration we have a difficult time gaining 100% compliance with OSH regulations. This policy can only be a guide to initial employee protection and seeks a method of safeguarding the employee and OSH compliance.

This document is intended to aid in short term, small or low exposure routine situations. It is not intended for use on abatement projects where the scope of the project is solely to remove asbestos from a structure. Because of the many other factors involved in abatement work like EPA regulations, protection of the owners future interest, etc., monitoring should always be conducted for abatement projects.

ASBESTOS POLICY AND SAFE WORKING PRACTICES

For the purpose of simplification, we are dividing this sub-section into three areas we have been able to identify where the construction process comes into contact with asbestos.

Notify him that because he had taken these actions you will consider his rights waived unless he informs you within 5 days that he will take a physical. This notice should also be certified mail or personal service with certification. If you use our data base concept you will almost always have a provide medical monitoring since it is extremely unlikely that exposures would fall under the 0.1 fiber limit. If you do not use the data base you will have to air monitor to determine whether or not medical surveillance is required.

EMPLOYEE TRAINING

An important part of any asbestos program must be employee hazard awareness. Employees likely to be exposed must be told about what produces asbestos dust, such as cutting. While all of us are aware of the health hazard, many of us fail to realize that it is so abundant in repair, remodeling, and emergency work. We must instruct our employees in safe working practices, covering thoroughly the following topics:

- 1) The health hazard.
- 2) The areas of work most likely to have exposure problems.
- 3) The importance and proper use of respiratory protection.
- 4) The importance of treating all suspect material as asbestos until proven otherwise.
- 5) The importance of having all suspect material tested.
- 6) The importance of having air tests made.
- 7) A thorough understanding of OSH regulations.
- 8) A thorough knowledge of techniques for limiting airborne concentrations.
- 9) A thorough understanding of personal protective equipment.

DATA BASE CONCEPT

One way to handle the problem of air monitoring is to use a data base concept. The OSH standard is loosely worded about actual monitoring requirements and hard to apply to construction operations.

We feel that the monitoring requirements can be technically met if each company does air monitoring for a range of examples of exposures it deals with. This data could then be applied to different projects with similar circumstances and materials. Each company can in effect establish a data base of probable concentrations for each type of exposure and protect their employees accordingly.

Many contractor air samples indicate properly handled asbestos will be below two fibers, the current OSH respirator requirement level. In spite of this we feel that respirators are absolutely required for any work with asbestos containing materials. While the current OSH level is 2 fibers per cubic centimeter, we have reason to believe it will soon be lowered. It is only prudent to provide respiratory protection for all exposures including those assumed to be reasonably low. While it is possible to make an informed decision that air monitoring is not required, we do not feel that the same can be said for the use of respirators. It is a keystone of the data base concept that employee protection be supplied and used for the so called low level exposures (those below current OSH respiratory requirement limits).

When an asbestos exposure situation is encountered you have two choices: monitor or use the data base concept. If you use data basing, review your file for similar situations. Make an informed decision based on past exposure experience. Be sure to allow an adequate safety factor when deciding on a respirator type. If your expected exposure is near the top of the allowable limits for the respirators you have selected, go to the next type up the protective ladder.

04.0102 — ASBESTOS

(a) Definitions.

For the purpose of this section.

(1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) Permissible exposure to airborne concentrations of asbestos fibers.

(1) Standard effective July 7, 1972. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (c) of this section.

(2) Standard effective July 1, 1976. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (c) of this section.

(3) Ceiling concentration. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (c) of this section.

(c) Methods of compliance.

(1) Engineering methods.

(i) Engineering controls. Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in paragraph (b) of this section.

(ii) Local exhaust ventilation.

(a) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1971, which is incorporated by reference herein.

(b) See § 1910.6 concerning the availability of ANSI Z9.2-1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(ii) Particular tools. All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems in accordance with subdivision (ii) of this subparagraph.

(2) Work practices.

(i) Wet methods. Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in paragraph (b) of this section, unless the usefulness of the product would be diminished thereby.

(ii) Particular products and operations. No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in paragraph (b) of this section.

(iii) Spraying, demolition, or removal. Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment in accordance with paragraph (d)(3)(iii) of this section and with special clothing in accordance with paragraph (d)(3) of this section.

(d) Personal protective equipment.

(1) Compliance with the exposure limits prescribed by paragraph (b) of this section may not be achieved by the use of respirators or shift rotation of employees, except:

(i) During the time period necessary to install the engineering controls and to institute the work practices required by paragraph (c) of this section;

(u) Laundering:

(a) Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(b) Any employer who gives asbestos-contaminated clothing to another person for laundering shall inform such person of the requirement in (a) of this subdivision to effectively prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(c) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with paragraph (g) of this section.

(v) Method of measurement.

All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-450 x (magnification) (4 millimeter objective) with phase contrast illumination.

(w) Monitoring.

(1) **Initial determinations.** Within 6 months of the publication of this section, every employer shall cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employee's exposure to asbestos fibers is below the limits prescribed in paragraph (b) of this section. If the limits are exceeded, the employer shall immediately undertake a compliance program in accordance with paragraph (c) of this section.

(2) Personal monitoring.

(i) Samples shall be collected from within the breathing zone of the employee, on membrane filters of 0.3 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) **Sampling frequency and pattern.** After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy

the levels of exposure of employees. In no case shall the sampling be done at intervals greater than 6 months for employees whose exposure to asbestos may reasonably be foreseen to exceed the limits prescribed by paragraph (b) of this section.

(3) Environmental monitoring.

(i) Samples shall be collected from areas of a work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of employees. Samples shall be collected on a membrane filter of 0.3 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) **Sampling frequency and pattern.** After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than 6 months for employees whose exposure to asbestos may reasonably be foreseen to exceed the exposure limits prescribed in paragraph (b) of this section.

(4) **Employee observation of monitoring.** Affected employees, or their representatives, shall be given a reasonable opportunity to observe any monitoring required by this paragraph and shall have access to the records thereof.

(g) Caution signs and labels.

(1) Caution signs.

(i) **Posting.** Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may be in excess of the exposure limits prescribed in paragraph (b) of this section. Signs shall be posted at such a distance from such a location so that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to areas containing excessive concentrations of airborne asbestos fibers.

(ii) **Sign specifications.** The warning signs required by subdivision (i) of this subparagraph shall conform to the requirements of 20" x 14" vertical format signs

THE NEW OSH STANDARD

(3) Annual examinations. On or before January 31, 1973, and at least annually thereafter, every employer shall provide, or make available, comprehensive medical examinations to each of his employees engaged in occupations exposed to airborne concentrations of asbestos fibers. Such annual examination shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV_{1.0}).

(4) Termination of employment. The employer shall provide, or make available, within 30 calendar days before or after the termination of employment of any employee engaged in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV_{1.0}).

(5) Recent examinations. No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with this paragraph within the past 1-year period.

(6) Medical records.

(i) Maintenance. Employers of employees examined pursuant to this paragraph shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be retained by employers for at least 20 years.

(ii) Access. The contents of the records of the medical examinations required by this paragraph shall be made available, for inspection and copying, to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of NIOSH, to authorized physicians and medical consultants of either of them, and, upon the request of an employee or former employee, to his physician. Any physician who conducts a medical examination required by this paragraph shall furnish to the employer of the examined employee all the information specifically required by this paragraph, and any other medical information related to occupational exposure to asbestos fibers.

On Friday November 4, 1973 OSHA issued an Emergency Temporary Standard (ETS) on asbestos. These emergency requirements will remain in effect for six months under the rules governing the issuance of Emergency Temporary Standards. This means that it will be in effect until May 4, 1974.

During this time period we expect OSHA to go through the formal rule making process in order to cause a permanent change in the existing standard. We would be very much surprised if this formalization process resulted in a final standard with provisions much different than those outlined in the ETS.

The complete text of the Emergency Temporary Standard is printed after this explanation.

The ETS does not effect the data base concept since we are providing employee protection from zero exposures on up. It does, however, reduce the margin of error and place an even greater emphasis on careful work procedures.

It requires additional employee training and lowers the permissible exposure level (PEL) to .5 fibers from the current 2 fibers per cc of air. This is a 75% reduction in the amount of asbestos that an employee can be exposed to without respiratory protection. The .1 fiber action level for medical surveillance remains unchanged.

In addition the approval level for each type of respirator is reduced to a multiple of the now lower PEL.

Single use respirators have a maximum concentration approval of 5 fibers per cc (10 times .5) rather than 20 fibers (10 times 2) for as long as the ETS is in effect. Our data base indicates that about 5% of all construction exposures could exceed the 5 fiber limit on single use respirators.

Full face piece purifying and powered air purifiers are approved up to 50 fibers per cc (100 times .5) rather than up to 200 fibers (100 times 2). Any concentration over 50 fibers requires the use of airline respirators.

