

MEMORANDUM

CITY OF PHILADELPHIA

TO: Seymour Kurland, City Solicitor

DATE 9/26/89

FROM: Joseph Paglia, Deputy Records Commissioner *Joseph Paglia/m.c.*

SUBJECT: PROPOSED AMENDMENTS TO THE ASBESTOS CONTROL REGULATIONS

The above amendments, promulgated by the Department of Public Health, were received in the Department of Records on August 25, 1989, for filing and advertising.

Inasmuch as there were no requests for hearings, these amendments became effective midnight, September 25, 1989.

/ml

cc: Maurice C. Clifford, M.D., Health Commissioner
Michelle D. Flamer, Chief Asst. City Solicitor
Morris Fine, Air Management Services, Health Dept.

AMENDMENTS TO ASBESTOS CONTROL REGULATION

deletions are bracketed [], additions are underlined ____ .

SECTION I. DEFINITIONS

A. The following definitions apply to these Regulations:

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9. ASBESTOS INSPECTION REPORT. A document prepared by an independent certified asbestos investigator concerning the presence and condition of asbestos material in a building.
- [9.] 10. ASBESTOS MATERIAL.
- [10.] 11. ASBESTOS PROJECT.
- [11.] 12. ASBESTOS PROJECT SUPERVISOR.
- [12.] 13. ASBESTOS WORKER.
- [13.] 14. AUTHORIZED EMPLOYEE REPRESENTATIVE.
- [14.] 15. BOARD.
- [15.] 16. BUILDING.
- [16.] 17. BUILDING OCCUPANTS.
- [17.] 18. BUILDING OWNER.
- [18.] 19. CERTIFIED ASBESTOS WORKER.
- [19.] 20. CFR.
- [20.] 21. CLEAN ROOM.
- [21.] 22. COMMISSIONER.
- [22.] 23. CONTAINMENT BAG.
- [23.] 24. CRITICAL BARRIER.
- [24.] 25. DEMOLITION.
- [25.] 26. DEPARTMENT.
- [26.] 27. DISCRIMINATORY ACTION.
- [27.] 28. EM.
- [28.] 29. EMERGENCY SITUATION. A condition requiring immediate remov

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or repair of less than [ten (10)] eighty (80) square feet [or five (5) linear feet] of friable asbestos material or less than twenty (20) linear feet of asbestos pipe covering where [not doing so] the failure to remove or repair such material would result in the shutting down of mechanical systems or manufacturing equipment.

[29.] 30. EMPLOYEE.

[30.] 31. EMPLOYER.

[31.] 32. ENCAPSULANT.

[32.] 33. ENCAPSULATION.

[33.] 34. ENCLOSURE. The erection of air-tight, impact-resistant barriers around asbestos materials to prevent the release of asbestos fibers into the environment.

[34.] 35. EPA.

[35.] 36. EQUIPMENT ROOM.

[36.] 37. FRIABLE ASBESTOS MATERIAL.

[37.] 38. HEPA.

[38.] 39. HVAC.

40. INCIDENTAL ASBESTOS PROJECT. A project that disturbs damages either: (a) five (5) square feet or less of friable asbestos material at one location or (b) one (1) linear foot or less of asbestos pipe covering at one location.

41. INDEPENDENT CERTIFIED ASBESTOS INVESTIGATOR. An individual approved by the Department of Public Health and employed retained by a building owner to identify the presence and evaluate the condition of asbestos material in a building. asbestos investigator shall not be associated with contractor employed to perform the alteration or demolition work in the building.

[39.] 42. INDEPENDENT CERTIFIED ASBESTOS PROJECT INSPECTOR.

[40.] 43. INDEPENDENT CERTIFIED LABORATORY.

[41.] 44. INDUSTRIAL HYGIENE.

[42.] 45. INDUSTRIAL HYGIENIST.

[43.] 46. ISOLATION BARRIER.

[44.] 47. LICENSE. [An authorization] A document issued by the Department of Licenses and Inspections, after approval of the Department of Public Health, [permitting] authorizing a contractor to engage in [an asbestos project] the business of asbestos abatement or renovation, repair, or demolition work involving asbestos materials.

48. LIMITED USE STANDARD. A maximum allowable concentration of airborne asbestos fibers established by the Department of Public Health for a building or portion thereof only for that use necessary prior to demolition.

49. LOCATION. Any work area in which an asbestos project is undertaken, except that where contiguous minor asbestos project work areas may be practicably combined for the purpose of meeting the standards for major asbestos projects, such combination of minor asbestos project work areas shall comprise one location.

