PULASKI COUNTY BOARD OF EDUCATION

Asbestos Operations and Maintenance Program

Administered by

Bill Phelps
LEA Designee
for
Asbestos in Pulaski County Schools

606-679-1123

Prepared by
BARRY W. COOPER, INC.
ENVIRONMENTAL CONSULTANTS
APRIL 2020

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Standard Work Practices and Procedures:

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PREFACE

The Pulaski County Board of Education has implemented an Asbestos Operations and Maintenance Program (O&M) to ensure the safety of employees who may work in the vicinity of, or who may disturb, asbestos-containing materials (ACM) as part of their job duties, and to minimize the exposure of teachers, students and other building occupants and maintenance and custodial personnel to airborne asbestos fibers.

The original O&M Program was implemented by Bill Phelps (LEA DESIGNEE) in 2003 and an updated plan was implemented in 2016 in an effort to control, limit and monitor exposures to airborne asbestos fibers. Employees at risk for exposure are provided training, access to appropriate personal protective equipment, and medical examinations.

This Document has been reviewed and prepared by:

Barry W. Cooper, Inc.
Asbestos Management Planners
Asbestos Inspectors

1.0 Introduction to the Asbestos Operations and Maintenance (O&M) Program

The principal objective of the Asbestos Operations and Maintenance Program is to minimize the exposure of building occupants and maintenance and custodial personnel to airborne asbestos fibers by:

1. The survey, inventory and periodic reassessment of all suspect and known asbestos-containing materials (ACM). The purpose of the reassessment is to monitor the condition of ACM to ensure that ACM is maintained in an undamaged (non-hazardous) condition. The Pulaski County Board of Education has retained Barry W. Cooper, Inc., a company providing environmental consulting services to perform these activities.

2. Ensuring that asbestos fibers that have been previously released are properly cleaned-up. Custodians working the Pulaski County Board of Education have been provided with a 2-hour Awareness training for cleaning activities.

3. Training individuals who may encounter ACM during their normal work activities. For the schools operated by the Pulaski County Board of Education, the following workmen have been trained to provide maintenance activities

Martin Hunt	Initial Training 1992 & June 2003
Dewel Bowlin	June 2003
Jeff Byrd	June 2003

4. Developing work practices and procedures that will allow renovation, construction or emergency maintenance to be performed safely without exposing employees, building occupants, or members of the public to airborne asbestos fibers.

This program has been designed to comply with applicable state and federal regulations pertaining to asbestos. This program shall remain in force until all ACM has been removed from all Pulaski County Board of Education properties.

Background information on asbestos and the health effects related to asbestos exposure is available through Bill Phelps (LEA DESIGNEE). Interested persons may request this information by contacting LEA DESIGNEE at 606-679-1123.

1.1 Who Should Participate

The Asbestos O&M Program is administered by the Pulaski County Board of Education LEA DESIGNEE. The LEA DESIGNEE will coordinate sampling of suspect ACM, maintain all asbestos-related records, monitor asbestos removal operations not associated with capital projects, periodically reassess suspect and known ACM, and review proposed work to be conducted by maintenance workers and outside contractors.

Other key School participants include:

- Building maintenance and supervisory personnel
- Custodial staff and supervisory personnel
- Personnel involved in building renovations or demolition
- Outside contractors or personnel involved in the placement of communication or power cables
- Facilities Planning and Construction personnel, including Leased Property Management
- Assistants to the LEA Designated person (LEA Designee)
- Environmental Consultants as needed.

2.0 Program Elements

2.1 Education and Training

2.1.1 Custodial Training

All maintenance and custodial staff who perform duties that involve the possible disturbance of ACM shall receive as a minimum, AHERA required 2-hour training. Training will include:

1. Asbestos characteristics and typical uses of ACM

2. Health effects of asbestos exposure and the combined effects of smoking and asbestos exposure

3. Purpose of the Asbestos O&M Program

4. Recognition of damaged ACM, and the response that should be made if damaged ACM or suspect ACM is found

Information on the identification and location of ACM, types of asbestos, and the health effects related to asbestos exposure may be obtained by contacting LEA DESIGNEE at 606-679-1123

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2.1.2 Maintenance Worker Training: Small-scale, Short-duration Asbestos Projects

Maintenance personnel who perform duties that involve small-scale, short-duration removal or repair of ACM, or that are required to work in environments contaminated with ACM, shall receive 14-hours of training in addition to the 2-hour awareness training. Training shall include:

1. Approved asbestos work practices and procedures

2. Implementation of operations, maintenance and repair programs

3. Worker protection, including use of personal protective equipment

4. Fiber release episodes

5. Each employee shall receive hands-on training to include:

    a. Setting up containment

    b. Decontamination procedures

c. Glove bag operations

d. Use of tools and equipment approved for use with asbestos

6. Each employee shall receive training on the Standard Work Practices and Procedures set forth in this section

7. Recordkeeping requirements

8. A review of the requirements of 1910.1001

Employees who perform asbestos repair or removal operations other than small-scale, short-duration shall meet the training requirements established by the Kentucky Division of Air Quality (DAQ) for an Asbestos Worker. In general, for the Pulaski County Board of Education asbestos abatement projects will be handled by an outside contractor utilizing accredited personnel.

All personnel required to wear respiratory protection or that perform minor repair or maintenance work involving asbestos materials shall receive training on respiratory protection and approved asbestos-related work practices and procedures. The requirements of the Respiratory Protection and Medical Surveillance Programs may be obtained by contacting LEA DESIGNEE at 606-679-1123.

2.1.3 Inspector, Management Planner, and LEA Designee Qualifications

Personnel that sample suspect ACM, conduct building inspections, and that perform hazard assessments shall meet the minimum qualifications for **Asbestos Inspector** as established by the Kentucky DAQ.

Personnel that develop response actions, or that make recommendations for removal procedures, shall meet the minimum qualifications for **Asbestos Management Planner** and/or **Asbestos Project Designer**, as appropriate, as established by the Kentucky DAQ.

Personnel that monitor asbestos projects, that secure asbestos air samples during an asbestos project, that perform final visual inspections and final clearance air sampling shall meet the minimum qualifications for **Asbestos Project Monitor** and **Asbestos Supervisor** as established by the Kentucky DAQ, and shall meet the definition of "competent person" as defined by the EPA.

Personnel that coordinate sampling and assessments, and that monitor and develop response plans that require modification to the O&M plan shall meet the minimum qualifications of **"Management Planner"** as established by the Division of Air Quality (DAQ).

The Environmental Consultant must meet the licensing requirements of the Kentucky DAQ for Asbestos Inspector and Management Planner.