Appendix B

RESPIRATOR PROGRAM FOR USE IN CONJUNCTION WITH POSSIBLE ASBESTOS EXPOSURE

Because of the possibility of asbestos exposure during repair, remodeling and emergency work, we recommend that the following items be part of the equipment furnished crews involved in these projects:

1. Respirators
2. Disposal Bags and Decals
3. 20" x 14" Caution Sign
4. Protective Clothing

The most important part of this entire program is the immediate use of respiratory protection by personnel contacting possible asbestos containing materials.

Steps to be followed in respirator use:

1. Select a respirator designed for use in asbestos atmospheres and carrying a NIOSH-MSHA approved number.
2. Instruct and train employees in:
 - a. The asbestos health hazard
 - b. The use of respirator stressing the importance of a tight fit.
 - c. Respirator maintenance and cleaning.
3. Set up a procedure for Respirator Use and Work Area Surveillance. These duties can best be assigned to the crew foreman on most construction activities.

OSHA requires a written respiratory protection plan whenever respirators are in use. Your company can establish such a program by reviewing the requirements of OSHA code 04.0102.

A publication of the Milwaukee Construction Industry Safety Council entitled "Contractors Guide to Respirator Use and Written Respirator Programs" will be useful in your firm's efforts.

Appendix C

SIGNS AND PROTECTIVE CLOTHING

Areas where work with possible asbestos containing materials must be marked by 20" x 14" Caution Signs (yellow, with black letters) containing the exact wording called for in the standards. Contact us or your trade association for help in obtaining these signs.

A label must be attached to all bags containing asbestos material before disposal. Help in obtaining these labels is available from many trade associations.

Protective clothing can also be of the disposable type and offer several advantages:

1. Low initial cost
2. Ease of storage
3. No laundering costs
4. No danger of contamination during laundry operations
5. Ease of disposal

For more information contact:

Alaska Chapter Associated General Contractors
3201 Spenard Road
P.O. Box 4-2500-(99509)
Anchorage, Alaska
(907) 561-5354

DOSH
Alaska Department of Labor
3301 Eagle Street
Pouch 7-022(99510)
Anchorage, Alaska
(907)264-2599

04.0102 Asbestos. (a) Definitions, for the purpose of 04.0102.

(1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than five micrometers.

(b) Permissible exposure to airborne concentrations of asbestos fibers.

(1) Standard effective July 7, 1972. The 8-hour time weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than five micrometers, per cubic centimeter of air, as determined by the method prescribed in 04.0102(e).

(2) Standard effective July 1, 1976. The 8-hour time weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than five micrometers, per cubic centimeter of air, as determined by the method prescribed in 04.0102(e).

(3) Ceiling concentration. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than five micrometers, per cubic centimeter of air, as determined by the method prescribed in 04.0102(e).

(c) Methods of compliance.

(1) Engineering methods.

(A) Engineering controls. Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in 04.0102(b).

(B) Local exhaust ventilation

(i) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1971, which is incorporated by reference herein.

(ii) See 1910.6 of the Federal Occupational Safety and Health Act concerning the availability of ANSI Z9.2-1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in 04.0109.

(C) Particular tools. All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in 04.0102(b), such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems in accordance with 04.0102(c)(1)(B).

(2) Work practices.

(A) Wet methods. Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in 04.0102, unless the usefulness of the product would be diminished thereby.

(B) Particular products and operations. No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in 04.0102.

(C) Spraying, demolition, or removal. Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment in accordance with 04.0102(d)(2)(C) and with special clothing in accordance with 04.0102(d)(3).

(d) Personal protective equipment.

(1) Compliance with the exposure limits prescribed by 04.0102(b) may not be achieved by the use of respirators or shift rotation of employees, except:

(A) During the time period necessary to install the engineering controls and to institute the work practices required by 04.0102(c);

(B) In work situations in which the methods prescribed in 04.0102(c) are either technically not feasible or feasible to an extent insufficient to reduce the airborne concentrations of asbestos fibers below the limits prescribed by 04.0102(b); or

(C) In emergencies.

(D) Where both respirators and personnel rotation are allowed by 04.0102(d)(1)(A), (B) or (C), and both are practicable, personnel rotation shall be preferred and used.

(2) Where a respirator is permitted by 04.0102(d)(1), it shall be selected from among those approved by the Bureau of Mines, Department of the Interior, or the National Institute for Occupational Safety and Health, Department of Health, Education, and Welfare, under the provisions of 30 CFR Part 11 (37 F.R. 6244, Mar. 25, 1972), and shall be used in accordance with 04.0102(d)(2)(A), (B), (C) and (D).

(A) Air purifying respirator. A reusable or single use air purifying respirator, or a respirator described in 04.0102(d)(2)(B) or (C), shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in 04.0102(b), when the ceiling or the 8-hour time weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed no more than 10 times those limits.

(B) Powered air purifying respirators. A full facepiece powered air purifying respirator, or a powered air purifying respirator, or a respirator described in 04.0102(d)(2)(C), shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in 04.0102(b), when the ceiling or the 8-hour time weighted average concentrations of asbestos fibers are reasonably expected to exceed 10 times, but not 100 times, those limits.

(C) Type "C" supplied-air respirators, continuous flow or pressure-demand class. A type "C" continuous flow or pressure-demand, supplied-air respirator shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in 04.0102(b), when the ceiling or the 8-hour time weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed 100 times those limits.

(D) Establishment of a respirator program.

(i) The employer shall establish a respirator program in accordance with the requirements of the American National Standards Practices for Respiratory Protection, ANSI Z88.2-1969, which is incorporated by reference herein.

(ii) See 1910.6 of the Federal Occupational Safety and Health Act concerning the availability of ANSI Z88.2-1969 and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in 04.0102.

(iii) No employee shall be assigned to tasks requiring the use of respirators if, based upon his most recent examination, the examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by his use of a respirator. Such employee shall be rotated to another job or given the opportunity to transfer to a different position whose duties he is able to perform with the same employer, in the same geographical area and with the same seniority, status, and rate of pay he had just prior to such transfer, if such a different position is available.

(3) Special clothing. The employer shall provide, and require the use of, special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos fibers, which exceed the ceiling level prescribed in 04.0102(b).

(4) Change rooms.

(A) At any fixed place of employment exposed to airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in 04.0102(b), the employer shall provide change rooms for employees working regularly at the place.

(B) Clothes lockers. The employer shall provide two separate lockers or containers for each employee, so separated or isolated as to prevent contamination of the employee's street clothes from his work clothes.

(C) Laundering.

(i) Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in 04.0102(b).

(ii) Any employer who gives asbestos-contaminated clothing to another person for laundering shall inform such person of the requirement in 04.0102(d)(4)(C)(i) to effectively prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in 04.0102(b).

(iii) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with 04.0102(g).

(e) Method of measurement. All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-450 X (magnification) (4 millimeter objective) with phase contrast illumination.

(f) Monitoring.

(1) Initial determinations. Within six months of the publication of 04.0102 every employer shall cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employee's exposure to asbestos fibers is below the limits prescribed in 04.0102(b). If the limits are exceeded, the employer shall immediately undertake a compliance program in accordance with 04.0102(c).

(2) Personal monitoring.

(A) Samples shall be collected from within the breathing zone of the employees, on membrane filters of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(B) Sampling frequency and patterns. After the initial determinations required by 04.0102(f)(1), samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees. In no case shall the sampling be done at intervals greater than six months for employees whose exposure to asbestos may reasonably be foreseen to exceed the limits prescribed by 04.0102(b).

(3) Environmental monitoring.

(A) Samples shall be collected from areas of a work environment which are representative of the airborne concentration of asbestos fibers which may reach the breathing zone of employees. Samples shall be collected on a membrane filter of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(B) Sampling frequency and patterns. After the initial determinations required by 04.0102(f)(1), samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than six months for employees whose exposures to asbestos may reasonably be foreseen to exceed the exposure limits prescribed in 04.0102(b).

(4) Employee observation of monitoring. Affected employees, or their representatives, shall be given a reasonable opportunity to observe any monitoring required by 04.0102 and shall have access to the records thereof.

(g) Caution signs and labels.

(1) Caution signs.

(A) Posting. Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may be in excess of the exposure limits prescribed in 04.0102(b). Signs shall be posted at such a distance from such a location so that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to areas containing excessive concentrations of airborne asbestos fibers.

(B) Sign specifications. The warning signs required by 04.0102(g)(1)(A) shall conform to the requirements of 20 inches by 14 inches vertical format signs specified in 02.0105 and to 04.0102(g)(1)(B). The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in 04.0102(g)(1)(B).

<u>Legend</u>	<u>Notation</u>
Asbestos	1 in. Sans Serif, Gothic or Block
Dust hazard	½ in. Sans Serif, Gothic or Block
Avoid breathing dust	¾ in. Gothic
Wear assigned protective equipment	¾ in. Gothic
Do not remain in area unless your work requires it.	¾ in. Gothic
Breathing asbestos dust may be hazardous to your health	14 point Gothic

Spacing between lines shall be at least equal to the height of the upper of any two lines.

-2) Caution labels.

(A) Labeling. Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent, coating, binder, or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in 04.0102(b) will be released.