[45.] 50. MAJOR ASBESTOS PROJECT. Any project, except in a private residence, which involves [involving], within one (1) year, the removal, enclosure, or encapsulation of or any renovation, repair, or demolition work which disturbs or damages either:
(a) eighty (80) square feet or more of friable asbestos material from ceilings, walls, structural members, mechanical components, or other surfaces [of a building] at one location
or (b) forty (40) linear feet or more of asbestos pip

covering [within a single building or] at one location.
[46.] 51. MINOR ASBESTOS PROJECT. Any project involving, within one (1) year, the removal, enclosure, or encapsulation of or any renovation, repair, or demolition work which disturbs or damages either: (a) more than twelve (12) square feet but less than eighty (80) square feet of friable asbestos material [or more than twelve (12)] at one location; or (b) more than three (3) linear feet but less than forty (40) linear feet of asbestos pipe covering [within a single building or] at one location; or (c) any asbestos project in a private residence involving more than twelve (12) square feet of friable asbestos material, or more than three (3) linear feet of asbestos pipe covering. [, regardless of the amount of asbestos removed, enclosed, encapsulated, disturbed, or damaged.]

[47.] 52. NESHAPS.

[48.] 53. NIOSH.

[49.] 54. OSHA.

[50.] 55. PCM.

[51.] 56. PERMIT. A document issued by the Department of Licenses and Inspections, after approval by the Department of Public Health, authorizing [a person] a contractor or any other person to commence a major asbestos project.

[52.] 57. PERSON.

[53.] 58. PLASTIC SHEETING.

[54.] 59. PLASTICIZING.

[55.] 60. PRIVATE RESIDENCE.

[56.] 61. REMOVAL.

[57.] 62. RENOVATION.

[58.] 63. RE-OCCUPANCY STANDARD. A maximum allowable concentration of airborne asbestos fibers established by the Department of Public Health for re-occupancy of a building, private residence, or portion thereof following completion of an asbestos project.

[59.] 64. REPAIR.

65. SMALL ASBESTOS PROJECT. Any project involving the removal, enclosure, or encapsulation of or any renovation, repair or demolition work which disturbs or damages either: (a) twelve (12) square feet or less but more than five (5) square feet of friable asbestos material at one location; or (b) three (3) linear feet or less but more than one (1) linear foot of asbestos pipe covering at one location.

[60.] 66. STRUCTURAL MEMBER.

67. SURFACING MATERIAL. Material in a building that is sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

[61.] 68. SURFACTANT.

[62.] 69. TECHNICALLY QUALIFIED INDIVIDUAL. An individual with [appropriate] professional or technical education, training, or experience, who understands the health and safety risks associated with asbestos exposure and has a working knowledge of the precautions, procedures, and equipment required for proper asbestos removal, renovation, or demolition.

70. THERMAL SYSTEM INSULATION. Material in a building applied to pipes, fittings, boilers, breeching, tanks, ducts, or other

interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.

[63.] 71. WET CLEANING.

72. WETTABLE CLOTH. A plaster-impregnated fiberglass webbing which is used in containment bag removal of asbestos pipe insulation to seal exposed ends of insulation remaining on pipe.

[64.] 73. WORK AREA.

[65.] 74. WORKER DECONTAMINATION ENCLOSURE SYSTEM.

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SECTION II. LICENSES

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2. Applicant shall have a valid certification as an asbestos project supervisor or, where the contractor is a business, the business shall have in its employ at least one individual who has a valid certification as an asbestos project supervisor;

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SECTION III. PERMITS AND NOTIFICATION

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B. Annual Permit.

1. The Department of Licenses and Inspections shall issue, with the approval of the Department, an annual permit to employ with on-going, in-house asbestos abatement projects involving continuous or intermittent asbestos project activity performed by the employer's own employees, except that where the project involves within three (3) months, the removal, enclosure encapsulation of or any renovation, repair or demolition work which disturbs or damages either one-hundred sixty (160) square

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feet or more of friable asbestos material at one location, or two-hundred sixty (260) linear feet or more of asbestos pipe covering at one location, the employer must obtain a major asbestos project permit in accordance with Section III.A. of these Regulations.

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C. Minor Asbestos Project Notification.

1. No person shall commence a minor asbestos project without first notifying the Department. Notification shall be made on forms provided by the Department and shall be received by the Department no less than twenty-four (24) hours prior to the commencement of the project.

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[C.] D. Permit Amendments.

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[D.] E. Denial, Suspension, or Revocation of Permit.

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SECTION IV. CERTIFICATION

A. Asbestos Workers Certification.

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3. Asbestos worker certification shall be valid for [twelve (12)] thirteen (13) months from the completion date of a Department-certified training or review course. Where the applicant has been exempted from completing an initial training course, the certification shall be valid for [twelve (12)] thirteen (13) months from the date of issuance.

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B. Asbestos Project Supervisor Certification.

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3. Asbestos project supervisor certifications shall be valid for [twelve (12)] thirteen (13) months from the completion of a Department-certified training or review course. Where the applicant has been exempted from completing an initial training course, the certification shall be valid for [twelve (12)] thirteen (13) months from the date of issuance.