The School's O&M program will be managed by the **LEA Designee.**

2.1.4 Designated Liaison

The Pulaski County Board of Education maintenance department shall designate one member of the custodial and/or maintenance supervisory personnel to serve as the liaison to coordinate the specific efforts of the asbestos program within the particular building to which the liaison is assigned.

The designated contact shall have received AHERA 14 hour training in addition to the 2-hour asbestos awareness training. This training shall also include:

- Interpreting the information contained in the building asbestos management plan;
- Use of the Fiber Release Episode form,
- Conducting building inspections and hazard assessments, and
- Instruction in how to request assistance from LEA DESIGNEE if suspect or known ACM is damaged or disturbed and the method for reporting damage to suspect and known ACM.

2.2 Occupant Awareness

2.2.1 Building Occupant Awareness

A. Occupants of buildings will be made aware of the existence of the Asbestos O&M Program as well as the Management Plan, and will be provided access to this Document upon request. Occupants will, in addition, be made aware that ACM may be present in their workplace, and will be cautioned that ACM is not to be damaged or disturbed except under controlled conditions by trained personnel. Occupants may review asbestos-related building survey records either by contacting their school principal, or by contacting LEA DESIGNEE at 606-679-1123.

B. Prior to the start of any asbestos abatement project, additional information will be provided to building occupants that will explain the work that is to be performed, and the measures that are being employed to protect them. This information will be made available either at group meetings, or by letter, the use of media resources, or a combination of the above.

2.2.2 Building Custodial Workers

Custodial workers will be provided with a complete record of the location of all suspect and known ACM in the buildings for which they are responsible. The management plan will be maintained in each school's front office.

2.2.3 School Principal

The school principal shall be provided with a building asbestos management plan for the school building. This management plan shall:

- Include information regarding product type, specific location, estimated quantity, type and percentage of asbestos content, and physical condition;

- Be kept in the possession of the person designated at a location in the building where it is readily accessible to building employees or their designated representative;

- Be updated as surveillance, test results and/or response actions are undertaken in the building by the environmental consultant.

2.2.4 Work Review For Potential For Disturbance

It is the mandate of the Kentucky Division of Air Quality, and the administration of Pulaski County Board of Education, that no renovation, alteration of a building material, or maintenance activity will occur that has not been reviewed either by LEA DESIGNEE or a licensed asbestos consultant for the possibility of contact with, or disruption of, ACM, or the presence of damaged or deteriorated ACM in the work area.

A. All schools shall follow the guidelines of the Work Review for potential disturbance detailed in this Document if they:

    - Conduct maintenance, renovation or repair activities,

    - Conduct work in asbestos contaminated work environments (e.g. pipe chases, crawlspaces or other building areas where deteriorated or damaged ACM may be present),

    - Work with ACM during machinery repair (for example, during the replacement of asbestos packing in circulating pumps, or,

    - Conduct any work or operation that potentially impacts ACM.

B. **Distribution of Information:** Each department that conducts building repair, renovation or maintenance work shall delineate a chain-of-command and a departmental contact person(s) who will be responsible for:

1. Requesting the sampling by LEA DESIGNEE of suspect ACM that will be disturbed by the work

2. Requesting a review by LEA DESIGNEE of proposed work that is to be conducted in the vicinity of known or suspect ACM

3. Distributing work orders that have been reviewed by maintenance Superintendent for potential contact with asbestos.

The departmental contact will be provided with building asbestos profiles for all buildings in which the department conducts work. The departmental contact person may use this information to review proposed work, in lieu of a review by LEA DESIGNEE, where all suspect materials have been sampled, and ACM or suspect ACM will not be disturbed.

2.2.5 Building Signage

A. Signs and Labeling of ACM

A labeling program will be implemented to identify known ACM in School buildings. The number and location of these signs or labels shall be sufficient to clearly identify ACM in routine maintenance areas.

In buildings where exposed asbestos pipe insulation is present, non-asbestos thermal system insulation (TSI) installed in areas with existing ACM TSI shall be labeled as either "Asbestos Free" or "Non-asbestos" by the installer. If the non-asbestos product is installed in-line with existing ACM (for example, on the same run of pipe), then the boundary between ACM and non-ACM shall be clearly delineated.

Reasonable precautions shall be taken by the maintenance staff to ensure that labels remain visible. During painting or other operations where labels will be hidden or covered, existing labels shall either be removed and new labels affixed after painting, or existing labels shall be otherwise protected.

B. Contaminated Building Areas

Signs conforming to the current OSHA standards shall be posted restricting access to building areas that are contaminated with ACM debris where it has

been demonstrated, or can reasonably be expected, that airborne asbestos fiber concentrations exceed the PEL (e.g. regulated area). Signs shall read:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

A secondary sign shall be posted that will direct the worker to contact LEA DESIGNEE @ 606-679-1123 for assistance.

Signs shall be posted restricting access to building areas that are contaminated with ACM debris where airborne asbestos fiber concentrations do **not** exceed the PEL. Signs shall read:

WARNING
AREA CONTAMINATED WITH ASBESTOS DEBRIS
AVOID CREATING DUST
AUTHORIZED PERSONNEL ONLY
CONTACT LEA DESIGNEE @ 606-679-1123 FOR ACCESS

Access to contaminated building areas may be restricted by limiting the availability of keys to these areas to personnel with appropriate asbestos-related training, who will enter only under the supervision and/or direction of LEA DESIGNEE.

2.2.6 Contractor Awareness Program

Contractors employed by the Pulaski County Board of Education shall be informed by the maintenance department supervisor or LEA Designee of the location of suspect and known ACM in the work area to which they are assigned. Contractors shall, under no circumstances, damage or disturb suspect or known ACM unless they are a licensed Asbestos Abatement Contractor and have been specifically employed to perform asbestos removal.

The Lea Designee shall provide contractors with a copy of the asbestos inspection report *specific to their work and the materials that are to be disturbed*.

The School LEA Designee shall caution contractors that they shall not proceed with any change in work that requires that a material be disturbed that has not been previously been tested (e.g. "suspect" ACM). If a change in the scope of work becomes necessary, a new review request shall be submitted to LEA DESIGNEE who will review the work for the potential to disturb ACM with the Environmental Consultant.

It will be the responsibility of any outside contractor to provide their own asbestos awareness program which shall, at a minimum, include the information contained in this section.

2.2.7 Media Information

LEA DESIGNEE may provide School Public Relations staff with information related to proposed asbestos abatement projects to facilitate the dissemination of this information to building occupants.

2.3 Building Surveys, Inspections, and Hazard Assessments

2.3.1 General

Hazard assessments and building inspections for the presence of asbestos shall be performed in accordance with the asbestos survey standard for buildings to be renovated or demolished promulgated by the Kentucky DAQ. Buildings built after January 1, 1978 shall **not** be exempted unless suitable Documentation can be obtained that certifies that installed materials are asbestos free. A copy of the current survey standard may be obtained by contacting LEA DESIGNEE at 606-679-1123.