(B) Label specifications. The caution labels required by 04.0102(g)(2)(A) shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION
Contains Asbestos Fibers
Avoid Creating Dust
Breathing Asbestos Dust May Cause
Serious Bodily Harm

(h) Housekeeping.

(1) Cleaning. All external surfaces in any place of employment shall be maintained free of accumulations of asbestos fibers if, with their dispersion, there would be an excessive concentration.

(2) Waste disposal. Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing, consigned for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation, airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in 04.0102(b), shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers.

(i) Recordkeeping.

(1) Exposure records. Every employer shall maintain records of any personal or environmental monitoring required by 04.0102. Records shall be maintained for a period of at least 20 years and shall be made available upon request to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health, and to authorized representatives of either.

(2) **Employee access.** Every employee and former employee shall have reasonable access to any record required to be maintained by 04.0102(i)(1) which indicates the employee's own exposure to asbestos fibers.

(3) **Employee notification.** Any employee found to have been exposed at any time to airborne concentrations of asbestos fibers in excess of the limits prescribed in 04.0102(b) shall be notified in writing of the exposure as soon as practicable but not later than five days of the finding. The employee shall also be timely notified of the corrective action being taken.

(j) **Medical examinations.**

(1) **General.** The employer shall provide or make available at his cost, medical examinations relative to exposure to asbestos required by 04.0102(j).

(2) **Preplacement.** The employer shall provide or make available to each of his employees, within 30 calendar days following his first employment in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination, which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at one second (FEV_{1.0}).

(3) **Annual examinations.** On or before January 31, 1973, and at least annually thereafter, every employer shall provide, or make available, comprehensive medical examinations to each of his employees engaged in occupations exposed to airborne concentrations of asbestos fibers. Such annual examination shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at one second (FEV_{1.0}).

(4) **Termination of employment.** The employer shall provide, or make available, within 30 calendar days before or after the termination of employment of any employee engaged in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at one second (FEV_{1.0}).

(5) **Recent examinations.** No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with 04.0102(j) within the past one-year period.

(B) **Medical records.**

(A) **Maintenance.** Employers of employees examined pursuant to 04.0102(j) shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be retained by employers for at least 20 years.

(B) **Access.** The contents of the records of the medical examinations required by 04.0102(j) shall be made available, for inspection and copying, to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of NIOSH, to authorized physicians and medical consultants of either of them, and, upon the request of an employee or former employee, to his physician. Any physician who conducts a medical examination required by 04.0102(j) shall furnish to the employer of the examined employee all the information specifically required by 04.0102(j) and any other medical information related to occupational exposure to asbestos fibers.

04.0103 Ventilation. (a) Abrasive blasting.

(1) Definitions applicable to 04.0103.

(A) Abrasive. A solid substance used in an abrasive blasting operation.

(B) Abrasive-blasting respirator. A continuous flow air-line respirator constructed so that it will cover the wearer's head, neck, and shoulders to protect him from rebounding abrasive.

(C) Blast cleaning barrel. A complete enclosure which rotates on an axle, or which has an internal moving tread to tumble the parts, in order to expose various surfaces of the parts of the action of an automatic blast spray.

(D) Blast cleaning room. A complete enclosure in which blasting operations are performed and where the operator works inside of the room to operate the blasting nozzle and direct the flow of the abrasive material.

(E) Blasting cabinet. An enclosure where the operator stands outside and operates the blasting nozzle through an opening or openings in the enclosure.

(F) Clean air. Air of such purity that it will not cause harm or discomfort to an individual if it is inhaled for extended periods of time.

(G) Dust collector. A device or combination of devices for separating dust from the air handled by an exhaust ventilation system.

(H) Exhaust ventilation system. A system for removing contaminated air from a space, comprising two or more of the following elements: (a) enclosure or hood, (b) duct work, (c) dust collecting equipment, (d) exhauster, and (e) discharge stack.

(I) Particulate-filter respirator. An air purifying respirator, commonly referred to as a dust or a fume respirator, which removes most of the dust or fume from the air passing through the device.

(J) Respirable dust. Airborne dust in sizes capable of passing through the upper respiratory system to reach the lower lung passages.

(K) Rotary blast cleaning table. An enclosure where the pieces to be cleaned are positioned on a rotating table and are passed automatically through a series of blast sprays.

(L) Abrasive blasting. The forcible application of an abrasive to a surface by pneumatic pressure, hydraulic pressure, or centrifugal force.

(2) Dust hazards from abrasive blasting.

(A) Abrasives and the surface coatings on the materials blasted are shattered and pulverized during blasting operations and the dust formed will contain particles of respirable size. The composition and toxicity of the dust from these sources shall be considered in making an evaluation of the potential health hazards.

(B) The concentration of respirable dust or fume in the breathing zone of the abrasive-blasting operator or any other worker shall be kept below the levels specified in 04.0101.

SUBCHAPTER 1 - GENERAL SAFETY CODE

ARTICLE 4 - PERSONAL PROTECTIVE EQUIPMENT

01.0401 General requirements. (a) Application. Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

(b) Employee-owned equipment. Where employees provide their own protective equipment, the employer shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment.

(1) Other personal safety equipment or clothing, such as rubber gloves, rubber boots, leggings, aprons, hand pads, safety belts, life lines, buoyant vests, shall be furnished to the employees who are exposed to hazards where such device may be expected to prevent injury.

(c) Design. All personal protective equipment shall be of safe design and construction for the work to be performed.

(d) Sterilization. Goggles, rubber gloves, respirators and other protectors shall not be interchanged among employees unless they have been sterilized.

01.0402 Eye and face protection. (a) General.

(1) Protective eye and face equipment shall be required where there is a reasonable probability of injury that can be prevented by such equipment. In such cases, employers shall make conveniently available a type of protector suitable for the work to be performed, and employees shall use such protectors. No unprotected person shall knowingly be subjected to a hazardous environmental condition. Suitable eye protectors shall be provided where machines or operations present the hazard of flying objects, glare, liquids, injurious radiation, or a combination of these hazards.

(A) An employer must provide all employees working with acids, protective clothing, as well as any other equipment needed for safety purposes.

(B) Goggles, hard hats, masks, shields, or other prescribed face, eye and head protection shall be worn by employees who are engaged in welding, grinding, torch cutting, snagging or chipping, handling molten metals, caustics, or who are exposed to harmful rays, dust or flying materials of any kind.

(2) Protectors shall meet the following minimum requirements.

(A) They shall provide adequate protection against the particular hazards for which they are designed.

(B) They shall be reasonably comfortable when worn under the designated conditions.

(C) They shall fit snugly and shall not unduly interfere with the movements of the wearer.

(D) They shall be durable.

(E) They shall be capable of being disinfected.

(F) They shall be easily cleanable.

(G) Protectors shall be kept clean and in good repair.

(3) Persons whose vision requires the use of corrective lenses in spectacles, and who are required by this standard to wear eye protection, shall wear goggles of one of the following types:

(A) Spectacles whose protective lenses provide optical correction.

(B) Goggles that can be worn over corrective spectacles without disturbing the adjustment of the spectacles.

(C) Goggles that incorporate corrective lenses mounted behind the protective lenses.

(4) Every protector shall be distinctly marked to facilitate identification only of the manufacturer.

(5) When limitations or precautions are indicated by the manufacturer, they shall be transmitted to the user and care taken to see that such limitations and precautions are strictly observed.

(6) Design, construction, testing, and use of devices for eye and face protection shall be in accordance with American National Standard for Occupational and Educational Eye and Face Protection, Z87.1-1968.

01.0403 Respiratory protection. (a) Permissible practice.

(1) In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective

shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to the following requirements.

(2) Respirators shall be provided by the employer when such equipment is necessary to protect the health of the employees. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protective program which shall include the requirements outlined in 01.0403(b).

(3) The employee shall use the provided respiratory protection in accordance with instructions and training received.

(b) Requirements for a minimal acceptable program.

(1) Written standard operating procedures governing the selection and use of respirators shall be established.

(2) Respirators shall be selected on the basis of hazards to which the worker is exposed.

(3) The user shall be instructed and trained in the proper use of respirators and their limitations.

(4) Where practicable, the respirators should be assigned to individual workers for their exclusive use.

(5) Respirators shall be regularly cleaned and disinfected. Those issued for the exclusive use of one worker should be cleaned after each day's use, or more often if necessary. Those used by more than one worker shall be thoroughly cleaned and disinfected after each use.

(6) Respirators shall be stored in a convenient clean, and sanitary location.

(7) Respirators used routinely shall be inspected during cleaning. Worn or deteriorated parts shall be replaced. Respirators for emergency use, such as self-contained devices shall be thoroughly inspected at least once a month and after each use.

(8) Appropriate surveillance of work area conditions and degree of employee exposure or stress shall be maintained.

(9) There shall be regular inspection and evaluation to determine the continued effectiveness of the program.

(10) Persons should not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. The local physician shall determine what health and physical conditions are pertinent. The respirator user's medical status should be reviewed periodically (for instance, annually.)

