Project Monitoring & Air Sampling

1. **Qualifications of Air Sampling Personnel.** The project air sampling shall be conducted by an asbestos project air sampling technician who has been trained in the selected methodology of air sampling and who possesses an asbestos project air sampling technician certificate issued by the Department of Labor.

2. **Laboratory Certification.** The laboratory used for air sample or bulk sample analysis shall be one approved by the New York State Department of Health Environmental Laboratory Approval Program (NYSDOH ELAP) for the selected asbestos analysis methodology.

3. **Independent Third Party Sampling and Analysis.** A third party air sampling firm asbestos contractor, who must be contracted by the property owner or owner's agent, and is completely independent of all asbestos abatement contractors involved with the asbestos project,.

4. **Exception.** If the property owner is the asbestos abatement contractor for the asbestos project, the owner shall contract with an independent air sampling firm asbestos contractor for the necessary project air sampling and analysis on the asbestos project.

5. **Asbestos Contractors Allowed to Perform Project Air Sampling on an Asbestos Project.**Air sampling procedures shall not be performed by any asbestos contractor involved with the asbestos project, except as follows: The non-abatement asbestos contractor firm that performed the building/structure asbestos survey, or is acting as the project monitor or project designer on the asbestos project, may perform project air sampling and analysis, provided that the individual or firm performing the building/structure asbestos survey or acting as project monitor or project designer, will not perform any asbestos abatement work on the project and has not retained or been retained by the asbestos abatement contractor for work on the asbestos project, unless the asbestos abatement contractor is also the property owner.

6. **Air Sample Log.** A project air sample log shall be created by the firm performing the project air sampling, and it shall contain the following information for all area air samples collected on the asbestos project:

(a) Name of the firm and the certified air sampling technician performing the project air sampling, per workshift or day, for all area air samples collected.

(b) Dates of project air sample collection, per workshift or day, of area air samples, with appropriate reference to the regulated abatement work area to which the air samples apply.

(c) Sample locations sketch, identifying all project air sample locations, per workshift or day, of area air samples. If identical locations are utilized for each workshift or day, of area samples collected throughout a sub-phase of the asbestos project (IIA, IIB or IIC), only one sketch is required for all workshift or day of area samples collected for that specific sub-phase of the asbestos project.

(d) The identifying information for each area air sample collected.

(e) Sampling time (24-hour clock) and duration for each area air sample collected.

(f) Flow rate primary or secondary calibration device identification number, method of flow rate primary or secondary device calibration and date of last calibration, per workshift or day of area air samples.

(g) Flow rate of sampling pumps with pre and post calibration listed for each area air sample collected.

(h) Chain of custody for each workshift or day of area air samples.

7.**Test Methods.** The same NIOSH approved methodology for project air sampling and for analysis of the air samples shall be used at all phases of an asbestos project that require area air sampling and analysis, with the possible exception of clearance air sampling. Phase Contrast Microscopy (PCM) shall be the minimum acceptable method of analysis. In lieu of PCM clearance air sampling and analysis, the building/structure owner may elect to utilize TEM air sampling and analysis to meet clearance air sampling requirements. If Transmission Electron Microscopy (TEM) is the selected method of analysis, the clearance criteria and sampling protocols of the Asbestos Hazard Emergency Response Act (AHERA) shall be used. If PCM air sample analysis results exceed the satisfactory clearance air criteria under this Part, then TEM analysis of the entire set of clearance air samples may be used, provided that a standard NIOSH/ELAP accepted laboratory analysis method is used that shall report each air sample result in fibers per cubic centimeter, for appropriate correlation to the original unsatisfactory PCM clearance air sample results and the established background levels, and provided that a report is submitted to the Commissioner for the entire set of clearance air sample PCM and TEM laboratory analyses.

Air Sampling Equipment.

(a) **Sampling Equipment.** Area air sampling shall be performed using GFCI protected pumps with associated tubing, supports and airflow measuring, metering or recording devices.

(b) **Duration, Flow Rate and Calibration.** Area air samples, except for background and clearance air samples, shall be collected and air samplers run for each entire work shift. Area air samples must be collected with a minimum flow rate capacity of two (2) liters per minute and a maximum flow rate consistent with the applicable accepted air sampling and

analysis methodology. The flow rate for each air sample shall be pre-calibrated and post-calibrated at the beginning and end of each air sample collection. The calibrations shall be recorded. Primary and secondary calibration devices shall be calibrated as per NYS DOH ELAP requirements. The air sampling technician shall be on-site to observe and maintain air sampling equipment for the duration of air sample collection.