2.3.2 Bi-annual Reassessment of ACM and Suspect ACM

All Pulaski County Board of Education properties that have either known or suspect ACM shall be surveilled by LEA DESIGNEE directed environmental personnel at least semi-annually. Any change in material condition shall be noted during this inspection and, if necessary, the relative hazard posed to building occupants by this material shall be assessed.

If necessary, material repairs and/or minor abatement shall be performed at the first available opportunity to reduce or eliminate the hazard to building occupants.

A complete record of building inspections shall be submitted by the Environmental Consultant and maintained by LEA DESIGNEE.

2.3.3 Sampling of Suspect ACM

A. The inspector shall, where possible, utilize the results from previous samples secured within the building area to make a determination of ACM or non-ACM. The inspector shall modify Pulaski County Board of Education building records to clearly delineate sample locations and the homogenous area identified.

The information gathered during the 3 year reinspection of School buildings will be used to develop a prioritized list of suspect ACM that is damaged or deteriorated. Suspect ACM from this list will be sampled and analyzed in the order of assigned priority to determine actual asbestos content so that an appropriate response can be determined.

B. **Barry W. Cooper, Inc., Environmental Consultants**

The School commissioned a reinspection for friable & non-friable ACM by Barry W. Cooper, Inc. in 2016. Extreme caution is advised if the data gathered during the Barry W. Cooper, Inc. survey is to be utilized, because the sampling protocol did not include demolition of walls or ceilings to locate all the material which may be located in any building. Prior to demolition of walls, ceilings, floors or other building components, a follow-up inspection involving concealed areas will be provided.

2.3.4 Capital Projects

The LEA Designee for the Pulaski County Board of Education shall secure the services of a licensed asbestos inspector to secure samples of suspect ACM that will be damaged or disturbed by the proposed work. The inspecting firm shall prepare an inspection report in accordance with the survey standards detailed herein. The report shall include an assessment of damaged or deteriorated ACM in the work area as well as ACM in other building areas that may be damaged or disturbed by the proposed work (e.g. through traffic, construction induced vibration, and so forth). The inspecting agency shall be provided access to original building records and sampling data for the building(s) in question.

2.3.5 Leased Properties

A. Existing and New Leases

In accordance with the best safety interests of the Pulaski County Board of Education, staff, students and occupants, the School shall take necessary precautions to ensure that no additional leases are entered or existing leases extended in buildings which contain friable asbestos which could subject employees or clients to health risks.

2.4 Exposure Monitoring

2.4.1 Personal Air Samples for School Personnel

LEA DESIGNEE shall monitor and secure personal air samples for all asbestos related work performed by School personnel should abatement actually ever be handled “In-House”. These samples shall be used to ensure that the permissible eight (8) hour time weighted average (TWA) exposure and the excursion limit established by OSHA (in 29 CFR 1910.1001 and 1926.58) is not exceeded. The cost for the analysis of these samples shall be borne by the Pulaski County Board of Education. Historic sampling data may only be used if previous samples were taken during an asbestos project involving similar material types under similar material and environmental conditions.

Sampling methodology and analysis shall conform to the requirements of 29 CFR 1910.1001. A copy of this regulation may be obtained by contacting LEA DESIGNEE at 606-679-1123.

A copy of personal air sampling results shall be submitted to the employee for which the samples were secured within 15 days of receipt from the laboratory.

2.4.2 Personal Air Sampling for Non-School Personnel

Asbestos abatement contractors shall be responsible for securing air samples for their own personnel to meet the requirements of 29 CFR 1926.58.

2.4.3 Air Sampling during maintenance or Asbestos Abatement Projects

A. General

The project air monitor shall secure baseline (e.g. background) air samples before the start of the project, if necessary, and shall secure air samples outside of the work area during the project. The project monitor will, in addition, perform a final visual inspection and will secure final clearance air samples using aggressive air sampling techniques (if required).

The minimum air clearance required for minor projects in which the work area will be considered safe for re-occupancy if all final clearance air samples are less than 0.01 fibers per cubic centimeter (f/cc) of air sampled as determined by Phase Contrast Microscopy (PCM). For minor projects, TEM sample analysis will be preferred if practical. For abatement projects, TEM analysis using the required number of samples (13) per AHERA Protocols will be provided.

Aggressive air sampling will not be performed for minor tasks if the work area is not contained and is not under negative pressure.

In the event that baseline air samples indicate that the background particulate load will not allow the use of PCM for analysis of final clearance air samples, and if it is not possible to establish a clean source of make-up air to the work area, then final clearance samples shall be analyzed using Transmission Electron Microscopy (TEM) in accordance with 40 CFR, Part 763.

The cost for analysis of air samples associated with asbestos projects shall be borne directly by the Pulaski County Board of Education.

1. Asbestos Abatement Projects

LEA DESIGNEE will provide project monitoring services for abatement projects.

The LEA Designee shall secure the services of a licensed air monitoring agency.

The duties and function of the project air monitor will include, but are not limited to, observing and monitoring the activities of an asbestos abatement contractor on asbestos projects to determine that proper work practices are used and compliance with all federal, state and local laws and regulations is maintained. The licensed project air monitor will collect, at a minimum, environmental air samples during the asbestos project, perform visual inspections of the work area, and perform final visual inspections and aggressive final clearance air sampling. The number of air samples and sampling methodology shall conform to current state requirements.

The project air monitor shall be on-site during all asbestos-related work activities.

2.4.4 Monitoring of Airborne Asbestos Fiber Concentrations in Buildings

After any abatement project, LEA DESIGNEE will make available to School employees, upon request, Documentation of the background airborne asbestos fiber levels in School buildings. LEA DESIGNEE will secure, if necessary, additional air samples to Document the ambient exposure levels in non-affected parts of the school facility.

2.5 Recordkeeping

All records mentioned in this Asbestos O&M Program shall be retained as required by the regulations and as necessary to maintain an effective program. These records shall include:

- The written O&M plan itself, including all revisions, changes and modifications
- Management plans and drawings, with identified homogenous areas and sample locations clearly delineated
- Management plans and drawings, with areas of known ACM clearly identified
- Management plan sampling and survey records, and records of all reinspections
- All asbestos project (abatement, repair, encapsulation or enclosure) records including, as appropriate, survey records, project design or abatement specifications, air sampling data, daily project monitor logs, sign-in logs, waste disposal manifests, and invoices. The building area affected and material removed shall be clearly identified on the building drawings.
- Attendance records for school personnel at all awareness and training programs
- Medical surveillance records shall be maintained by the Health Assurance Program for 30 years past the last date of employment for an individual employee required to participate in a medical history program.
- Personal air sampling data
- Correspondence
- A copy of current state and federal regulations or information outlining where the regulations may be found.

