

CLEARANCE AIR SAMPLING FREQUENTLY ASKED QUESTIONS

What clearance air sampling methods are required in Massachusetts?

Asbestos Project Monitors who perform final air clearance after the completion of asbestos response actions in Massachusetts are required to use one of the methods below, depending on the type of facility:

- Phase contrast microscopy (“PCM”) when the response action involves less than 160 square feet or 260 linear feet of asbestos containing material (“ACM”) in schools facilities subject to AHERA or for response actions of any size in non-school facilities.
- Transmission electron microscopy (“TEM”) when the response action involves more than 160 square feet or 260 linear feet of ACM in facilities subject to AHERA. TEM may be used in place of PCM at any time.

Who is responsible for hiring the Project Monitor?

The Asbestos Contractor shall not sub contract with an Asbestos Project Monitor for the visual inspection or clearance air monitoring [454 CMR 28.10(9)]. In school buildings subject to AHERA, the person designated by the Local Education Agency (“LEA”) is responsible for contracting with the Project Monitor or Asbestos Consulting Firm to collect air samples [454 CMR 28.10 (9)]. LEA’s must take care to avoid the conflict of interest provision of AHERA between the Asbestos Contractor and the consulting firm, including the Project Monitor [454 CMR 28.13 (1)(b)6]. The Project Monitor functions as the on-site representative of the facility owner [454 CMR 28.02], and generally serves as the building owner’s representative to ensure that asbestos abatement work is completed according to the specifications (project design) and in compliance with all relevant statutes and regulations [40 CFR 763, Appendix C to Subpart E, section B6]

Is clearance air sampling required upon completion of a response action where glove bag is used as the sole method of removal?

Clearance air monitoring is required for all response actions except those conducted in facilities not subject to AHERA where glove bags are used as the sole means of removal or repair [454 CMR 28.10(11)]. AHERA requires clearance air sampling at the conclusion of all response actions except for projects that are of small scale, short duration (three or fewer linear or square feet of asbestos) [454 CMR 28.10(11)(a,b)]. All aggressive clearance monitoring must be performed within a negative pressure enclosure [454 CMR 28.10(7)]. Work area barriers shall remain in place, work area ventilation systems will remain in operation, and personal protective equipment shall be worn.

Aggressive air sampling methods cannot be performed at the conclusion of glove bag removal that is not conducted within a negative pressure enclosure. (Mass DEP may have more stringent requirements for glove bag operations, 310 CMR 7.15). For buildings subject to AHERA, at the conclusion of asbestos response actions where a negative pressure enclosure is not used, a visual inspection will be performed and documented. In order to demonstrate that asbestos fibers did not migrate beyond the work area, the Project Monitor will collect background samples during the response action. These samples may be analyzed by PCM.

Under conditions where a waiver was issued to permit an asbestos response action during building occupancy, background samples in lieu of clearance air samples shall be analyzed by TEM, as a condition of the waiver. [454 CMR 28.13(6)(h)3]. Any clearance air samples collected after a response action performed under an occupancy waiver shall be analyzed by TEM as a condition of the waiver.

How many samples must be collected and submitted for TEM clearance air sampling?

TEM clearance air sampling must be performed pursuant to AHERA, Appendix A to Subpart E of 40 CFR 763 [454 CMR 28.13(6)(h)]. A set of 13 samples must be collected and submitted for analysis to a Massachusetts certified Class D laboratory. A sample set consists of 5 samples inside the work area, 5 samples outside the work area, 2 field blanks and 1 laboratory blank. When the average concentration of the 5 samples inside the work area meet the clearance standard of 70 structures/mm², the 5 samples outside the work area do not need to be analyzed. If the average of the 5 samples inside the work area exceeds 70 structures/mm², the 5 samples outside the work area shall be analyzed through the application of the Z-test calculation.

How many samples must be analyzed by PCM at the conclusion of a response action?

For facilities subject to AHERA, at least 5 samples within the work area, or one sample per room, whichever is greater shall be collected and analyzed [453 CMR 6.14(5)2.c]. For non-AHERA facilities, at least one sample for each 500 linear/1000 square feet of asbestos, or one sample per room, whichever is greater, shall be collected and analyzed. Each of the samples must be analyzed, and each sample must meet the clearance criteria of .010 fibers/cc or less. If any sample fails to meet the clearance criteria, the work area must be re-cleaned, and clearance air sampling performed again until the clearance criteria is met.

What is the standard for the volume of air collected during PCM clearance sampling?

When using phase contrast microscopy, the NIOSH 7400 method (as most recently amended-0 Issue 3, dated April 29, 2019) must be followed for the collection and analysis of clearance air monitoring samples [454 CMR 28.13(6)(h)6]. Flow rates must be adjusted, based on the anticipated airborne fiber concentration, to collect a sufficient volume of air to yield a fiber density of .010 fibers/cc or less.

DLS will consider that PCM clearance sampling was performed in compliance with the NIOSH 7400 method when air volumes of at least 1080 liters/minute are collected [454 CMR 28.10(11)(b)3]. Results of all PCM analysis shall include the fiber concentration, in fibers/cc that are equal to or less than .010 f/cc [454 CMR 28.10(11)(b)4]. Reported results of <LOD or <.01 f/cc are not sufficient to demonstrate compliance with DLS requirements and the NIOSH 7400 method.

Can the project monitor be sub-contracted by an Asbestos Analytical Service?

No person shall perform, or be directed to perform, any asbestos analysis in the direct business interest of an Asbestos Analytical Service unless that person is a Responsible Person or an employee of the Asbestos Analytical Service [454 CMR 28.06(5)(b)]. A Project Monitor who is not an employee of the laboratory can collect samples, but cannot analyze those samples at the work site. The laboratory must maintain a list of all employees who will be performing asbestos analysis [454 CMR 28.06(10)(c)]. Each laboratory performing PCM analysis must participate in, and maintain proficiency, in a Proficiency Analytical Testing (PAT) Program of the American Industrial Hygiene Association (AIHA), which requires each analyst to contribute to the proficiency testing program for the laboratory [454 CMR 28.06(6)].

Failure to follow the required analytical methods and reporting requirements when performing final clearance sampling would be a violation of 454 CMR 28.00 and/or AHERA. Written Warnings, Civil Citations and Civil Penalties may be issued for violations of the DLS and/or AHERA regulations.