(c) **Placement of Air Sampling Equipment.** Air sampling equipment shall be in place and operational as follows:

(1) **Placement of Regulated Abatement Work Area Indoor Air Sampling Equipment.** Air sampling equipment shall not be placed in corners of rooms or near obstructions. Samplers shall be placed randomly around the regulated abatement work area. If the regulated abatement work area contains a number of rooms equivalent to the number of required samples based on floor area, a sampler shall be placed in each room. When the number of rooms is greater than the required number of samples, a representative number of rooms shall be selected, but in no case shall fewer samples be collected than the required number of samples based upon floor area.

(2) **Placement of Outdoor Air Sampling Equipment.** Outdoor air sampling equipment shall be placed four (4) to six (6) feet above grade level and at least ten (10) feet away from obstructions that may influence wind patterns. If access to electricity and security concerns dictates a rooftop site, locations within ten (10) feet of vents or other structures on the roof shall be avoided.

(3) **Samplers Outside of the Regulated Abatement Work Area.** Air sampling equipment shall be placed outside the regulated abatement work area within ten (10) feet of the critical barriers, decontamination enclosure entrances/exits and negative air ducts and exhausts, as applicable. (See Table 2)

Area Air Sample Analysis and Results ' General Requirements

(a) **Turnaround Time.** For project air samples collected during the asbestos project, the period of time permitted between completion of air sample collection and receipt of results on the job site shall be equal to or less than 48 hours.

(b) **Microscope Detail.** The methodology chosen for sampling, analysis, and the microscope type, make, and model number shall be included in the results.

(c) **Sample Records.** All project air samples shall have a chain of custody.

Number and Location of Samples Required.

The amount of ACM, PACM or asbestos material to be abated within the regulated abatement work area determines the asbestos project air sampling requirements for that specific regulated abatement work area.

(a) **Phase I B Background Pre-Abatement Air Samples.** Required for Large and Small asbestos projects. (See Table 2 and Subpart 56-6)

(b) **Phase II A Regulated Abatement Work Area Preparation Air Samples.** Required for Large asbestos projects with OSHA Class I or OSHA Class II friable ACM subject to handling/abatement.

(c) **Phase II B Asbestos Handling Air Samples.** Required for Large asbestos projects.

(d) **Phase II C Final Cleaning & Clearance Air Samples.** Required for Large, Small and some Minor asbestos projects.

Work Stoppage Criteria During Phase II A through II C.

If air samples collected outside the regulated abatement work area indicate airborne fiber concentrations at or above 0.01 fibers per cubic centimeter, or the established background level, whichever is greater, work shall stop immediately for inspection and repair of barriers and negative air ventilation systems as necessary. Clean up of surfaces outside of the regulated abatement work area using HEPA-vacuums and wet-cleaning methods shall be performed prior to resumption of preparation, abatement or cleaning activities. A summary of clean up activities and the results of barrier inspections including any necessary repairs, shall be documented in the supervisor's daily project log. Work methods shall be altered accordingly to reduce fiber concentrations to acceptable levels.

(a) **Submission of Elevated Air Sample Results Collected During Phase II A through II C.**The air sampling asbestos contractor shall submit to the Commissioner, all PCM air sample results for air samples collected during Phase II A through II C along with background results, if they are greater than or equal to 0.01 fibers per cubic centimeter or the established background level, whichever is greater. Upon receipt of elevated air sample results, the air sample results shall be submitted immediately, within the same business day, to the Commissioner in care of the appropriate district office of the Asbestos Control Bureau, where the project takes place.

Phase II C Satisfactory Clearance Air Sample Results Criteria.

(a) **PCM Clearance Criteria.** The PCM clearance air sample results shall be considered satisfactory when every clearance air sample demonstrates an airborne concentration of fibers of less than 0.01 fibers per cubic centimeter, or the established background level(s), whichever is greater.