Where all ACM of one type will be completely removed from a building, a sample of the material removed shall be retained by LEA DESIGNEE for any potential future legal action against the manufacturer.

Records will be maintained and will be available for inspection at the office of LEA DESIGNEE.

2.6 Management

Asbestos abatement or repair projects that become necessary as a result of changing material conditions identified during bi-annual surveillance shall be prioritized for remediation by the School LEA Designee. Access to building areas impacted by damaged or deteriorated ACM that is not addressed during this action shall, if an airborne asbestos hazard or potential hazard exists, be restricted to trained and accredited personnel.

3.0 Suggested Work Order Review

3.1 Purpose

The purpose of the work order review is to allow, Bill Phelps the LEA Designee an opportunity to review all proposed **renovation, maintenance** or **repair** work that is to be completed internally by staff and/or outside contractors to insure that either:

- ACM will not be disturbed by the work
- Damaged ACM present in the work area is repaired and the area cleaned before the work begins
- Suitable precautions are taken if the work has the potential to unintentionally disturb ACM (e.g. due to the physical configuration of the area and the location of the ACM in relation to the proposed work), or,
- That ACM that will be disturbed by the work is removed either using trained School personnel or a licensed asbestos removal contractor under the supervision of LEA DESIGNEE or a licensed Project Air Monitor hired for this purpose

All **suspect** and **known** ACM in the area of the work will be identified to the employee providing the work. When the work involves, or will be conducted in the vicinity of, thermal system insulation (TSI), then all ACM TSI in the immediate vicinity of the work area will be clearly identified with the OSHA "Danger" warning label, and non-ACM TSI with an "Asbestos Free" label as appropriate. Labels shall be installed by trained school maintenance workers.

3.2 Participants

A. The maintenance contractor or staff that conducts work that has the potential to disturb ACM, or that work in a building area that is potentially contaminated with ACM debris, will consider the suggested Work Order Review standard.

B. Capital Construction projects will abide by the regulatory requirements detailed by the Kentucky Division of Air Quality, but will not utilize the work order review system. Rather, the School shall contract the services of a licensed asbestos consulting and inspection firm to:

C. Secure samples of **all** suspect ACM that will be damaged, disturbed, removed or otherwise impacted by the proposed work,

D. Develop a comprehensive asbestos inspection report, and, depending upon the scale and the scope of the work,

E. Develop asbestos removal, encapsulation and/or repair specifications.

Changes in the scope of work that require that suspect ACM be disturbed will necessitate that additional samples be analyzed.

3.3 Instructions for Completing the Suggested Work Order Review Form

A suggested work order review form is included in Appendix C and is shown in this Document. The maintenance department may prepare their own form for internal use and recordkeeping if the form used contains all pertinent information contained on the sample form.

3.3.1 Recordkeeping

Any completed Work Order Review forms and all related information will be incorporated into the O&M building records.

4.0 Standard Work Practices and Procedures

4.1 Introduction

Standard work practices and procedures (STANDARD WORK PRACTICE) provide specific guidelines for certain asbestos-related work activities. Adherence to STANDARD WORK PRACTICE will minimize the production of airborne asbestos fibers and will protect the worker and building occupants.

Asbestos projects may be performed by properly trained in-house personnel without notification to OSHA and EPA if the amount of ACM involved is less than 3 square or 3 linear feet.

The 3 square/linear foot limitation will, for the purposes of this Document, be used to define the relative scale of a small-scale, short-duration operation. A small-scale, short-duration operation (SS/SD) is further defined as only those demolition,

renovation, repair, maintenance or removal operations which are non-repetitive, affect small surfaces or volumes of ACM, will be completed within one work day, and are not expected to expose bystander employees to measurable amounts of asbestos. In SS/SD projects, the removal of ACM is not the primary goal of the job; if the purpose of the SS/SD project is maintenance, repair or renovation of the equipment, or piping space behind or covered by the ACM, then these provisions shall apply.

4.2 Personal and Work Area Air Monitoring

Personal and work area air monitoring will be used to evaluate the effectiveness of the work practices, to Document exposure conditions, and to provide justification for the personal protective equipment used.

Personal air samples will be secured for **each individual** for each **type** of STANDARD WORK PRACTICE until there is sufficient historic data available to meet the OSHA requirements. Once historic data is available, it may not be necessary to secure air samples **except:**

- Work area environmental and/or personal air samples will **always** be taken if the work area will be reoccupied after project completion, or if School personnel are present immediately outside of the work area (for example, glove bag removal of pipe insulation in the Boiler Room, where access to an **area** can be restricted, but unprotected employees are in the same **space**).

- Final clearance samples will **always** be secured for any asbestos project that is not small-scale, short-duration.

- Personal air samples will be secured on a periodic basis by LEA DESIGNEE to provide continuing Documentation that the personal protective equipment required by the STANDARD WORK PRACTICE conforms to the OSHA requirements.

4.3 Providing Notice by LEA DESIGNEE

It is essential that Kentucky Division of Air Quality (DAQ) be provided, if possible, with at least two weeks notice prior to any asbestos project that is not SS/SD, and three days notice prior to any SS/SD asbestos project; this will allow LEA DESIGNEE to schedule maintenance personnel and ensure that a laboratory is available to analyze the air samples within the time frame required.

4.4 Providing Notice to OSHA and EPA

A 20-day notice and a project permit fee must be submitted to the DAQ for all asbestos projects involving more than 3 linear or square feet of friable ACM.

Notice must be provided to federal EPA for building demolitions ***even if*** no friable asbestos will be impacted by the work.

Notification of less than twenty days may be allowed in case of an emergency involving protection of life, health or property. This includes, but is not limited to: leaking or ruptured pipes; asbestos that has been accidentally damaged or that has fallen that could expose non-asbestos workers or the public; unplanned mechanical outages; or, repairs essential to a work process that require asbestos removal and that could only be removed safely during the mechanical outage.

A copy of the permit regulations may be obtained by contacting LEA DESIGNEE at 606-679-1123.

4.5 Equipment

All equipment used for O&M work practices or response actions shall be designed for use in asbestos operations. In general, some or all of the following materials and/or equipment may be required for asbestos work:

Respirators: Respiratory protection shall conform to the requirements of OSHA 1910.1001. Respirator selection, use and maintenance shall conform to the requirements of the School's Respiratory Protection Program.

11"x17" Danger Signs: Danger signs shall be posted at each entrance to an asbestos regulated area. Signs shall conform to OSHA 1910.1001.