(11) Approved or accepted respirators shall be used when they are available. The respirators furnished shall provide adequate respiratory protection against the particular hazard for which it is designed in accordance with standards established by competent authorities. The U.S. Department of Interior, Bureau of Mines, and the U.S. Department of Agriculture are recognized as such authorities. Although respirators listed by the U.S. Department of Agriculture continue to be acceptable for protection against specified pesticides, the U.S. Department of the Interior, Bureau of Mines, is the agency now responsible for testing and approving pesticide respirators.

(c) Selection of respirators. Proper selection of respirators shall be made according to the guidance of American National Standard Practices for Respiratory Protection Z88.1-1969.

(d) Air quality.

(1) Compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration shall be of high purity. Oxygen shall meet the requirements of the United State Pharmacopoeia for medical or breathing oxygen. Breathing air shall meet at least the requirements of the specification for Grade D breathing air as described in Compressed Gas Association, Commodity Specification G-7.1-1966. Compressed oxygen shall not be used in supplied-air respirators or in open circuit self-contained breathing apparatus that have previously used compressed air. Oxygen must never be used with air line respirators.

(2) Breathing air may be supplied to respirators from cylinders or air compressors.

(A) Cylinders shall be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR Part 178.)

(B) The compressor for supplying air shall be equipped with necessary safety and standby devices. A breathing air-type compressor shall be used. Compressors shall be constructed and situated so as to avoid entry of contaminated air into the system and suitable in-line purifying sorbent beds and filters installed to further assure breathing air quality. A receiver of sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere in event of compressor failure, and alarms to indicate compressor failure and overheating shall be in-

stalled in the system. If an oil-lubricated compressor is used, it shall have a high-temperature or carbon monoxide alarm, or both. If only a high-temperature alarm is used, the air from the compressor shall be frequently tested for carbon monoxide to insure that it meets the specifications in 01.0403(d)(1).

(3) Air line couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of air line respirators with non-respirable gases or oxygen.

(4) Breathing gas containers shall be marked in accordance with American National Standard Method of Marking Portable Compressed Gas Containers to Identify the Material Contained, Z48.1-1954; Federal Specification BB-A-1034a, June 21, 1968, Air, Compressed for Breathing Purposes; or Interim Federal Specification GG-B-00675b, April 27, 1965, Breathing Apparatus, Self-Contained.

(e) Use of respirators.

(1) Standard procedures shall be developed for respirator use. These should include all information and guidance necessary for their proper selection, use and care. Possible emergency and routine uses of respirators should be anticipated and planned for.

(2) The correct respirator shall be specified for each job. The respirator type is usually specified in the work procedures by a qualified individual supervising the respiratory protective program. The individual issuing them shall be adequately instructed to insure that the correct respirator is issued. Each respirator permanently assigned to an individual should be durably marked to indicate to whom it was assigned. This mark shall not affect the respirator performance in any way. The date of issuance should be recorded.

(3) Written procedures shall be prepared covering safe use of respirators in dangerous atmospheres that might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators.

(A) In areas where the wearer, with failure of the respirator, could be overcome by a toxic or oxygen-deficient atmosphere, at least one additional man shall be present. Communications (visual, voice, or signal line) shall be maintained between both or all individuals present. Planning shall be such that one individual will be unaffected by any likely incident and have the proper rescue equipment to be able to assist the other(s) in case of emergency.

(B) When self-contained breathing apparatus or hose masks with blowers are used in atmospheres immediately dangerous to life or health, standby men must be present with suitable rescue equipment.

(C) Persons using air line respirators in atmospheres immediately hazardous to life or health shall be equipped with safety harnesses and safety lines for lifting or removing persons from hazardous atmospheres or other and equivalent provisions for the rescue of persons from hazardous atmospheres shall be used. A standby man or men with suitable self-contained breathing apparatus shall be at the nearest fresh air base for emergency rescue.

(4) Respiratory protection is no better than the respirator in use, even though it is worn conscientiously. Frequent random inspections shall be conducted by a qualified individual to assure that respirators are properly selected, used, cleaned and maintained.

(5) For safe use of any respirator, it is essential that the user be properly instructed in its selection, use and maintenance. Both supervisors and workers shall be so instructed by competent persons. Training shall provide the men an opportunity to handle the respirator, have it fitted properly, test its facepiece-to-face seal, wear it in normal air for a long familiarity period, and, finally, to wear it in a test atmosphere.

(A) Every respirator wearer shall receive fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly. Respirators shall not be worn when conditions prevent a mask to skin face seal. To assure proper protection, the facepiece fit shall be checked by the wearer each time he puts on the respirator. This may be done by following the manufacturer's facepiece fitting instructions. Conditions which could prevent a mask to skin face seal may be a growth of beard, sideburns, a skull cap that projects under the facepiece, or temple pieces on glasses. Also the absence of one or both dentures can affect the fit of a facepiece. The worker's diligence in observing these factors shall be evaluated by periodic check.

(B) Providing respiratory protection for individuals wearing corrective glasses is a serious problem. A proper seal cannot be established if the temple bars of eye glasses extend through the sealing edge of the full facepiece. As a temporary measure, glasses with short temple bars or without temple bars may be taped to the wearer's head. Wearing of contact lenses in contaminated atmosphere with a respirator shall not be allowed. Systems have been developed for mounting corrective lenses inside full facepieces. When a workman must wear corrective lenses as part of the facepiece, the facepiece and lenses shall be fitted by qualified individuals to provide good vision, comfort, and a gas-tight seal.

(C) If corrective spectacles or goggles are required, they shall be worn so as not to affect the fit of the facepiece. Proper selection of equipment will minimize or avoid this problem.

(f) Maintenance and care of respirators.

(1) A program for maintenance and care of respirators shall be adjusted to the type of plant, working conditions, and hazards involved, and shall include the following basic services:

(A) Inspection for defects (including a leak check.)

(B) Cleaning and disinfecting.

(C) Repair, and

(D) Storage

Equipment shall be properly maintained to retain its original effectiveness.

(2) Inspection of respirators.

(A) All respirators shall be inspected routinely before and after each use. A respirator that is not routinely used but is kept ready for emergency use shall be inspected after each use and at least monthly to assure that it is in satisfactory working condition.

(B) Self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be fully charged according to the manufacturer's instruction. It shall be determined that the regulator and warning devices function properly.

(C) Respirator inspection shall include a check of the tightness of connections and the condition of the facepiece, headbands, valves, connecting tube, and canisters. Rubber or

elastomer parts shall be inspected for pliability and signs of deterioration. Stretching and manipulating rubber or elastomer parts with a massaging action will keep them pliable and flexible and prevent them from taking a set during storage.

(D) A record shall be kept of inspection dates and findings for respirators maintained for emergency use.

(3) Routinely used respirators shall be collected, cleaned, and disinfected as frequently as necessary to insure that proper protection is provided for the wearer. Each worker should be briefed on the cleaning procedure and be assured that he will always receive a clean and disinfected respirator. Such assurances are of greatest significance when respirators are not individually assigned to workers. Respirators maintained for emergency use shall be cleaned and disinfected after each use.

(4) Replacement or repairs shall be done only by experienced persons with parts designed for the respirator. No attempt shall be made to replace components or to make adjustment or repairs beyond the manufacturer's recommendations. Reducing or admission valves or regulators shall be returned to the manufacturer or to a trained technician for adjustment or repair.

(5) Storage of respirators.

(A) After inspection, cleaning, and necessary repair, respirators shall be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Respirators placed at stations and work areas for emergency use should be quickly accessible at all times and should be stored in compartments built for the purpose. The compartments should be clearly marked. Routinely used respirators, such as dust respirators, may

be placed in plastic bags. Respirators should not be stored in such places as lockers or tool boxes unless they are in carrying cases or cartons.

(B) Respirators should be packed or stored so that the facepiece and exhalation valve will rest in a normal position and function will not be impaired by the elastomer setting in an abnormal position.

(C) Instructions for proper storage of emergency respirators, such as gas masks and self-contained breathing apparatus, are found in "use and care" instructions usually mounted inside the carrying case lid.

(g) Identification of gas mask canisters.

(1) The primary means of identifying a gas mask canister shall be by means of properly worded labels. The secondary means of identifying a gas mask canister shall be by a color code.

(2) All who issue or use gas masks falling within the scope of 01.0403 shall see that all gas mask canisters purchased or used by them are properly labeled and colored in accordance with these requirements before they are placed in service and that the labels and colors are properly maintained at all times thereafter until the canisters have completely served their purpose.

(3) On each canister shall appear in bold letters the following:

(A) Canister for _____
or Type N Gas Mask Canister.

SUBCHAPTER 1 - GENERAL SAFETY CODE

Article 1 - General Safety and Health Considerations

01.0101 Purpose and Scope. (a) This subchapter sets forth the occupational safety and health standards adopted by the Commissioner of Labor for the purpose of providing the Alaskan work force with a healthful and safe place to work.

01.0102 Employer Requirements. (a) The employer shall furnish to each of his employees, employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees. This shall be implemented by the employer by complying with these regulations.