(b) **TEM Clearance Criteria.** If TEM is the selected method of clearance air sampling and analysis, the clearance criteria and sampling protocols of AHERA shall be used. If PCM air sample analysis results exceed the satisfactory clearance air criteria under this Part, then TEM analysis of the entire set of clearance air samples may be used, provided that a standard accepted laboratory analysis method is used that shall report each air sample result in fibers per cubic centimeter, for appropriate correlation to the original unsatisfactory PCM clearance air sample results and the established background level(s). When AHERA TEM air sampling protocols are not used (i.e. TEM analyses of failed PCM air samples), PCM clearance criteria apply

(c) **Submission of Satisfactory Clearance Air Sample Results.** The air sampling asbestos contractor shall submit to the Commissioner, all satisfactory PCM clearance air sample results along with background results, if they are greater than or equal to 0.01 fibers per cubic centimeter. The air sampling asbestos contractor shall also submit to the Commissioner, all sets of satisfactory TEM analyses of previously unsatisfactory PCM clearance air sample results, along with the unsatisfactory PCM results. These air sample results shall be submitted, within two (2) business days of receipt of satisfactory clearance air results, to the Commissioner in care of the appropriate district office of the Asbestos Control Bureau, where the project takes place.

Unsatisfactory Clearance Air Sample Results.

If the regulated abatement work area clearance air sampling results are unacceptable, the following requirements apply:

(a) If the results of the inside work area group of air samples are unsatisfactory, recleaning of regulated abatement work area surfaces using wet methods, followed by another drying time period and then collection and analysis of an additional full set (both inside and outside work area samples) of clearance air samples is required.

(b) If only the results of the outside work area group of air samples is unsatisfactory, clean-up of surfaces outside of the regulated abatement work area using HEPA-vacuums and wet-cleaning methods shall be performed prior to collection and analysis of an additional group of outside work area clearance air samples.

(c) This recleaning/clean-up and sampling process shall be repeated until satisfactory clearance air sampling results have been achieved for all asbestos project non-exempt regulated abatement work areas throughout the entire work site.

Air Sampling Requirements.

(a) **Personal Air Sampling.** Air sampling shall be performed in the worker's breathing zone, by the asbestos contractor for his personnel, as required by current OSHA regulations.

(b) **Daily Air Sampling.** Project air sampling shall be conducted daily for the full workshift, for all Large size projects with OSHA Class I or OSHA Class II friable ACM subject to handling/abatement. If more than one daily workshift is required to accomplish the work, air sampling shall be performed on each workshift. Air sampling is not required on days when there are no Phase II A activities.

(c) **Number And Location Of Samples ' Large Asbestos Projects.** A minimum of five (5) samples shall be taken on a daily basis. The location of samples to be taken are as follows:

(1) A minimum of two (2) samples shall be taken outside the regulated abatement work area, within ten (10) feet of the isolation or critical barriers. When positive pressurized HVAC ducts are located within the regulated abatement work area, one of these samples shall be collected within ten (10) feet of an HVAC diffuser, at the downstream side of the positive pressurized HVAC ducts, in adjoining non-work areas. Where the entire building/structure is the regulated abatement work area, an additional exterior ambient air sample shall be taken.

(2) A minimum of one (1) sample shall be taken outside the regulated abatement work area, within ten (10) feet of and within proximity to each entrance or exit from the regulated abatement work area.

(3) One (1) ambient air sample shall be taken outside the building or structure within twenty-five (25) feet of the building or structure.

(4) Once the negative air systems have been established, one (1) sample shall be taken in front of and within ten (10) feet of each unobstructed, negative pressure ventilation equipment exhaust or bank (grouping of not more than five (5) exhaust ports at one termination area) of exhausts but not within a duct itself.

(5) Once the negative air systems have been established, where negative ventilation unit exhaust ducts run through the non-work area portions of a building or structure to access the exterior, one (1) sample shall be collected in the building or structure, within ten (10) feet of the duct system.

(6) If remote decontamination units are used, one (1) sample shall be collected at each entrance/exit from each personal decontamination and waste decontamination enclosure.

Work Stoppage Criteria During Phase II A Abatement Procedures

If air samples collected outside the regulated abatement work area, indicate airborne fiber concentrations at or above 0.01

fibers per cubic centimeter, or the established background level, whichever is greater, work shall stop immediately for inspection and repair of barriers and negative air ventilation systems as necessary. Clean up of surfaces outside of the regulated abatement work area using HEPA-vacuums and wet-cleaning methods shall be performed prior to resumption of work area preparation activities. A summary of clean up activities and the results of barrier inspections including any necessary repairs, shall be documented in the supervisor's daily project log. Work methods shall be altered accordingly to reduce fiber concentrations to acceptable levels. No ACM, PACM or asbestos material shall be disturbed during Phase IIA activities.