Barrier Tape: Barrier tape specific to asbestos-related work shall be used to demarcate a regulated area when the work area is not isolated by physical boundaries (e.g walls with lockable doors).

Six-mil polyethylene sheeting: Poly is used to construct critical barriers, to protect finishes, and to contain the release of airborne asbestos from the work area. The poly is generally attached using spray glue and duct tape.

HEPA-Filtered Vacuum: Such vacuums, designed to be used with a HEPA filter, are available in various sizes and capacities, and can be used with attachments on drills, saws and other tools.

Wetting Agent: A chemical wetting agent added to water that is used to soak ACM. This amended water penetrates more effectively than normal water, and permits more thorough soaking of the ACM prior to removal or disturbance.

Airless Garden Type Sprayer: Airless garden type sprayers are used to apply amended water to ACM.

Portable Shower: Portable showers are used in conjunction with a clean and dirty change room for personnel decontamination on larger asbestos projects. A portable shower may be appropriate for some types of SS/SD projects.

Disposable Coveralls: Disposable, impervious coveralls, equipped with head and foot covers, that are used on asbestos projects to prevent gross contamination from contacting the worker.

Asbestos Disposal Bags: 6-mil Polyethylene bags that are pre-printed with the following: "Danger; Contains Asbestos Fibers; Avoid Creating Dust; Cancer and Lung Disease Hazard; Breathing Airborne Asbestos, Tremolite, Anthophyllite or Actinolite Fibers is Hazardous to Your Health"; and "RQ Hazardous Substance; Solid, NOS (ASBESTOS); NA 9188; (ORM-E)". Bags shall, in addition, utilize the hazard label currently required by Kentucky Department of Transportation. Bags shall be individually labeled with an adhesive tag which lists the project, site, and name of the group that removed the asbestos.

4.5 Development of STANDARD WORK PRACTICES

The maintenance department may with the assistance of LEA DESIGNEE, develop STANDARD WORK PRACTICES specific to the asbestos-related work that they perform. Copies of these STANDARD WORK PRACTICES shall be:

- Made available to LEA DESIGNEE,
- Maintained with the departmental copy of the O&M program, and,
- Provided to supervisors and employees who conduct work covered by the STANDARD WORK PRACTICE.

Ensuring compliance with the STANDARD WORK PRACTICE shall be the responsibility of the individual employee, the employees' supervisor, and the department. Deficiencies noted during field inspections and audits conducted by LEA DESIGNEE of work performed shall be brought to the attention of the employee, supervisor or department as appropriate.

Copies of STANDARD WORK PRACTICES that are based upon an industry standard, or that were developed with the assistance of the Environmental Consultant, may be found at the end of this section.

Appendix A

GLOSSARY

Abatement Work that involves the physical removal of asbestos. Work must be performed by trained personnel under the supervision of a competent person as defined by the Environmental Protection Agency (EPA).

Aggressive Final The act of aggressively agitating the air in an asbestos removal

Clearance Air Sampling	area using fans and/or a leaf blower while final clearance air samples are being taken.
Amended Water	Water that has been mixed (amended) with a chemical wetting agent, or surfactant, to improve penetration and wetting ability.
Asbestos	A generic name given to a number of naturally occurring minerals that possess a unique crystalline structure and are separable into fibers. Asbestos includes the asbestiform varieties of chrysotile, crocidolite and amosite.
Asbestos-containing Material (ACM)	Any material containing more than 1.0% asbestos by area as determined using Polarized Light Microscopy.
Asbestos Project	An activity involving job set-up for containment, removal, enclosure, encasement, renovation, repair, demolition, construction or alteration of an asbestos-containing material.
CFR	Code of Federal Regulations
Control Measure	A measure used to control the generation of airborne asbestos fibers until a permanent solution can be implemented. These measures include encapsulation, repair, encasement and enclosure.
Delamination	Physical separation of one layer from another.
Encapsulation	The application of a sealant over the surface of the asbestos-containing material to prevent the release of asbestos fibers.
Enclosure	The construction or installation over or around the ACM of any solid or flexible covering, which will not deteriorate or decompose for a period of time, so as to conceal the ACM, contain ACM fibers, and render the ACM inaccessible.
EPA	The United States Environmental Protection Agency
Excursion Limit	The employer shall ensure that no employee is exposed to an airborne asbestos fiber concentration in excess of 1.0 f/cc of air as averaged over a sampling period of thirty (30) minutes; the concentration of 1.0 f/cc is defined as the excursion limit.

Fiber Release Episode	The unintentional disturbance of ACM resulting either from accidental contact or that is a result of other factors, such as pipe leaks or roof leaks, where the ACM has been physically dislodged and the potential for asbestos fibers to have become airborne as a result of this disturbance is high.
Friable	Material which is capable of being crumbled, pulverized or reduced to powder by hand pressure when dry, or which under normal use or maintenance emits or can be expected to emit fibers into the air.
HEPA	High Efficiency Particulate Air (HEPA). HEPA filtered equipment must be capable of trapping and retaining 99.97% of all particles larger than 0.3 microns.
Homogenous	Materials of the same age, physical appearance, texture and color, used for a similar application. A separate homogenous sampling area shall be defined for each type of homogenous material on each floor of a building.
Industrial Hygienist	A professional qualified by education, training and experience to recognize, evaluate, and develop control measures for occupational health hazards.
Miscellaneous ACM	Interior ACM that is not surfacing or thermal system insulation, such as some floor tile, ceiling tile, wire insulation, asbestos cement products and so forth.
Operations & Maintenance Program	Specific procedures and practices developed for the interim control of asbestos-containing materials in buildings until it is removed.
OSHA	Occupational Safety and Health Administration, administered in Kentucky by the Department of Labor and Industry (DLI).
Permissible Exposure Limit (PEL)	The highest allowable level of exposure to airborne asbestos fibers that an employee may have, without using respiratory protection, as stated by the Occupational Safety and Health Administration (OSHA).
Personal Protective Equipment	Any material or device worn to protect a worker from exposure to, or contact with, any harmful material or force. PPE should be used only if engineering or administrative controls are insufficient

to protect against a hazard.

Regulated Area

An area established by the employer to demarcate areas where airborne asbestos fiber concentrations exceed, or can reasonably be expected to exceed, the permissible exposure limit.

Renovation

Altering, in any way, one or more facility components.

Repair

Returning damaged ACM to an undamaged condition or to an intact state so as to prevent fiber release.

Respiratory Protection

A device worn to either purify the air, or that provides clean air from another source to the wearer. All respirator users must be enrolled in Virginia Tech's Medical Surveillance Program, and must have received appropriate training on respirator use, care, and maintenance.