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D. Asbestos Investigator Certification.

1. No person shall act as an asbestos investigator unless that person has been certified as an asbestos investigator by the Department of Licenses and Inspections.
2. The Department of Licenses and Inspections shall not issue an asbestos investigator certificate unless and until the Department has certified, in writing, that the applicant has met the following requirements:
 - a. the applicant shall be at least eighteen (18) years of age at the time of application;
 - b. the applicant shall submit an asbestos investigator certification application, accompanied by a fee of One Hundred Dollars (\$100), to the Department;
 - c. the applicant shall submit the training certificate issued upon successful completion, within the prior six (6) months of a Department-certified asbestos investigator training course, including passage of a written examination; and
 - d. the applicant shall submit:
 - (.1) a copy of a license or certificate as a professional engineer, registered architect, certified industrial hygienist, or certified safety professional; or
 - (.2) evidence of having obtained a bachelor's degree in

engineering, architecture, environmental health science, or a related field, and documentation of one (1) year of experience in building survey/hazard assessment for asbestos plus one (1) additional year of other related experience; or

(.3) documentation of two (2) years of experience in building survey/hazard assessment for asbestos plus three (3) additional years of other related experience.

3. Asbestos investigator certification shall be valid for twelve (12) months from the date of issuance.

4. Certified asbestos investigators may apply for renewal of their certificates to the Department, beginning thirty (30) days prior to the expiration date of the certificates, by submitting the following information:

a. an application for renewal of certification, accompanied by a certification renewal fee in the amount of One Hundred Dollars (\$100); and

b. the training certificate issued upon successful completion, within the prior six (6) months, of a Department-certified review course.

Any person who fails to renew his/her certificate for three (3) consecutive years shall be required to complete an initial training course in order to have his/her certificate renewed.

[D.] E. Analytical Testing Laboratories Certification.

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[E.] F.

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[F.] G.

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SECTION V. TRAINING

A. Asbestos contractors, asbestos project inspectors, asbestos project supervisors, [and] asbestos workers, and asbestos investigators shall, as a requirement for licensing or certification, successfully complete asbestos training courses which have been certified by the Department of Licenses and Inspections, with the approval of the Department.

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E. Criteria for Topics in Asbestos Investigator Course.

The course for asbestos investigators shall contain, at a minimum fourteen (14) hours of instruction in the following topics:

1. The physical characteristics of asbestos including fiber size aerodynamic properties, the recognition of types of asbestos and asbestos products; and the common applications for asbestos materials in buildings (minimum of one (1) hour).
2. The health hazards and effects of asbestos including asbestos-related diseases, routes of exposure, dose response relationships, clinical signs of asbestos exposure, synergistic relationship between asbestos exposure and cigarette smoking and the health risk to family members (minimum of one (1) hour).
3. State-of-the-art personal protective equipment including: type of disposable and non-disposable clothing (e.g. suits, boot head-covering, gloves); their requirements, purpose, selection, donning, removal, storage, handling and disposal; eye protection; hard hats and footwear (minimum of one-half (1/2) hour).

hour).

4. Respiratory protection (hands-on practice required) including the types, characteristics and limitations of respiratory classes; explanation of NIOSH approval (tested and certified); proper selection, inspection, donning, cleaning and storage procedures for respirators; description of the physical characteristics, purpose, limitations, and components of the air-purifying respirator, including full- and half-face, filters and cartridges used during the collection of bulk samples; methods of field testing of the facepiece-to-face seal (positive and negative pressure fit test); and factors that alter the fit of air-purifying respirators (minimum of one and one-half (1 1/2) hours). Demonstration exercises of the air-purifying respirators shall include a qualitative or quantitative fit test.
5. Identification of homogeneous and heterogeneous sampling area within the building, preparation of diagrams, selection of sampling locations, and the number of samples to be taken (minimum of one (1) hour).
6. The walk-through survey (hands-on practice required) including the visual inspection of all areas of the building including walls, ceilings, beams, ducts, etc.; identifying and distinguishing between different surfacing materials within the building which could have different asbestos contents; review of prior renovation and construction records kept by the owner (minimum of two (2) hours).
7. Proper methods of collecting bulk samples to minimize generation of airborne fibers (hands-on practice required). The methods shall include wetting of the surface material being

sampled; proper use of sampling devices; packing, shipping, and labeling of containers for laboratory analysis; cleaning of the sampling area and the use of paint or a sealant to cover the spot where the sample was taken (minimum of two (2) hours). Students shall be appropriately suited in personal protective equipment for these procedures. All materials used for hands-on demonstrations shall be non-asbestos materials.