Air Sampling Requirements

(a) **Personal Air Sampling.** Air sampling shall be performed in the worker's breathing zone, by the asbestos contractor for his personnel, as required by current OSHA regulations.

(b) **Daily Air Sampling.** Project air sampling shall be conducted daily for the full workshift for Large projects. If more than one daily workshift is required to accomplish the work, air sampling shall be performed on each workshift. Air sampling is not required on days when there are no Phase II B activities.

(1) **Number And Location Of Samples ' Large Asbestos Projects.** A minimum of five (5) samples shall be taken on a daily basis. The locations of samples to be taken are the same as specified for Phase IIA.

Work Stoppage Criteria During Phase II B Abatement Procedures.

If air samples collected outside the regulated abatement work area, indicate airborne fiber concentrations at or above 0.01 fibers per cubic centimeter, or the established background level, whichever is greater, work shall stop immediately for inspection and repair of barriers and negative air ventilation systems as necessary. Clean up of surfaces outside of the regulated abatement work area using HEPA-vacuums and wet-cleaning methods shall be performed prior to resumption of abatement activities. A summary of clean up activities and the results of barrier inspections including any necessary repairs, shall be documented in the supervisor's daily project log. Work methods shall be altered accordingly to reduce fiber concentrations to acceptable levels.

(c) **Exemption from Daily Air Sampling.** Daily air sampling is not required on exterior asbestos projects with abatement of non-friable ACM roofing, siding, caulking or glazing compound, tars, sealers, coatings or other NOB ACMs, unless the ACM is rendered friable during removal or debris falls inside the building/structure.

(d) **Clearance Air Sampling.** There is no exemption from these requirements for Small or Large size negative pressure tent enclosure work areas. The amount of material abated within each regulated abatement work area determines the project size clearance air sampling requirements for each regulated abatement work area.

(1) **Aggressive Sampling Techniques.** The following aggressive sampling techniques must be used for Phase II C clearance air sampling:

(i) **Pre-Sampling Agitation.** Before starting the air sampling pumps, the exhaust of forced air equipment shall be directed against all walls, ceilings, floors, ledges, and other surfaces in the rooms. This shall continue for at least five (5) minutes per 1,000 square feet of floor space.

(ii) **Ongoing Agitation.** At least a 20-inch fan shall be placed in the center of each room. One (1) fan per 10,000 cubic feet of room space shall be used. The fan shall be operated on slow speed and pointed toward the ceiling.

(iii) **Begin Sampling.** The sampling pumps shall then be turned on.

(iv) **End Sampling.** When sampling has been completed, the sampling pump shall be turned off first, followed by the fan.

(2) **Number and Location of Samples - Large Project.** A minimum of ten (10) area samples shall be taken. Five (5) samples shall be taken inside the regulated abatement work area and five (5) samples shall be taken outside of the regulated abatement work area within the building or structure in uncontaminated areas that are within ten (10) feet of the isolation barriers. One additional inside sample shall be required for every 5,000 sq. ft. above 25,000 sq. ft. of floor space within the regulated abatement work area. If the entire building/structure is the regulated abatement work area, the five (5) area samples outside the regulated abatement work area shall be eliminated and one (1) sample shall be collected outside the building/structure within ten (10) feet of isolation barriers.

(3) **Number and Location of Samples - Small Project.** A minimum of six (6) samples shall be taken. Three (3) samples shall be taken inside the regulated abatement work area and three (3) samples shall be taken outside of the regulated abatement work area, within the building or structure, in the uncontaminated areas within ten (10) feet of the isolation barriers. If the entire building/structure is the regulated abatement work area, the three (3) area samples outside the regulated abatement work area shall be eliminated and one (1) sample shall be collected outside the building/structure within ten (10) feet of the isolation barriers.

(4) **Number And Location Of Samples ' Minor Asbestos Projects & Minor Size Regulated Abatement Work Areas.** For a Minor asbestos project, air samples are not required unless the glove bag or tent fails or if it is an incidental disturbance asbestos project, in which case the following sampling will be required. Also, if a Minor size regulated abatement work area is part of a Small or Large asbestos project, the following sampling will be required per minor size

regulated abatement work area.

(i) **Clearance Air Sampling.** A minimum of two (2) samples shall be collected. One (1) sample shall be collected inside the regulated abatement work area and one (1) sample shall be collected outside of the regulated abatement work area, within the building or structure, in an uncontaminated area within ten (10) feet of the isolation barriers.