Response Action

Repair of damage or deterioration to asbestos materials, or the removal of asbestos or asbestos debris, undertaken to alleviate a hazard to building occupants.

For the purposes of this Document, in-house workers may only conduct small-scale, short-duration removal or repair response actions, the cleaning/removal of asbestos debris, and cleaning/removal operations associated with an asbestos fiber release episode.

Asbestos work other than small-scale, short duration must be performed by either an in-house person who has Asbestos Worker equivalent training, or by a licensed asbestos removal contractor.

Small-scale, Short-duration Asbestos Projects

Small-scale, short-duration (SS/SD) renovation and maintenance activities include, but are not limited to: removal of ACM from pipes; replacement of an ACM gasket on a valve; installation or removal of small sections of drywall; installation or electrical conduit proximate to, or through, ACM; or the removal of small sections of ceiling tile, friable (e.g. damaged) flooring, or unbonded ACM flooring where the work is non-repetitive, and can be completed within an eight (8) hour work shift. The purpose of SS/SD projects is maintenance, repair or renovation where the

removal of ACM is not the primary goal of the job. For additional information, see Section 4.1.

Asbestos Project Supervisor

A person with the training and experience required by the Department of Commerce for licensing as an Asbestos Supervisor, and who meets the qualifications of "competent person" as established by 40 CFR 761. An asbestos project supervisor must be present on all asbestos projects which involve the removal of friable ACM.

Surfacing ACM

ACM sprayed or troweled on surfaces, such as some acoustical plasters, hard wall or ceiling plasters, and fireproofing.

Thermal System Insulation

Thermal system insulation (TSI), is ACM applied to pipes, fittings, boilers, breaching, tanks, ducts or other structural components to prevent heat loss or gain or water condensation.

APPENDIX "B"

PULASKI COUNTY BOARD OF EDUCATION

RESPIRATORY PROTECTION PROGRAM

Regulations require employers whose employees are required to wear respirators in their work to develop and implement a written respiratory program. Written programs must include required worksite-specific procedures. A suitably trained program administrator must administer the program. The program must be updated as necessary to reflect those changes in the workplace condition that affect respirator use.

For the purpose of this plan the school LEA Designee, PULASKI COUNTY BOARD OF EDUCATION shall serve a the respiratory program administrator.

At a minimum, the written program must include the following items:

1. Procedures for selecting respirators in the workplace.
2. Medical evaluations of employees required to use respirators.
3. Fit testing procedures for tight-fitting respirators.
4. Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations.
5. Procedures and schedules for cleaning, disinfecting, storing, inspection, repairing, discarding, and otherwise maintaining respirators.
6. Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators.
7. Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency response situations.
8. Procedures for regularly evaluating the effectiveness of the respiratory protection program.
9. Procedures where voluntary respirator use is permissible.
10. A designated program administrator qualified by appropriate training and experience commensurate with the complexity of the program.
11. Respirators, training, and medical evaluations must be provided at no cost to the employee.

For the Pulaski County Board of Education, the following workers have received mandatory 16-hour maintenance worker training which included respiratory protection training.

Martin Hunt	Initial Training 1992 & June 2003
Dewel Bowlin	June 2003
Jeff Byrd	June 2003

I. Protective Clothing

A. Reasons for Wearing
   1. Contains fibers to the work area by facilitating decontamination. Showering may not remove all fibers from hair and pores – so keep it off in the 1st place with coverings.
   2. Prevent skin rash and skin abrasion.
   3. Prevent Contamination of other Clothing – (The protective clothing is a precaution when fiber release is not expected, such as a glove bag procedure in a clean area.)
   4. Regulatory Compliance.

B. Acceptable Clothing
   1. Normal clothing discouraged – Use Tyvek suits.
   2. Disposable clothing is preferred.

Options

a. Breathable or non-breathable fabric
b. Some non-tyvek brands do not tear as easily
c. Parts—hood, booties, suit or one piece

C. Clothing required by OSHA – OSHA says no rips or tears while in the negative pressure enclosure – mend or replace immediately.

1. Coveralls
2. Foot Covers – be careful of materials that add to the slipping hazard
3. Head Covers
4. Gloves – (may be cotton, latex, surgical, etc.

Under the clothing?

a. Nylon bathing suits are often useful
b. Tyvek underwear.

Over the Clothing: extra clothing (used for warmth, for example), along with other protective equipment, (except respirators) must be donned, removed, and stored in the equipment room, and treated as contaminated by placing in sealed, labeled containers.

II. Other Protective Equipment

A. Safety Glasses and eye protection
B. Hard Hats
C. Knee Pads
D. Safety Shoes
E. Padding to prevent chafing from belts for air liens, PAPR'S, air-sampling pumps.

I. Regulatory Overview:

Respirator use is governed by the requirements of OSHA asbestos regulations, OSHA Respirator Program requirements (29 CFR 1910.134), State regulations, NIOSH approval of each type of respirator manufactured, and EPA/NIOSH recommendations for respirator use in asbestos abatement on school maintenance work.

II. Before a school employee may use a respirator

A. The Board of Education will provide a medical exam to make sure a respirator will not cause undue physical stress. If the medical exam indicates the respirator will cause undue stress, the Board of Education will not assign the employee to respirator duties.

B. Be trained in the use and care of respirators

C. Be trained in the hazards associated with the contaminants anticipated in the work place.

III. Respirator Approval

A. NIOSH approval required by OSHA
B. Approved as a package (for specific hazardous conditions)
C. Used in A respirator Program as specified by 29 CFR 1910.134

IV. Respirator Types:

A. Negative & Positive Pressure
B. Air Purifying
    1. Filter I.D. & Selection
C. Facepieces
    1. Half Mask
    2. Full Face
    3. Hood
D. Positive Pressure Modes
    1. Continuous Flow
    2. Demand
    3. Pressure Demand
E. Sources of Supplied Air
    1. Ambient Air
    2. Compressors
    3. Tanks

F. Types of Compressors for Supplied Air
    1. Low Pressure
    2. High Pressure
G. Supplied Air Backup
    1. SCBA
    2. Negative Pressure

III. Choosing & Donning the Respirator

The Board of Education will provide negative pressure, half face respirators for workers trained in asbestos related maintenance work. Upon request of any employee, supplied air or positive pressure respirators will be provided.

A. Consider The:
    1. Type of hazard (gaseous or particulate hazard, lack of oxygen, etc.)
    2. Degree of protection needed.

B. At a minimum, select protection required by regulations.
C. If the worker wears glasses, then the temple bars cannot be allowed to pass through the facepiece to

skin seal. Contact lenses may be worn or a special mount for the glasses must be secured to attach them inside a full facepiece.