8. Interpretation of laboratory results including explanation of the differences between the varying types and percentages of asbestos in relation to its location in different areas of building; description of laboratory analysis of bulk sample using polarized light microscopy; merits of the EPA bulk asbestos quality assurance program (minimum of one (1) hour)

9. Hazard assessment including basic considerations and methods used to recognize, evaluate, and control hazards based on the positive identification and condition of the asbestos materials (minimum of one (1) hour).

10. Scope of OSHA, EPA, and Philadelphia asbestos regulations including air monitoring, medical monitoring, written respiratory protection programs, report writing and recordkeeping, and employee notification of exposures (minimum of one (1) hour).

11. A written examination consisting of a minimum of fifty (50) questions on the topics required in the above paragraphs (minimum of two (2) hours).

[E.] F.

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SECTION VI. STANDARDS FOR MAJOR ASBESTOS PROJECTS

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B. Work Area Preparation

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4. [Building occupants] Occupants shall be removed from any floor where an asbestos project is in progress, unless the work area is completely separated from the occupied area either by an airtight physical barrier, such as a wall, or by an isolation barrier, with the work area under negative pressure.

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C. Asbestos Project Procedures

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3. Containment-Bag Technique

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(.6) the provisions of Section VI.B.[8.,9., and 17.] 7. and 15. of these Regulations shall be followed;

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D. Air Monitoring

1. The independent certified asbestos project inspector shall monitor the level of airborne asbestos fibers on both the inside and outside of the asbestos abatement work area(s) by the collection of air samples before (Pre-test Samples), during (Project Samples) and after (Clearance Samples) the asbestos abatement project as specified in paragraph 4. below.

* * *

4. The following types of samples of airborne asbestos fibers are

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to be collected by, or at the direction of, the independent certified asbestos project inspector:

a. Pre-Test Samples

The purpose of collecting pre-test air samples is to establish baseline levels of airborne asbestos fibers in those areas in which asbestos abatement work is to be conducted and in those areas immediately adjacent to the asbestos abatement work areas. Pre-test sample results are compared to project sample results to determine if asbestos has escaped from the asbestos abatement work areas;

(.1) for outdoor projects:

(.a) all pre-test air samples shall be collected and analyzed either by phase contrast microscopy (PCM) or transmission electron microscopy (TEM);

(.b) a sufficient number of pre-test air samples shall be collected to ensure that prevalent existing levels of airborne asbestos fibers have been characterized. A minimum of five samples shall be taken within a distance of one hundred feet from the proposed abatement area in all directions (to the extent practicable);

(.c) all pre-test air samples shall be collected and analyzed before any asbestos abatement work begins and the results of the analyses shall be posted in a visible place, or maintained at the work site for easy review, throughout the course of the asbestos abatement action;

(.2) for all other projects:

[(.1)] (.a) all pre-test air samples shall be collected and

analyzed either by phase contrast microscopy (PCM) or transmission electron microscopy (TEM);

[(.2)] (.b) a sufficient number of pre-test air samples shall be collected to ensure that prevalent existing levels of airborne asbestos fibers have been characterized. A minimum of five samples shall be taken inside the proposed asbestos abatement work area and five samples shall be taken outside the proposed work area;

[(.3)] (.c) all pre-test air samples shall be collected before any asbestos abatement work begins under routine conditions of normal occupancy, wherever possible;

[(.4)] (.d) all pre-test air samples shall be analyzed before any asbestos abatement work begins, and the results of the analyses shall be posted in a visible place, or maintained at the work site for easy review, throughout the course of the asbestos abatement action;

[(.5)] (.e) the sampling zone for indoor air samples shall be representative of the building occupants' breathing zone; and

[(.6)] (.f) air samples shall not be taken in corners of rooms or near obstructions, such as furniture;

b. Project Samples

Project samples shall be collected during the asbestos abatement action to determine airborne concentrations of asbestos fibers (1) inside of the asbestos work areas or in the immediate vicinity of an outdoor abatement action in order to evaluate work practices, the level of necessary

respiratory protection, and the risk of contamination posed to adjacent non-asbestos work areas, and (2) outside of the asbestos [work] abatement areas to ensure that asbestos fibers are not being released into "clean" areas as a result of the asbestos abatement action;

(.1) for outdoor projects:

(.a) all project samples shall be collected and analyzed either by phase contrast microscopy (PCM) or transmission electron microscopy (TEM);

(.b) project samples shall be taken within a distance of one hundred feet from the abatement area in all directions (as practicable) on a daily basis throughout the course of an asbestos abatement action. Samples shall be taken in sufficient quantity and at appropriate places so as to determine if airborne asbestos fibers are escaping from the abatement area into adjacent areas;

(.c) all project samples shall be analyzed within twenty-four (24) hours of their collection and the results shall be posted at or near the asbestos abatement area;