(b) The employer shall initiate and maintain accident prevention programs for the prevention of occupational illness and disease.

(c) Employers shall display a poster, furnished by the Alaska Department of Labor, in places where notices to employees are generally posted. The poster will outline appropriate provisions of AS 18.60.010 to AS 18.60.105.

01.0103 Employee Requirements. (a) Each employee shall comply with all regulations contained in this chapter which are applicable to his own actions while on the job.

(b) Employees shall conscientiously use all safety devices, procedures, and personal protective equipment required by these regulations.

01.0104 Reporting of Injuries. Occupational injuries shall be reported in accordance with AS 18.60.058.

01.0105 Accident-Prevention Program. (a) Program organization.

(1) Every employer shall start and maintain an accident prevention program. The program shall provide that personnel knowledgeable in the field of occupational safety and health shall make daily inspections of on the job equipment and activities. The employer shall insure that immediate action be taken to eliminate all hazards.

(2) Each employer shall adopt a code of safe practices and procedures which applies to his operation and which embraces the applicable provisions of these regulations. It shall be the obligation of the employer to have the safe practices code posted in a conspicuous location at each job site office.

(3) Each employer shall insure that the supervisory personnel shoulder their share of the responsibility for accidents. It is suggested that a written report be submitted by each supervisor associated with an accident. These reports should suggest a feasible means of avoiding future accidents of a similar nature.

(b) Recommendations.

(1) Each employer should display an interest in safety matters by:

(A) The display of safety posters and warning signs. A sign indicating how many consecutive accident free days have passed is often worthwhile.

(B) Considering the advisability of posting a list of all foremen who have kept their crews accident free for a certain period of time.

(C) Considering the advisability of establishing various forms of safety competition, including suitable rewards or recognition to individuals and crews with good records.

(c) General safety requirements.

(1) Anyone known to be under the influence of intoxicating liquor, narcotics or drugs shall not be allowed on the job while in that condition. Further, horseplay, scuffling, and other acts which tend to have an adverse influence on the safety or well-being of the employees shall be prohibited.

(2) No one shall knowingly be permitted or required to work while his ability and alertness is impaired by fatigue, illness, or other causes that might unnecessarily expose him or others to injury.

Toxic Substances



Guidance for Controlling Friable Asbestos-Containing Materials in Buildings



6258

**EPA Report Number 560/5-83-002
March 1983**

**GUIDANCE FOR CONTROLLING
FRIABLE ASBESTOS-CONTAINING
MATERIALS IN BUILDINGS**

**Field Studies Branch
Design and Development Branch
Exposure Evaluation Division
Office of Toxic Substances
Office of Pesticides and Toxic Substances
U.S. Environmental Protection Agency
Washington, D.C. 20460**

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Executive Summary

The Environmental Protection Agency (EPA) has been concerned about the disease-causing potential of exposure to airborne asbestos in nonindustrial settings since the early 1970s. In the late 1970s, attention was focused on schools and other buildings where asbestos is present in a variety of construction materials. EPA initiated a Technical Assistance Program (TAP) to help school districts identify and correct potential asbestos hazards. As part of this program, in 1979 EPA prepared and distributed "Asbestos-Containing Materials in School Buildings: A Guidance Document," Parts 1 and 2, which describes how to establish an asbestos identification and control program. It provides both background information and direction for school officials on exposure assessment and the control of asbestos-containing materials.

During the four years since publication of the guidance document, EPA has gathered additional information and has gained valuable experience in assessing the need for corrective action and in controlling the release of fibers from asbestos-containing materials. The purpose of the present document is to supplement previous EPA guidance by emphasizing recent experience and new information on asbestos control. The guidance is important not only for school officials, but also for building owners in general who may have to consider implementing an asbestos control program.

The document serves six specific functions:

- (1) To provide a current summary of data on exposure to airborne asbestos;
- (2) To identify organizational and procedural issues in establishing an asbestos control program;
- (3) To review technical issues confronted when assessing the potential for exposure to airborne asbestos in particular indoor settings;
- (4) To summarize and update information on the applicability, effectiveness, and relative costs of alternative remedial actions;
- (5) To suggest a structured process for selecting a particular course of action, given information on exposure levels, assessment methods, and abatement techniques; and
- (6) To introduce and discuss criteria for determining successful asbestos control.

Substantial scientific uncertainty accompanies many of the technical considerations in the assessment of exposure to airborne asbestos, and the success of any specific abatement action often depends on the circumstances in which it is undertaken. Nevertheless, decisions regarding the need for and types of control must be made. For those readers who previously have been involved in the Asbestos-in-Schools program, the guidance offered will serve as a review and update of familiar issues. For those confronted with the problem of controlling asbestos for the first time, the document will identify the critical issues, introduce information on asbestos exposure and control, and direct the reader toward the structured development of an asbestos control program.

The focus of this report is asbestos-containing material in friable form. Friable materials have a greater potential for fiber release and thus pose a greater hazard than other forms of asbestos-containing materials. Nonfriable materials which contain asbestos also are addressed, but only regarding the need for documentation and periodic inspection.

The report is organized in four chapters. Background information on health risks and asbestos exposure levels is presented in Chapter 1. Chapter 2 emphasizes the organizational and

procedural aspects of developing and managing an asbestos control program. Chapter 3 discusses the key technical issues associated with assessing the need for corrective action and selecting an asbestos control measure. Chapter 4 focuses on criteria for determining that an asbestos abatement project has been successfully completed. The key issues and recommendations are summarized at the beginning of each chapter and are provided below.

Health Effects and Exposure

- Exposure to airborne asbestos, regardless of the level, involves some health risk.
- Children and young adults who are exposed to asbestos have a greater chance than older people of developing certain asbestos-related diseases, due to a longer remaining lifespan during which disease may develop. Also, smokers exposed to asbestos are at greater risk than nonsmokers experiencing a similar level of exposure.
- Prevalent levels of airborne asbestos inside buildings where asbestos-containing materials are present may exceed outdoor levels by a factor of 100. However, these indoor levels are lower by a factor of at least 1,000 than historic asbestos workplace levels where the occurrence of asbestos-related disease is well documented. When asbestos-containing materials are damaged, peak levels inside buildings may approach historic workplace levels.
- Current regulations restrict the use of asbestos in new buildings, specify work practices during the removal of asbestos-containing materials from existing buildings, and require the identification of asbestos in schools. No exposure standards have been established for nonindustrial settings, and no regulations mandate which corrective actions need to be taken in buildings where asbestos-containing materials are found.
- The potential for exposure to airborne asbestos in buildings and the associated risk of asbestos-related disease cannot be ignored. The decision whether or not to take action and the selection among alternative courses of action are the responsibility of the individual building owner.

Developing a Control Program

- A building owner should delegate the responsibility for directing and managing the control program activities to one individual. This person is called the asbestos program manager.
- A program plan is needed to address:
 - detection of asbestos-containing materials;
 - assessment of the exposure potential;
 - evaluation of control options;
 - management of a control program; and
 - recordkeeping.
- Managing a control program is a complex undertaking requiring:
 - identification and selection of technical experts;
 - training of control program staff;
 - selection of contractors;
 - supervision of workers; and
 - recordkeeping.

Implementing a Control Program

- Buildings should be inspected for friable materials, and building records should be checked for specifications of both friable and nonfriable asbestos-containing materials.
- Friable materials should be sampled and analyzed for the presence of asbestos. Procedures for sampling and analysis are described in previous EPA guidance.
- If asbestos-containing materials are present, the need for corrective action should be assessed. Assessment factors identified in previous EPA guidance are useful qualitative tools. Numerical scoring and index systems have not proven reliable. Air monitoring as a tool for assessing the need for corrective action is not recommended at this time. However, air monitoring may play a role in determining the successful completion of abatement projects, as noted below.
- Four control alternatives should be considered: removal, enclosure, encapsulation, and a special maintenance and operations program.
- Specific cleaning procedures should be instituted to reduce levels of airborne asbestos while waiting for an abatement action to begin.
- A continuing program of special maintenance and periodic reassessment is needed even after an abatement has been completed, unless the asbestos-containing material has been removed.

Determining Abatement Completion

- Visual inspection should be conducted to ensure that all work is complete and that the worksite is free of dust and debris.
- Air monitoring of total airborne fibers by phase contrast microscopy should supplement visual inspection to determine project completion. The use of air monitoring in this situation does not establish that the building is free of airborne asbestos fibers after abatement. Rather, it is used to determine that elevated fiber levels resulting from the abatement work have been reduced.

CHAPTER 1 — EXPOSURE TO ASBESTOS INSIDE BUILDINGS

The Environmental Protection Agency (EPA) has been concerned with the disease-causing potential of nonindustrial exposure to asbestos since the early 1970s. The concern derives from epidemiologic evidence linking airborne asbestos exposures by asbestos workers to various types of cancer and nonmalignant respiratory diseases, and from recognition that large quantities of asbestos have been found in building materials, insulation, and other products used in schools and other buildings. This chapter (1) summarizes information on the relationship between health effects and exposure to airborne asbestos; (2) describes federal regulations affecting asbestos emissions, the use of asbestos materials, and worker exposure levels; and (3) compares levels of airborne asbestos in buildings with those in asbestos workplace settings and outdoors. The purpose of the chapter is to place in perspective asbestos exposure levels and health risks likely to be experienced by occupants of buildings with asbestos-containing materials. The basic exposure-risk issues are summarized below.