D. Get a fit test of the facepiece.
E. Inspect the respirator before each use.
F. Perform a positive and negative seal check each time the respirator is donned.

Reference: OSHA 29 CFR 1926.1101 Respiratory Protection Requirements

Respirators are required:

1. in all Class I work
2. in non intact Class II removals
3. during Class II and III dry removals (except roofs that are : sloped and for which a negative exposure assessment exists and intact removal will be performed)
4. During Class II and III jobs with no negative exposure assessment
5. during Class III jobs that disturb TSI or surfacing
6. during Class IV work, if others are required to wear respirators
7. during all work above the TWA or Excursion limit
8. during emergencies

For Class II and III work, start in half mask Negative Pressure Respirator with no negative exposure assessment and follow Table 1.

Table 1

10 x PEL = ½ MASK NPR 50 X PEL = FULL FACE NPR WITH QUANTITIVE FIT TEST 100 X PEL = PAPR OR SUPPLIED AIR CONTINUOUS FLOW MODE 1000 X PEL = FULL FACE SUPPLIED AIR PRESSURE DEMAND MODE 1000+OR UNKNOWN = FULL FACE SUPPLIED AIR PRESSURE DEMAND MODE **WITH AUXILIARY SCBA**

CLASS I: Table 1 Does Not Apply!

1. Projects where a negative exposure assessment is established = ½ mask APR

2. Projects where exposure assessment reveals fiber levels <a f/cc = tight fitting PAPR or full face supplied air pressure demand with HEPA egress or auxiliary SCBA
3. Projects where exposure assessment reveals fiber levels >1 f/cc=full face supplied air pressure demand mode with auxiliary SCBA

POTENTIAL PROBLEMS WHILE WEARING THE RESPIRATOR

What can go wrong with a respirator?

Filters: Wet
Overloaded
Restricted Flow
Pressure on seals
Wrong one – lets small fibers through

NOTES: HEPA cartridges are normally purple or magenta. At least one brand of respirators offers an orange HEPA approved only for asbestos particles.

NIOSH replace the respirator certification standard for non-powered, air-purifying, particulate-filter respirators in 30 CFR 11 with new standards in 42 CFR 84 in July 1995. Respirator filter manufacturers may sell filter cartridges approved under the old (30 CFR 11) standard until July 1998. The new cartridges have different designations and approval numbers. The chart below outlines cartridges that are permissible for use during asbestos abatement activities.

TRUE HEPA FILTER CARTRIDGES FOR USE WITH NON-POWERED, AIR-PURIFYING, PARTICULATE-FILTER RESPIRATORS UNDER 42 CFR 84

*SERIES OF FILTER	**FILTER DESIGNATION	SERVICE TIME
N-Series	N100	Nonspecific
R-Series	R100	One Work Shift
P-Series	P100	Nonspecific

*N-Series filters are NOT resistant to oil
R-Series filters are RESISTANT to oil
P-Series filters are oil-PROOF

**The “100” designation indicates a true HEPA filter (i.e., 99.97% effective in filtering all particles with a diameter of .3 micrometers) as required for working around asbestos. The other efficiency designations (99 and 95) are not permissible for asbestos work.

NOTE: FILTER RESPIRATORS DO NOT SUPPLY OXYGEN!

What can cause contaminated air to leak into a positive pressure respirator?

1. Battery pack runs out
2. Air line kinked, cut, crushed
3. Supply runs out (tanks)
4. Over-breathing (breathe more than supplied)
5. Contamination pulled into intake on compressor from exhaust of internal combustion engines, industrial sources, construction activities, etc.

What route does contaminated air take in leaking in the face piece?

1. Through a poor filter gasket seal
2. Through a breathing valve
3. Around the skin to facepiece seal due to such things as: hair, clothing, shape of face; scarring; straps loose; or straps losing elasticity
4. Bumping into something and breaking seal

Skin irritation: OSHA requires that employees be allowed to leave the work area to wash their face in order to limit skin irritation.

Eating, drinking chewing tobacco or gum, and smoking are prohibited when you are wearing respirators, and whenever you are in a regulated area!

INSPECTING THE RESPIRATOR

All respirators should be inspected before and after use and at least monthly by a competent person to assure that they are in satisfactory working condition. A general inspection checklist should include:

1. **Tightness of connections**
2. **Condition of connecting tubes.**
3. **Condition of exhalation and inhalation valves. If the sides of the exhalation valve gap even slightly, it must be replaced with a new valve.**

Check for: Dirt, Cracks, holes tears
Distortion
Material between valve and valve seat

Condition of headbands—
Elasticity of cups
Fasteners, adjusters
Material breaks and tears

Condition of Facepiece—
Dirt, Cracks, holes, tears Distortion

Cartridge Holders: Gaskets, Threads

Filters: Clean, undamaged

1. **Pliability and flexibility of rubber parts. Deteriorated rubber parts must be replaced. Unused rubber parts should be worked, stretched and manipulated with a massaging action.**
2. **Condition of lenses should be checked. Lenses must be tight, and scratched or damaged lenses replace.**
3. **On self-contained breathing apparatus, the charge of the compressed air cylinders should be checked and sufficiently charged.**
4. **Proper function or regulators and warning devices.**
5. **On Type C respirators, proper functioning of the compressor, warning devices, hoses, attachments, and location of air intake (for air quality, e.g., no carbon monoxide from vehicle exhaust)**

Respiratory protection is no better than the condition of the respirator in use, even though it is worn conscientiously. Frequent random inspection must be conducted by a qualified individual to assure that respirators are properly cleaned and maintained.

CARE AND MAINTENANCE

Personnel involved in respirator maintenance must be thoroughly trained. Substitution of parts from different brands or type of respirators invalidates NIOSH approval of the device. Repairs and adjustments should never be made beyond the manufacturer's recommendations.

CLEANING THE RESPIRATOR:

Respirators must be cleaned and disinfected after each day's use when they are assigned to one individual or after each use if they are assigned to more than one person. The following procedures are recommended for cleaning and disinfecting the respirator:

1. As required, remove and discard any filters or cartridges.
2. Wash facepiece and breathing tube in detergent and warm water (120 degrees) or cleaner/disinfectant solution. Use a soft brush to facilitate removal of dirt. Cleaner/disinfectant solutions are available from respirator manufacturers or it can be made by mixing a solution of water and household chemicals, such as two tablespoon of chlorine bleach to one gallon of water or one teaspoon of tincture of iodine to one gallon of water. A two-minute immersion of the respirator into either solution is sufficient for disinfection.
3. Rinse completely in clean, warm water.
4. Air dry in clean air.
5. Clean out other parts as recommended by the manufacturer.
6. Inspect the, valves, headstraps, and other parts and replace with new parts if defective.
7. Place facepiece in a plastic bat or container for storage in an assigned area.
8. Insert new filters or cartridges prior to use, making sure the seals are tight.
9.