(.d) if, at any time during the course of the asbestos abatement work, airborne asbestos fiber concentrations determined by the project samples exceed the greater of either (1) the background concentration (as determined by statistical comparison of the project sample results with pre-test air sample results) or (2) one one-hundredth fibers per cubic centimeter of air

(0.01 f/cc), the independent certified asbestos project inspector shall direct an immediate halt to all asbestos abatement work, require that corrective measures be undertaken to reduce airborne fiber concentrations in the immediate vicinity of the abatement action, and inform the Department immediately. Work shall not recommence until the source of the contamination has been identified and additional air samples have been collected indicating airborne fiber concentrations are below either one one-hundredth fibers per cubic centimeter (0.01 f/cc) or the background level;

(.2) for all other projects:

[(.1)] (.a) all project samples shall be collected and analyzed either by phase contrast microscopy (PCM) or transmission electron microscopy (TEM);

[(.2)] (.b) project samples shall be taken both inside and outside the asbestos abatement work area on a daily basis throughout the course of an asbestos abatement action;

[(.3)] (.c) project samples shall be collected from representative places throughout the work area;

[(.4)] (.d) project samples taken outside the asbestos abatement work area shall include:

[(.a)] (i) air samples from the clean room of the decontamination unit;

[(.b)] (ii) air samples outside of the asbestos abatement area in sufficient quantity and at appropriate places so as to determine if

airborne asbestos fibers are escaping from the containment area(s) into adjacent non-asbestos work area(s);

[(.c)] (iii) air filtration unit exhaust, if there is a possibility that exhausted air may be conveyed into non-asbestos work area(s); and

[(.d)] (iv) other air samples as may be determined by the independent certified asbestos inspector;

[(.5)] (.e) all project samples shall be analyzed within twenty-four (24) hours of their collection and the results shall be posted at or near the asbestos abatement work area;

[(.6)] (.f) if, at any time during the course of the asbestos abatement work, airborne asbestos fiber concentrations determined by the project samples taken outside the asbestos abatement work area exceed the greater of either (1) the background concentration (as determined by statistical comparison of the project sample results with pre-test air sample results) or (2) one one-hundredth [(0.01)] fibers per cubic centimeter of air (0.01 f/cc) outside of the work area, the independent certified asbestos project inspector shall direct an immediate halt to all asbestos abatement work, [and] require that corrective measures, such as misting the air, wet wiping, and/or HEPA vacuuming, be undertaken to reduce airborne fiber concentrations in the air outside the asbestos abatement work area, and inform the

Department immediately. Work shall not recommence until the source of the contamination has been identified and additional air samples have been collected indicating airborne fiber concentrations outside the work area are below either one one-hundredth [(0.01)] fibers per cubic centimeter (0.01 f/cc) or the background level;

c. Clearance Samples

The purpose of clearance samples is to determine if the asbestos abatement project was conducted in a proper manner so as to safely allow either (1) re-occupancy or (2) only that use necessary immediately prior to demolition. Clearance samples shall not be required for outdoor projects.

(.1) for projects prior to demolition (i.e. no re-occupancy):

(.a) all clearance samples shall be collected and analyzed either by phase contrast microscopy (PCM) or transmission electron microscopy (TEM);

(.b) clearance samples shall be collected after:

(i) the asbestos abatement contractor has completed all asbestos abatement and clean-up activities and has so notified the independent certified asbestos project inspector; and

(ii) the top layer of plastic sheeting on walls, floors, and objects in the work area has been thoroughly dried, has passed visual inspection tests by the independent certified asbestos inspector to a no visible dust

standard, and has been removed. Critical barriers shall remain in place until the clearance sampling and analysis is completed, and the results meet the clearance test criteria;

(.c) the minimum number of air samples which shall be collected inside the asbestos abatement work area shall be based on the area of floor space as indicated below:

<u>area of floor space,</u> <u>square feet</u>	<u>number of air samples</u>
<u>less than 5000</u>	<u>3</u>
<u>5000 or more</u>	<u>5</u>

(.d) sampling sites in the abatement area shall be selected on a random basis to provide an unbiased and representative sample;

(.e) aggressive sampling conditions shall be used to circulate air in the vicinity of the air samplers with one twenty-inch fan used for each twenty thousand (20,000) cubic feet of work site;

(.f) the work area shall be considered cleared for the use necessary immediately prior to demolition when the concentration of asbestos does not exceed the limited use standard of five one-hundredths fibers per cubic centimeter of air (0.05 f/cc) based on the arithmetic average of those clearance air

samples taken inside the asbestos abatement work area. If any part of the building is occupied during the course of the asbestos project this standard shall not apply; the re-occupancy standard set forth in Section VI.D.5. of these Regulations shall apply;

(.2) for projects for which re-occupancy will follow:

[(.1)] (.a) all clearance samples shall be collected and analyzed by transmission electron microscopy (TEM)