Safe Level of Exposure: EPA and the scientific community believe that any level of exposure to asbestos involves some health risk, although the exact degree of risk cannot be reliably estimated. The risk of cancer is of greater concern at low exposure levels than the risk of asbestosis.

Special Concerns: Children and young adults who are exposed to asbestos have a greater chance than older people of developing certain asbestos-related diseases due to a longer remaining lifespan during which disease may develop. Also, smokers exposed to asbestos are at greater risk than nonsmokers with a similar level of exposure.

Federal Regulations Affecting Asbestos in Buildings: Current regulations restrict the use of asbestos in new buildings, specify work practices during removal of asbestos-containing materials from existing buildings, and require the identification of asbestos in schools. No exposure standards have been set for nonindustrial settings, and no regulations mandate corrective actions in buildings where asbestos-containing materials are found.

Relative Exposure Levels in Buildings: Prevalent levels of airborne asbestos inside buildings where asbestos-containing materials are present may exceed outdoor levels by a factor of 100. However, these indoor levels are lower by a factor of at least 1,000 than historic asbestos workplace levels where the occurrence of asbestos-related disease is well documented. When asbestos-containing materials are damaged, peak levels inside buildings may approach historic workplace levels.

Need for Action: The level of airborne asbestos in buildings with asbestos-containing materials represents a potential for exposure and risk of asbestos-related disease that cannot be ignored. The decision whether or not to take action and the selection among different courses of action are responsibilities of individual building owners.

1.1 Health Effects Related to Asbestos Exposure

Exposure to high levels of airborne asbestos is associated with a debilitating lung disease called asbestosis; a rare cancer of the chest and abdominal lining called mesothelioma; and cancers of the lung, esophagus, stomach, colon, and other organs. The relationship between exposure level and health risk is complex. The best available data on asbestos worker exposure indicate that the risks of asbestosis, lung cancer, and mesothelioma decrease in direct proportion to a decrease in total asbestos exposure (the average airborne asbestos

concentration multiplied by the duration of exposure). At exposure levels below those allowed for asbestos workers, the risk of asbestosis is negligible. Some scarring of lung tissue may appear on X-rays after many years of low exposure, but no impairment of respiratory function is likely to occur. However, the incidence of lung cancer and mesothelioma exceeds baseline rates even at very low exposure levels. This conclusion is supported by the increased incidence of lung cancer for workers experiencing the equivalent of five years' exposure to airborne asbestos at the current federal workplace standard (USEPA 1982). In addition, mesothelioma has been found in persons whose only known exposure to asbestos was from living in a household with asbestos workers or in the neighborhood of asbestos mines, mills, or processing facilities (USEPA 1982).

Asbestos-related lung cancer usually appears after age 45, and its occurrence is heavily influenced by cigarette smoking. For example, in one study of asbestos workers, smokers experienced a fiftyfold increased incidence of lung cancer compared with similarly-aged workers who neither smoked nor were exposed to asbestos. Among the nonsmoking asbestos workers, only a fivefold increase in incidence was found (USEPA 1982).

The age at which asbestos exposure occurs is relatively unimportant for determining the lifetime risk of lung cancer for people less than 45 years old. Asbestos inhaled at age 15 has virtually the same effect in terms of lifetime risk as asbestos inhaled at age 40. In contrast with lung cancer, the age at which asbestos exposure occurs is very important in determining the lifetime risk of developing mesothelioma. This fact creates a special concern for asbestos exposure in children. Studies of workplace exposure indicate that, for persons exposed for several years, the probability of developing mesothelioma remains constant for an initial period and then increases continuously with time from onset of exposure. Since children have a greater remaining lifespan than adults, their lifetime risk should be greater. For example, asbestos workplace studies suggest that a child exposed from age 5 to 10 has at least 10 times the chance of developing mesothelioma as does an adult exposed to the same amount of asbestos between ages 35 and 40.*

1.2 EPA and OSHA Regulations Related to Asbestos

Both EPA and the Occupational Safety and Health Administration (OSHA) have published regulations to reduce exposure to asbestos. The EPA rules have focused on two aspects of asbestos in buildings: (1) the application of asbestos-containing materials in new or remodeled buildings, and (2) the identification of friable† asbestos in schools. In addition to these rules, EPA has regulated the emission of asbestos fibers from the handling of asbestos in asbestos industries and the disposal of asbestos-containing waste. The OSHA regulations address worker protection in asbestos workplaces.

EPA has issued two sets of regulations. The first set was promulgated under the National Emission Standards for Hazardous Air Pollutants (NESHAPS) as authorized in the Clean Air Act. This set of regulations includes a 1973 ban on the use of spray-applied asbestos-containing materials in buildings for insulating or fireproofing purposes, except for equipment and machinery, as well as the specification of "no visible emissions" from permitted spraying, as published in the FEDERAL REGISTER (38 FR 8826).†† Methods of removing friable asbestos from buildings during demolition also were regulated at this time. The ban was amended in 1975 to include molded and wet-applied insulation, as published in the FEDERAL REGISTER (40 FR 48292). In addition, rules governing asbestos removal were broadened to include building renovation, and procedures for disposal of removed materials were defined. Finally, the ban on spraying asbestos-containing materials was broadened in 1978 to include

* Personal communication with William Nicholson, Mt. Sinai School of Medicine, 1982.

† The difference between friable and nonfriable materials is discussed in the introduction to Chapter 2.

†† Materials with less than 1 percent of asbestos by weight were excluded from the ban.

decorative applications, but also was clarified to exclude all applications covered with a particular type of nonfriable material, as published in the FEDERAL REGISTER (43 FR 26372). In addition to these regulations, emission standards have been promulgated under NESHAPS for asbestos mills, asbestos manufacturing facilities, and asbestos fabrication plants. (See 40 CFR, Part 61, Sections A and B for a compilation of all asbestos regulations issued under NESHAPS.)

The second set of EPA regulations is contained in the "Friable Asbestos-Containing Materials in Schools, Identification and Notification Rule," as published in the FEDERAL REGISTER (47 FR 23360). Known as the Asbestos-in-Schools rule, it requires all private and public primary and secondary schools to inspect, sample, and analyze friable materials to determine if asbestos is present. If friable asbestos is present, all school employees must be informed of the location of these materials and each custodial or maintenance employee must be provided a copy of the EPA publication, "A Guide for Reducing Asbestos Exposure," as published in the FEDERAL REGISTER (47 FR 23360). In addition, the school's parent-teacher group (or parents, if there is no organized group) must be notified of the presence of friable asbestos.

The OSHA regulations were first issued in 1972 and modified in 1976. (See 29 CFR, Part 1910 for the complete text.) They specify airborne exposure standards for asbestos workers, engineering and administrative controls, workplace practices, and medical surveillance and worker protection requirements. In 1982, OSHA announced its intention to make the exposure standards more stringent.* (See the "Calendar of Federal Regulations," published in the FEDERAL REGISTER [47 FR 1807].) The OSHA regulations apply to all workplace activities involving asbestos, including removal of asbestos-containing materials from buildings.

Although the NESHAPS and OSHA regulations include standards to reduce exposure to airborne asbestos, the standards were designed primarily to protect the health of people living near asbestos plants, working in the asbestos industry, or removing asbestos from buildings. Exposure to asbestos by persons occupying buildings with asbestos-containing materials is not addressed directly by the standards. Specifically, EPA's NESHAPS for asbestos are directed only at emissions into the outside air (no "visible emissions" resulting from asbestos-handling operations) and do not apply to indoor levels.

OSHA provides specific worker exposure standards, but the application of these standards to nonindustrial settings is inappropriate for two reasons. First, the current standards were set to protect workers against only asbestosis, not cancer. Second, the measurement technique for airborne fibers required to determine OSHA compliance cannot distinguish between asbestos and nonasbestos fibers. The measurement problem is not a major shortcoming in industrial settings where most airborne fibers are expected to be asbestos. However, airborne asbestos may represent only a small fraction of all fibers in the air in buildings, and the OSHA measurement technique may produce misleading conclusions. (Other limitations of the OSHA technique further confound the measurement of airborne asbestos in buildings. See Chapter 3, Section 3.2.3, for a more detailed discussion of measuring airborne asbestos.)

EPA's concern about potential indoor exposure is reflected in the Asbestos-in-Schools rule. Its intent is to reduce exposure to asbestos by locating asbestos-containing materials and alerting school employees and parents of school children to the presence of asbestos. However, standards for allowable airborne asbestos concentrations or exposure levels are not specified.

*As of July 1, 1976, the OSHA standards were set at 2 fibers per cubic centimeter averaged over 8 hours and a ceiling level not to exceed 10 fibers per cubic centimeter "at any time". OSHA is now evaluating the effect of lowering the 8-hour standard to either 0.5 or 0.1 fibers per cubic centimeter in order to protect workers against cancer, as published in the FEDERAL REGISTER (47 FR 1807).