Storing the Respirator:

When they are not being used, respirators should be individually sealed in plastic bags and stored at convenient locations in order to protect them against dust, sunlight, extreme temperatures, excessive

moisture or damaging chemicals. They should be stored in such a way that the facepiece and exhalation valve are not being distorted.

SELECTING THE PROPER FIT TEST

Note: detailed fit-testing procedures are contained in OSHA asbestos regulations at 1926.1102, Appendix C

Fit Test to select a NEGATIVE PRESSURE respirator:

Initially for proper fit
For any change of respirator model or size
When a condition may affect the seal, such as:

1. Weight change of 20 pounds or more
2. Significant facial scarring in the area of seal.
3. Significant dental changes.
4. Reconstructive or cosmetic surgery. **AND at least annually**

QUALITATIVE FIT TESTS may be employed for half mask or full face respirators to establish a protection factor of 10. There are four acceptable testing agents:

1. ISOAMYL ACETATE (BANANA OIL)
2. SACCHARIN Solution Aerosol
3. IRRITANT SMOKE (STANNIC CHLORIDE)
   (NOTE: The worker must be in an open environment during testing if this agent is used!)
4. BITREX (DENATONIUM BENZOATE) Solution Aerosol

The worker selects from among several choices of respirators. When the fit is comfortable, the test agent is introduced, while the worker (with eyes closed) performs a series of exercises to challenge the seal of the respirator, including:

1. Normal Breathing,
2. Deep Breathing,
3. Head Movement,
4. Reading the Rainbow Passage or alphabet aloud,
5. And jogging (if inside shroud),
6. Or bending over (if not inside shroud).

If the testing agent is detected, the fit is not satisfactory.

IF A SATISFACTORY FIT IS NOT OBTAINED from any half-mask respirator, the worker must use a full-face negative pressure respirator or a positive pressure respirator.

A QUANTITATIVE FIT TEST must be used for full-face respirators for a protection factor of 50. It may be used for half mask respirators. The measured fit must be 500 and 100, respectively. The worker dons a respirator fitted with a port allowing an air sample to be collected from inside the breathing zone. During the series of exercises, an electronic device simultaneously measures the concentration of particulates inside and outside the mask. The concentration inside divided by the concentration outside determine the fit.

IF A SATISFACTORY FIT IS NOT OBTAINED, the worker must use a positive pressure respirator.

RESPIRATOR SEAL CHECKS

Seal Checks are maneuvers routinely performed by the employee to increase his protection by testing the seal of the respirator. The worker can determine whether a respirator has been donned (put on) properly of is continuing in proper adjustment during the course of the day.

There are two different fit checks:

1. The POSITIVE SEAL CHECK and
2. The NEGATIVE SEAL CHECK

These checks should be performed routinely prior to each entry of the abatement area.

I. The “POSITIVE SEAL CHECK” or “POSITIVE PRESSURE TEST”

With the exhaust port(s) blocked, the positive pressure of slight exhalation should remain con-stands for several seconds without detection of leakage.

II. The “NEGATIVE SEAL CHECK” or “NEGATIVE PRESSURE TEST”

With the intake port(s) blocked, the negative pressure of slight inhalation should remain constant for several seconds without detection of leakage.

If a respirator does not fit properly, it may be due to:

1. Improper adjustment or donning of the respirator
2. Wrong size or poor condition of the respirator
3. Facial hair interference with face piece to skin seal
4. Scarring, wrinkles, or facial surgery scars
5. Change in dentures or other dental changes
6. Weight change
7. Clothing or glasses

RESPIRATOR PROTECTION FACTOR

PROTECTION FACTOR: tells you how much contamination is through your respirator, or how much you are actually breathing.

For example, if you are using a respirator to protect yourself from asbestos fibers:

A Protection Factor of 10 means that you are breathing 1 in 10 fibers.

A Protection Factor of 50 means that you are breathing in 1 in 50 fibers.

A Protection Factor of 1,000 means that you are breathing in 1 in 1,000 fibers.

$$\text{PROTECTION FACTOR} = \frac{\text{FIBER CONCENTRATION OUTSIDE THE RESPIRATOR}}{\text{FIBER CONCENTRATION INSIDE THE RESPIRATOR}}$$

The PROTECTION FACTOR of a type of respirator is assigned by OSHA in Table 1 in 29 CFR 1926.1101.

The fiber concentration outside the respirator is determined by personal air samples taken while you are working.

The fiber concentration inside the respirator cannot be greater than 0.1 fibers/cc, as an 8-hour time weighted average (this is the Permissible Exposure Limit, or PEL).

IF YOU KNOW ANY TWO NUMBERS IN THE EQUATION: PF=OUTSIDE CONCENTRATION/INSIDE CONCENTRATION, YOU CAN CALCULATE THE THIRD NUBMER, BECAUSE:

If PF = OC/IC, then

OC = PF x IC, and

IC = OC/PF.

APPENDIX "C"
SCHOOL FACILITY WORK PERMIT

SCHOOL: _____

_____

CONTRACTOR: _____

CONTACT PERSON: _____

DATES OF WORK: _____

TIME: _____A.M./P.M. UNTIL: _____A.M./P.M.

WORK DESCRIPTION:_____

_____

_____

☐ This building has asbestos containing building material. The asbestos containing materials known to exist are listed in the AHERA Management Plan for this facility. The plan is on file in the Principal's Office. Other materials may contain asbestos as well. Do not cut, drill break or remove any material until a review has been completed by the LEA Designee.

The contact person for asbestos related issues is Bill Phelps, LEA Designee. Bill Phelps is available to review the Management Plan with any contractor or workman.

Should Bill Phelps not be available the Pulaski County Board of Education Board of Education asbestos consultant may be contacted. The contact is Barry W. Cooper, Inc. 606-348-6874, fax: 606-348-6887, e-mail: bcooper@net-power.net.

☐ **Floor Tile** – Any work involving drilling, breaking or cutting non-asbestos floor tile can only be done after review with Bill Phelps. Asbestos floor tile or mastic may not be drilled, broken or cut at any time.

☐ **Thermal Systems Insulation** – Any work relating to insulated piping should be provided only with prior authorization from Bill Phelps.

☐ The facility may contain **lead based paint**. Do not cut, drill break or abrade finished paint surfaces without authorization from Bill Phelps.

☐ **Other -** _____

_____

_____

I have reviewed the scope of work with the above named contractor and advised the contractor regarding appropriate work procedures.

Bill Phelps
LEA Designee: _____ **Date:**_____
Signature
CONTRACTOR: _____ **Date:**_____
Signature