[(.2)] (.b) clearance samples shall be collected after:

[(.a)] (i) the asbestos abatement contractor has completed all asbestos abatement and clean-up activities and has so notified the independent certified asbestos project inspector; and

[(.b)] (ii) the top layer of plastic sheeting on walls, floors, and objects in the work area has been thoroughly dried, has passed visual inspection tests by the independent certified asbestos inspector to a no visible dust standard, and has been removed. Critical barriers shall remain in place until the clearance sampling and analysis is completed, and the results meet the clearance test criteria;

[(.3)] (.c) the minimum number of air samples which shall be collected inside the asbestos abatement work area shall be based on the amount of asbestos removed, enclosed, or encapsulated as indicated below. The

same number of "ambient" samples shall be collected concurrently outside of the asbestos abatement work area:

Amount of Asbestos		Minimum number of air samples
Square feet	Linear feet	
80 ** 100	40 ** 110	2
100 ** 130	110 ** 180	3
130 ** 160	180 ** 260	4
160 or more	260 or more	5

** - or more but less than

[(.4)] (.d) asbestos abatement work area air samples shall be collected as follows:

[(.a)] (i) sampling sites in the abatement area shall be selected on a random basis to provide an unbiased and representative sample;

[(.b)] (ii) a field blank shall be taken at each abatement area before sampling is initiated by removing the cap for not more than thirty (30) seconds and replacing it at the time of sampling. Field blanks shall not be left open during the sampling period;

[(.c)] (iii) a sealed blank shall be carried with each sample set; this representative cassette shall not be opened in the field; and

[(.d)] (iv) aggressive sampling conditions shall be used to dislodge any remaining dust in the asbestos abatement work area as follows:

- [(i)] (*1) negative air filtration units shall remain on during the air monitoring period;
 - [(ii)] (*2) prior to air monitoring, floors, ceilings and walls shall be swept with the exhaust of a one (1) horsepower leaf blower;
 - [(iii)] (*3) stationary fans shall be placed on two (2) meter high stands in locations which will not interfere with air monitoring equipment. Fan air shall be directed at ceiling and operated at low speed. One (1) fan shall be used for each ten thousand (10,000) cubic feet of work site;
 - [(iv)] (*4) pump flow rates shall not exceed ten (10) liters per minute for twenty-five (25) millimeter cassettes; and
 - [(v)] (*5) the air volume sampled shall be sufficient to ensure an analytical sensitivity sufficient to measure the re-occupancy standard; and
- [(.5)] (.e) asbestos abatement ambient air samples shall be collected as follows:
- [(.a)] (i) ambient samplers shall be sited at places representative of the air entering the asbestos abatement work area. If make-up air entering the abatement area is drawn from another area of the building which is outside

of the asbestos abatement work area, pumps shall be placed in this area. If no areas exist in the building and the air is drawn from outside the building, pumps shall be placed out of doors located near the building, and away from any obstructions that may influence wind patterns. Air samples shall be representative of any air entering the asbestos work area;

[(.b)] (ii) the ambient air samplers shall be located at least three (3) feet apart, and they shall be protected from adverse weather conditions;

[(.c)] (iii) unless otherwise indicated, five (5) air samples shall be taken to match the clearance sampling; and

[(.d)] (iv) a field blank shall be taken at the ambient air sampling site.

* * *

E. Project Completion

In order to be considered a completed project each work area must pass a final inspection by meeting the conditions outlined below

1. For projects for which re-occupancy will follow:

[1.] a. [A] a building owner shall not permit an asbestos project work area, or any part of the building evacuated during an asbestos project, to be reoccupied until the Department has certified, in writing, that the following conditions have been met:

[a.] (.1) the asbestos project inspector has certified that, based on a visual inspection, the area contains no visible

dust or debris;

[b.] (.2) the asbestos project inspector [certifies] has certified that, based on the results of the aggressive air monitoring procedures listed in Section [VI.D.4.c.(.4)(.d)] VI.D.4.c.(.2)(.d)(*4) of these Regulations, the airborne asbestos level in the work area does not exceed the re-occupancy standard established by these Regulations;

[c.] (.3) the Department, based on a visual inspection, has determined that the area contains no visible dust or debris;

[d.] (.4) the Department has determined that the air monitoring required to establish that the re-occupancy standard has been met has been performed in accordance with applicable regulations and procedures; and

[e.] (.5) the asbestos contractor or supervisor has submitted an amended permit application for any project changes and evidence of the final, total cost of the asbestos abatement portion of the project, and has paid any incremental permit fee due.