(e) **Exemption From Clearance Air Sampling.** Clearance air sampling is not required for exterior asbestos projects completed without a negative pressure enclosure. When clearance sampling is not required as per this Part, once the final cleaning is complete, the appropriate waiting/settling or drying time requirements shall commence. Once the appropriate time period has elapsed, a visual inspection shall be completed by the project monitor to confirm that the scope of abatement work for the asbestos project is complete, and no visible asbestos debris/residue, pools of liquid, or condensation remain. The asbestos abatement contractor supervisor must complete a satisfactory visual inspection for completeness of abatement and cleaning, prior to commencement of the project monitor visual inspection.

(1) **Project Monitor Visual Inspection.** An appropriately trained and certified project monitor, contracted by the building/structure owner, independent of the asbestos abatement contractor, shall complete the visual inspection. The project monitor visual inspection for completeness of abatement and completeness of cleanup shall be performed as per the provisions of the current ASTM standard E1368 'Standard Practice for Visual Inspection of Asbestos Abatement Projects'. If the property owner is the asbestos abatement contractor for the asbestos project, the owner shall contract with an independent project monitoring firm asbestos contractor for the necessary visual inspection on the asbestos project. The asbestos abatement contractor and property owner, prior to the scheduling of the required visual inspection, shall provide a complete abatement scope of work for the asbestos project to the project monitor. An entry shall be made into the asbestos abatement contractor supervisor's daily log by both the supervisor and the project monitor performing the inspection, detailing the findings of the visual inspection. The full name and NYSDOL asbestos handling certificate number of the certified project monitor performing the inspection shall also be documented in the supervisor's daily log. If the regulated abatement work area is determined to be acceptable, this qualified project monitor may authorize breakdown of the regulated abatement work area, removal of all remaining barriers and waste removal from the site.

(2) **Exemption from Project Monitor Visual Inspection.** Asbestos projects which are exempt from clearance air sampling requirements at one or two-family owner occupied residential buildings/structures, are also allowed an exemption from the project monitor visual inspection requirements. For asbestos projects utilizing this exemption, once final cleaning is complete, a visual inspection shall be completed by the asbestos abatement contractor's supervisor to confirm that the scope of abatement work for the asbestos project is complete, and no visible debris/residue, pools of liquid, or condensation remain. The results of this inspection shall be documented by the asbestos abatement contractor's supervisor in the asbestos abatement contractor daily project log, and once the asbestos project is complete the asbestos abatement contractor's supervisor shall also obtain the owner's written acceptance of the final results of the asbestos project within the daily project log.

(f) **Satisfactory Clearance Air Sample Results.** The clearance air sample results shall be considered acceptable when the clearance criteria in have been satisfied.

(g) **Unsatisfactory Clearance Air Sample Results.** Required actions if the non-exempt regulated abatement work area clearance air sampling results are unsatisfactory are as follows:

(1) **Recleaning.** If the results of inside work area group of air samples are unsatisfactory, recleaning of regulated abatement work area surfaces using wet methods is required, with the negative air pressure equipment operating as per the requirements of this Part. If only the results of the outside work area group of air samples are unsatisfactory, clean-up of surfaces outside of the regulated abatement work area using HEPA-vacuums and wet-cleaning methods shall be performed.

(2) **Collection of New Samples.**

(i) If the results for the inside work area group of air samples are unsatisfactory, after recleaning of work area surfaces, clearance air sampling shall not commence until the appropriate waiting/settling or drying time requirement has elapsed and no visible asbestos debris/residue, pools of liquid, or condensation remain, then collection and analysis of an additional full set (both inside and outside work area samples) of clearance air samples shall be completed. Samples shall be placed in the same positions as before, and the new samples analyzed for concentrations of airborne fibers.

(ii) If only the results for the outside work area group of air samples are unsatisfactory, following clean-up of surfaces outside of the regulated abatement work area, collection and analysis of an additional group of outside work area clearance air samples shall be completed. Samples shall be placed in the same positions as before, and the new samples analyzed for concentrations of airborne fibers.

(3) Repeating Air Sampling and Analysis. The requirements shall be repeated until satisfactory clearance air sampling results have been achieved, for all non-exempt regulated abatement work areas throughout the entire work site.

PHASE II D FINAL WASTE REMOVAL FROM SITE REQUIREMENTS.

Air Sampling Requirements

(a) **Satisfactory Clearance Air Results.** Satisfactory clearance air results must be obtained, for all non-exempt regulated abatement work areas, before final waste removal from the site may be completed.