1.3 Airborne Asbestos Levels in Buildings and the Potential Health Risk

Although quantitative estimates of the health risk from exposure to asbestos in buildings are not reliable, a general sense of the risk can be obtained by comparing levels of airborne asbestos measured in buildings with those observed outdoors and in asbestos workplaces. Historical workplace data will be used, since much of the evidence linking asbestos exposure with specific diseases is based on industrial exposure before 1970.

Most investigations of airborne asbestos are designed to measure prevalent concentrations, that is, air levels observed under normal conditions. Higher ("peak") levels that may result from damage to asbestos-containing materials in buildings typically are not reflected in these measurements. Figure 1 provides a graphic summary of data on prevalent concentrations of airborne asbestos in three types of settings: asbestos manufacturing or application facilities before imposition of the OSHA standard in 1972, schools where asbestos-containing materials are present, and outdoor locations in urban areas. In order to facilitate comparison, all data are expressed in nanograms per cubic meter (ng/m^3) units.* The range of values within each category reflects differences in the location and strength of asbestos sources as well as variability in asbestos measurements. Concentrations above the upper limits of these ranges may occur for short periods if, for example, manufacturing equipment malfunctions, insulating material is pierced with a sharp object, or asbestos-coated surfaces are disturbed by the impact of a projectile (for example, a ball bounced against a ceiling).

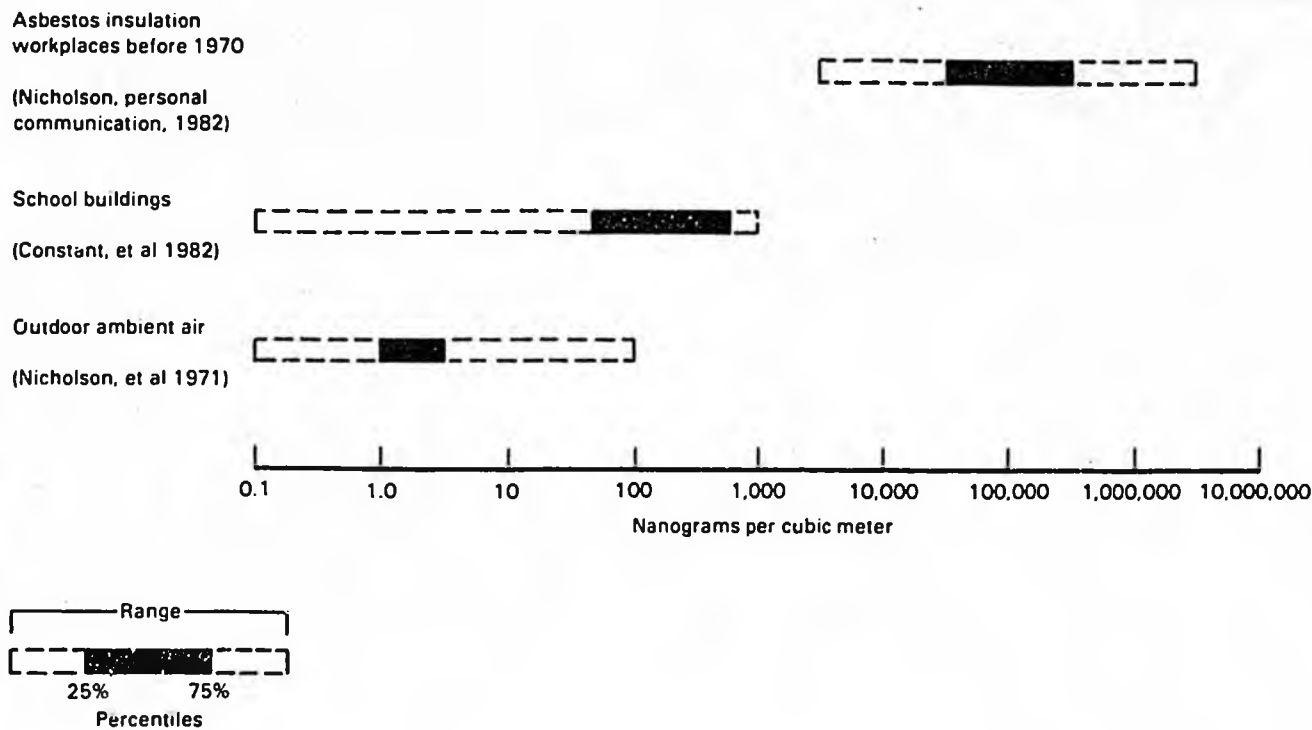
Comparing the values in Figure 1, one can see that airborne asbestos levels in buildings with asbestos-containing materials can be substantially higher than outdoor levels, but significantly lower than concentrations to which asbestos workers have been exposed. Prevalent concentrations of airborne asbestos found in a sample of schools are approximately 100 times higher than outdoor concentrations. Compared with historic levels of asbestos in workplaces, airborne asbestos in these schools is lower by a factor of between 1,000 and 10,000. However, short-term peak levels in buildings may be elevated considerably, perhaps approaching industrial levels.

Comparison of the data in Figure 1 should be made with some caution. The estimates of concentrations in asbestos workplaces are based on measurements of airborne fibers using the measurement method specified by OSHA (phase contrast microscopy), while the levels in schools and outdoors were measured by a different method (electron microscopy). Comparisons of measurements obtained by the two methods are based on certain assumptions presented in the footnote to Figure 1. The measurement of airborne asbestos fibers is a complex subject and is discussed in more detail in Section 3.2.2.

Questions of measurement comparability notwithstanding, the presence of significant levels of airborne asbestos in buildings with asbestos-containing materials has been clearly established. The potential for exposure to asbestos by building occupants cannot be ignored. Even though exposure levels are likely to be low in comparison with industrial levels, any additional exposure above background (outdoor) levels should be avoided if possible. A prudent response by building owners requires recognition of the potential hazards and serious consideration of appropriate abatement actions.

* Concentrations of asbestos fibers in the air are measured in terms of either the number of fibers per unit volume (typically, a cubic centimeter) or the mass per unit volume (typically, nanograms per cubic meter). A nanogram is one-billionth of a gram. See Appendix A for a simple discussion of measurement units used for airborne asbestos concentrations.

Figure 1. Comparison of measured airborne asbestos concentrations in three settings.*



*Levels in asbestos workplaces were derived from measurements using phase contrast microscopy (PCM) while levels in school buildings and outdoors were measured using electron microscopy (EM). PCM and EM measurements are not directly comparable. PCM measures all fibers whereas EM can distinguish between asbestos and nonasbestos fibers. In addition, EM has a better capability than PCM for detecting small fibers. In order to translate the workplace PCM measurements (expressed as fiber counts) into values of asbestos mass (nanograms) that are approximately comparable to EM measurements, 30 fibers were assumed to equal one nanogram. This value is an average obtained from many comparisons of PCM and EM measurements taken at the same location (industrial settings) and time. Values for individual samples range from about 10 fibers per nanogram of asbestos to well over 100 fibers per nanogram, depending on the average size of fibers and the relative number of asbestos and nonasbestos fibers in the air (Versar 1980 and William Nicholson, personal communication, 1982).

CHAPTER 2 — DEVELOPING A CONTROL PROGRAM

An asbestos control program for schools and other buildings begins with an investigation for evidence of asbestos-containing materials. If the presence of asbestos is confirmed, the program proceeds with an assessment of the need for corrective action, the implementation of asbestos control measures, and, if necessary, periodic reassessment.

This chapter addresses issues related to the organization and management of an asbestos control program for buildings where the presence of asbestos is suspected. Based on the experience of several school boards over the last few years, the development and execution of a successful asbestos control program involve the following activities:

Establishing Responsibility: An asbestos program manager is designated and is given the responsibility for directing and managing control program activities. The program manager obtains guidance from the appropriate EPA Regional Asbestos Coordinator (RAC) and becomes familiar with the key organizational, procedural, and technical elements of an asbestos control program.

Planning: A program plan is developed to guide and schedule the program activities.

Selecting Advisors and Obtaining Advice: The program manager identifies technical advisors and experts who will assist in plan development and implementation.

Implementing Corrective Measures: Corrective measures may be implemented by in-house staff or by a contracting firm. If in-house staff or persons initially unfamiliar with methods of asbestos control are to participate, they must be thoroughly trained and provided with adequate protective devices. If the need for corrective action involves the employment of abatement contractors, serious attention should be given to contractor selection and project surveillance.

Recordkeeping: Detailed records of all program activities, decisions, and analyses are maintained.