2. For projects for which demolition will follow (i.e. no re-occupancy):

a. a building owner shall not permit an asbestos project work area, or any part of the building evacuated during an asbestos project, to be open for limited use until the Department has certified, in writing, that the following conditions have been met:

(.1) the asbestos project inspector has certified that, based on a visual inspection, the area contains no

visible dust or debris;

(.2) the asbestos project inspector certifies that, based on the results of the aggressive air monitoring procedures listed in Section VI.D.4.c.(.1)(.e) of these Regulations, the airborne asbestos level in the work area does not exceed the limited use standard set forth in Section VI.D.4.c.(.1)(.f) of these Regulations;

(.3) the Department, based on a visual inspection, has determined that the area contains no visible dust or debris;

(.4) the Department has determined that the air monitoring required to establish that the limited use standard has been met has been performed in accordance with applicable regulations and procedures; and

(.5) the asbestos contractor or supervisor has submitted an amended permit application for any project changes and evidence of the final, total cost of the asbestos abatement portion of the project, and has paid any incremental permit fee due.

3. For outdoor projects:

a. the asbestos project inspector has certified that, based on a visual inspection, the area contains no visible dust or debris;

b. the asbestos project inspector has certified that project samples taken on the final day of the project do not exceed the limits set forth in Section VI.D.4.b.(.1)(.d). If these limits are exceeded the project inspector shall make an evaluation of the cause, recommend remedial action and direct a re-test. This process shall continue until these

limits have been met;

- c. the Department, based upon a visual inspection, has determined that the area contains no visible dust or debris;
- d. the Department has determined that the air monitoring required to establish that the final day's project samples meet appropriate limits has been performed in accordance with applicable regulations and procedures; and
- e. the asbestos contractor or supervisor has submitted an amended permit application for any project changes and evidence of the final, total cost of the asbestos abatement portion of the project, and has paid any incremental permit fee due.

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SECTION VIII. STANDARDS FOR SMALL ASBESTOS PROJECTS

A. Work Area Preparation

1. Appropriate caution signs shall be posted at all entrances to the asbestos project work area and the waste storage area at all times during the asbestos project until the re-occupancy standard has been met.
2. All furniture, equipment, fixtures, and other moveable objects shall be HEPA-vacuumed and, where feasible, wet-cleaned and removed from the work area.
3. All other objects that cannot be removed shall be HEPA-vacuumed and, where feasible, wet-cleaned and covered with plastic sheeting taped in place.
4. A sealable barrier of plastic sheeting shall be constructed at the entrance to the work area.
5. All ventilation systems into and out of the work area shall be covered with plastic sheeting taped in place.

6. Occupants shall be removed from any floor where an asbestos project is in progress unless the work area is completely enclosed and sealed off from other areas.

B. Asbestos Project Procedures

All asbestos project procedures shall conform with the provisions of Section VII.B. of these Regulations.

C. Air Monitoring

1. Air sampling and analysis for asbestos shall be conducted either according to the latest NIOSH methods for phase contrast microscopy (PCM) (Method 7400, NIOSH Manual of Analytical Methods) or transmission electron microscopy (TEM) (Method 7402, NIOSH Manual of Analytical Methods). Otherwise OSHA and EPA methods, or other methods approved by the Department, shall be employed. The applicable OSHA method for PCM is set forth in 29 CFR 1926.58, Appendix B. The applicable EPA method for TEM is set forth in 40 CFR 763, Subpart E, Appendix A.

2. Air samples shall be analyzed by an independent certified laboratory using appropriate analytical methods.

3. Clearance samples shall be taken to determine if the re-occupancy standard has been met as follows:

a. the clearance samples shall be taken after all asbestos abatement and clean-up activities have been completed but before the critical barriers are removed; and

b. two (2) samples shall be taken within each work area using aggressive sampling as follows:

(.1) sweep floors briskly with a broom immediately before sampling;

(.2) operate one ten (10) inch oscillating fan within twenty (20) feet of each sampler;

(.3) locate each sampler within five (5) feet of the asbestos abatement activity;

(.4) pump flow rates of up to ten (10) liters per minute may be used for twenty-five (25) millimeter cassettes; and

(.5) the air volume sampled shall be sufficient to ensure the minimum quantification limits.

SECTION IX. STANDARDS FOR INCIDENTAL ASBESTOS PROJECTS

A. Site Preparation

1. Appropriate caution signs shall be posted at all entrances to the asbestos project site and the waste storage area at all times during the asbestos project.

2. All surfaces having the potential to become contaminated shall be covered with plastic sheeting.

3. All ventilation intakes within ten (10) feet of the project site shall either be shut down or sealed with plastic sheeting.

4. Occupants shall be removed from any room where the incidental asbestos project is in progress.

B. Asbestos Project Procedures

1. General procedures

a. no person shall perform or assist in an incidental asbestos project without wearing proper protective equipment and clothing; and

b. all asbestos debris must be removed from clothing and equipment before the worker leaves the project site.

2. Other procedures

a. asbestos pipe covering shall be removed by containment bag techniques;

b. asbestos materials shall be thoroughly wetted with an appropriate wetting solution before being removed;

- c. cutting, sawing, or other similar operations on asbestos materials shall be performed in conjunction with a HEPA vacuum system;
- d. all encapsulation, waste disposal, and reinsulation procedures required for major asbestos projects shall be followed; and
- e. the project site shall be HEPA-vacuumed or wet-cleaned such that no visible residue remains.

SECTION X. ASBESTOS INSPECTIONS AND REPORTS

A. General.

1. An asbestos inspection report shall be required prior to issuance of a permit for demolition or alteration which requires the filing of plans. This does not apply to buildings for which a building permit was issued after December 31, 1980 or any residence with three (3) dwelling units or less. For the purpose of these Regulations asbestos inspections shall be made only by an independent certified asbestos investigator.
2. A copy of the asbestos inspection report shall be provided to each contractor involved in the project for which the building permit was applied and shall be made available to all contractor employees working on the project.

B. Asbestos Inspection.

In conducting an asbestos inspection of the area affected by the proposed work the independent certified asbestos investigator shall:

1. Visually inspect and identify the locations of all surfacing material, thermal system insulation, and miscellaneous material known or suspected to be asbestos material;
2. Determine if material known or suspected to be asbestos

material is friable (i.e. able to be crumbled, pulverized, or reduced to powder by hand pressure when dry, or which will be crumbled, pulverized, or reduced to powder by the proposed work) or non-friable;

3. Identify all homogeneous areas (i.e. areas uniform in color and texture) of friable and non-friable, suspected asbestos material;

4. Determine the condition of known or suspected asbestos material and classify in three categories as follows:

a. type of material-known or suspected asbestos material

b. physical state-friable or non-friable

c. condition-damaged (or deteriorated or delaminated) or non-damaged;

5. Collect and submit for analysis bulk samples of friable suspected asbestos material in accordance with paragraph c. below and;

6. Attach warning signs immediately adjacent to any known or suspected asbestos material which is either friable or non-friable as follows:

a. the warning labels shall read in print which is readily visible because of large size or bright color:

CAUTION/ASBESTOS: DO NOT DISTURB WITHOUT PROPER

TRAINING AND EQUIPMENT

b. all labels shall be prominently displayed in readily visible locations and shall remain posted until the project is completed or the asbestos material is removed.

C. Sampling Techniques.

1. Samples of surfacing material which is suspected to be asbestos material and is friable shall be collected in a random manner

that is representative of the area affected by the proposed work as follows:

a. a minimum of three (3) bulk samples shall be collected from each homogeneous area as outlined in paragraph B. above that is one thousand (1000) square feet or less;

b. a minimum of five (5) bulk samples shall be collected from each homogeneous area as outlined in paragraph B. above that is greater than one thousand (1000) square feet but less than or equal to five thousand (5000) square feet ;

c. a minimum of seven (7) bulk samples shall be collected from each homogeneous area as outlined in paragraph B. above that is greater than five thousand (5000) square feet;

2. Samples of thermal system insulation which is suspected to be asbestos material and is friable shall be collected in a random manner that is representative of the area affected by the proposed work as follows:

a. a minimum of three (3) bulk samples shall be collected from each homogeneous area as outlined in paragraph B. above;

b. a minimum of one (1) bulk sample shall be collected from each homogeneous area as outlined in paragraph B. above which has been patched if the patched section is less than six (6) linear feet or square feet; and

c. sufficient bulk samples shall be collected from each insulated mechanical system where cement or plaster is used on fittings such as tees, elbows, or valves unless it has been determined that such insulation is fiberglass, foam glass, rubber, or other non-asbestos material;

3. Samples of miscellaneous material which is suspected to be asbestos material and is friable shall be collected in a random

manner that is representative of the area affected by the proposed work.

D. Analysis.

1. All bulk samples collected under paragraph C. above shall be analyzed for asbestos content by laboratories certified by the Department according to Section IV.E. of these Regulations;
2. Bulk samples shall not be composited for analysis and shall be analyzed by polarized light microscopy; and
3. A homogeneous area shall be determined to be asbestos material if at least one sample collected from that area contains one per cent (1%) or more asbestos.

E. Reporting.

1. The asbestos inspection report shall contain the following information:
 - a. name of building;
 - b. address of building;
 - c. name and phone number of building owner;
 - d. name, business address, and phone number of independent certified asbestos investigator;
 - e. location, amount, and classification (as outlined in Section X.B.4. of these Regulations) of all known or suspected asbestos material which will be affected by the proposed work;
 - f. date samples were collected; and
 - g. name and address of the certified analytical laboratory which analyzed the samples.

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SECTION [IX.] XI. EFFECTIVE DATE

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SECTION [X.] XII. SEVERABILITY

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