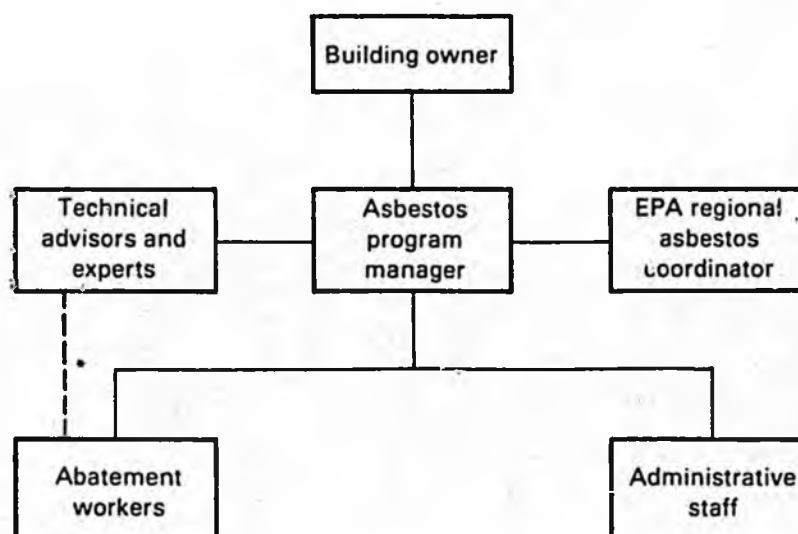
Figure 2 is a chart of the general control program organization.

This chapter emphasizes planning and management. The activities listed above are discussed in that context. Chapters 3 and 4 discuss important technical issues involved in executing specific aspects of the program plan.

Since asbestos-containing materials are present in buildings in many forms, it is important for this discussion to identify those that constitute the greatest potential hazard.* Most efforts to reduce asbestos levels in buildings have focused on friable materials, that is, materials that can be crumbled, pulverized, or reduced to powder by hand pressure. (The Asbestos-in-Schools rule issued in May 1982 addresses only friable asbestos-containing materials.) Friable materials are generally believed to have a higher potential for fiber release than nonfriable materials. As a result, the starting point for most asbestos control programs is an inspection for friable materials in the building. Typically, friable materials have been sprayed or troweled onto surfaces for fireproofing, insulation, soundproofing, or decoration. Nonfriable materials cannot be ignored because they also may release fibers if disturbed or mechanically altered during building repair or remodeling, or if damaged during normal

*Asbestos-containing materials may be found in schools and other buildings in the form of cement products, acoustical plaster, fireproofing textiles, vinyl floor tiles, thermal insulation, and other construction materials. Descriptions of these and other asbestos-containing materials appear in Appendix C.

Figure 2. Control program organization.



*The technical expert(s) may be delegated authority to direct and/or monitor asbestos abatement activities.

building use. However, the need for corrective action is focused on friable asbestos-containing materials. Documentation and surveillance are recommended for nonfriable materials which contain asbestos. Figure 3 shows pictures of both friable and nonfriable asbestos-containing materials in buildings.

2.1 Establishing Responsibility

Responsibility for potential asbestos exposure in a building rests with the building owner. In schools, this responsibility belongs to the governing official(s) of the local education agency. Typically, the task of organizing the control program is assigned to an individual with responsibility for building construction or maintenance. This person, the asbestos program manager, should become familiar with general procedures for detecting asbestos, methods for assessing exposure potential, and techniques for controlling asbestos release. The office of the EPA Regional Asbestos Coordinator (RAC) is a good starting point for obtaining information on asbestos in buildings. As the building owner's representative, the program manager guides the entire control program and is the focal point for communication with the building owner.

2.2 Planning

The asbestos program manager first determines if asbestos is present and outlines a plan for a comprehensive control program. A plan for a control program may include the following activities:

- Inspect, sample, and analyze (by polarized light microscopy [PLM]) friable material to detect asbestos (see Section 3.1).*
- Assess the need for corrective action at sites with asbestos (see Section 3.2).

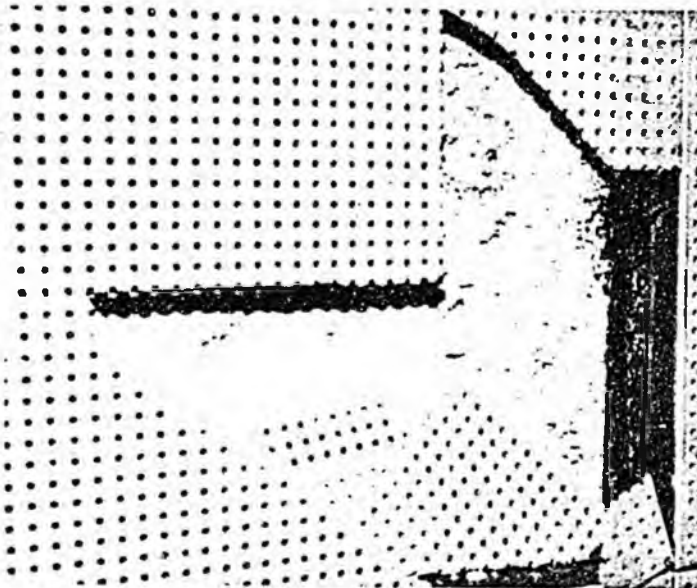
*Since disturbance of nonfriable asbestos-containing materials should be avoided, sampling and analysis are usually limited to friable materials. Requirements for asbestos identification in the Asbestos-in-Schools rule apply to friable materials only.



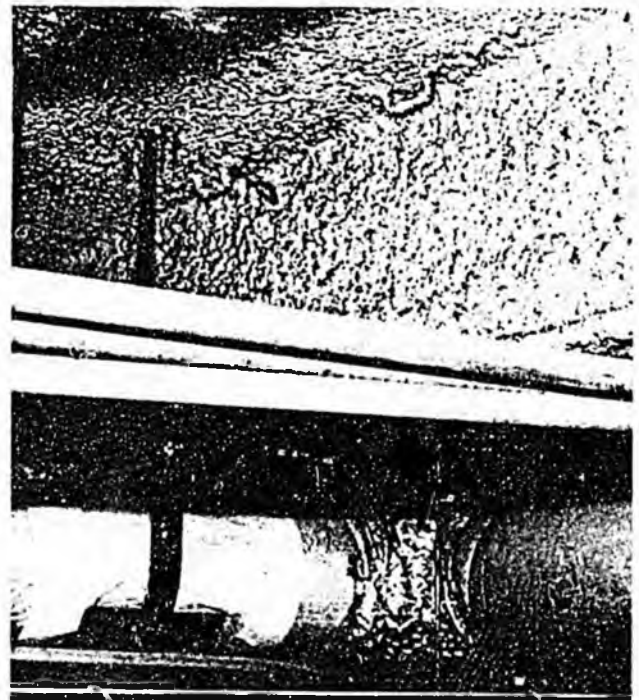
Friable, fluffy sprayed-on material



Friable, cementitious sprayed-on or troweled material (acoustical plaster)



Nonfriable wallboard with friable sprayed-on material behind



Friable material on beam with nonfriable pipe insulation below

Figure 3. Examples of friable and nonfriable asbestos-containing materials found in buildings.

- Implement interim control procedures (see Section 3.3).
- Evaluate and select among alternative abatement or special operations and maintenance measures (see Sections 3.3 and 3.4).
- Develop a bidding process if an abatement contractor is needed (see Section 2.4).
- Direct and/or monitor abatement activities, and evaluate contractor performance for those projects undertaken by an abatement contractor (see Sections 2.4, 4.1, and 4.2).
- Monitor building maintenance activities on a continuing basis if asbestos-containing materials have not been completely removed (see Sections 2.4 and 3.3).
- Maintain records of survey results and all remedial actions (see Section 2.5).

The plan should include a list of the tasks required, a description of work practices and a time schedule for completion of each task.

The first five activities listed above focus on detecting asbestos and selecting a strategy for controlling asbestos if it is present. As noted, Chapter 3 discusses these activities in detail. Other activities involve program management and surveillance. General guidance for these activities is given in the remaining sections of this chapter. Criteria for determining abatement project completion are discussed in Chapter 4.

2.3 Obtaining Advice

In developing and implementing the program plan, the program manager should identify persons within the school system or affiliated with the building owner who are familiar with structural or operating characteristics of the building under consideration, or who have specialized legal, medical, or communications expertise. Included among this group of technical advisors are:

- school board or building architects;
- custodial staff supervisors;
- heating and ventilation engineers;
- loss control specialists (especially where catastrophic insurance is in force);
- the building owner's attorneys (and other legal specialists as needed);
- medical specialists; and
- public relations specialists.

Expert assistance in detecting the presence of asbestos, in assessing the need for corrective measures, and in undertaking control actions may also be needed. This expertise may be provided by a person already working with the building owner who has or can gain experience in asbestos assessment and control, or by an outside consultant, such as an engineer, industrial hygienist, or architect. The technical expert may be asked to participate in program planning prior to determining if asbestos-containing materials are present. If the program manager is confident about implementing the method offered in previous EPA guidance for inspecting, sampling, and analyzing to detect asbestos (Lucas, et al 1980a and 1980b, and the FEDERAL REGISTER [47 FR 23360]), then the assistance of the technical expert may be postponed until it is determined that asbestos is present. In either case, the expert should be prepared to participate in developing the control program plan.