



ASBESTOS SURVEY REPORT

MICHIGAN STATE UNIVERSITY

**CYCLOTRON BUILDING
EAST LANSING, MICHIGAN**

January 2, 2008

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CYCLOTRON BUILDING**

EXECUTIVE SUMMARY

TEK Environmental & Consulting Services, Inc. (TEK) was retained by Mr. Zach Hansmann, Environmental Technologist, Office of Safety and Health of Michigan State University to perform an Asbestos Survey at the Cyclotron Building, located in East Lansing, Michigan. The purpose of the inspection was to identify asbestos containing materials in the facility.

Mr. Adam Cobb, a licensed State of Michigan asbestos building inspector, conducted inspection and sample collection procedures. Materials identified during this inspection included: 4" and 6" cove base and mastic 9" x 9" and 12" x 12" floor tiles and mastic, plaster, mag. and fiberglass pipe insulation and associated fittings, 2' x 2', 2' x 4' and 12" x 12" ceiling tiles, HVAC fabric, HVAC duct caulk, vinyl stair tread, transite lab hoods, sink undercoating, spray-on fire proofing and fire doors. The following materials tested positive for asbestos content:

- 9" x 9" Light green floor tile w/ gray specs and mastic
- 12" x 12" Cream floor tile w/ brown streaks and mastic (mastic only)
- 9" x 9" Gray vinyl squares w/ cream streaks
- White sink undercoating
- 12" x 12" Beige floor tile w/ marble pattern and mastic (mastic only)
- Mud fittings on fiberglass insulation
- Canvas wrap on fiberglass duct insulation
- Mag. Pipe insulation
- Mud fittings on mag. pipe insulation
- 9" x 9" Cream floor tile w/ green streaks
- Former exterior, window caulking (atrium/ hall)
- Black sink undercoating

The following materials were assumed to contain asbestos:

- Transite lab hood
- Tagged fire door and frame
- Roofing materials
- Exterior window and doorframe caulk (building)
- Window caulk (greenhouses)

Locations of ACM materials and quantities in each unit are located in Tables 3 and 4.

Included in this report are tables listing the suspect materials found during the survey, as well as asbestos survey data, floor diagrams, photographic logs of homogeneous materials, inspector licensing documentation, laboratory reports, and the chain of custody forms.

1.0 INTRODUCTION

TEK Environmental & Consulting Services, Inc. (TEK) was retained by Mr. Zach Hansmann, Environmental Technologist, Office of Safety and Health of Michigan State University to perform an Asbestos Survey of the Cyclotron Building, located in Lansing, Michigan.

Tables and Figures summarize the survey information separately for the building. Table 1-Homogeneous Materials List identifies homogeneous materials found in the building and identifies if these materials tested positive or negative for asbestos. Table 2-Sample Locations and Results provides information on where inspectors collected sample and the analytical results. Table 3-Functional Space Suspect Materials Sheet identifies material descriptions and applicable quantities and/or damages sorted by functional space. Table 4-ACM Materials Sorted by HA identifies material descriptions and applicable quantities and/or damages however it is sorted by homogeneous material. Table 5-Damaged or Significantly Damaged ACM Materials provides information regarding damaged materials identified during the asbestos survey.

Elements of the asbestos building inspection were based on practices specified in Michigan Public Act 440 of 1988, U.S. Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA) standards and included the identification of homogeneous areas within the subject facilities, bulk sample collection of suspect materials, and laboratory analysis.

Field activities were performed by Accredited Asbestos Building Inspectors as recognized by the State of Michigan Department of Labor and Economic Growth (DLEG) who have met the requirements of Section 206 of the Toxic Substances Control Act and the Asbestos School Hazard Abatement Reauthorization Act (ASHARA). The Model Accreditation Plan (MAP) under ASHARA extends training and accreditation requirements to those individuals performing asbestos inspections in public, commercial and industrial buildings.

Applicable licensing and accreditation information is included in Attachment C. The goal of this asbestos survey is to provide an identification of Asbestos Containing Materials (ACM) in the subject structures. The information contained in this report can serve as a database for asbestos activities including abatement and Operation and Maintenance (O&M) program development.

2.0 APPLICABLE REGULATIONS

The following list highlights the primary federal regulations governing the asbestos inspection and abatement industry.

EPA 40 CFR 763-Asbestos- This regulation requires local education agencies to conduct inspections, sample suspect asbestos containing building materials (ACBM), assess the condition of the ACBM, develop and implement response action recommendations and develop a plan for managing the materials.

OSHA 29 CFR 1926.1101 Construction Industry Standard for Asbestos - Covers asbestos exposure in work involving: (A) demolition or salvage of structures where asbestos is present (B) removal or encapsulation of materials containing asbestos (C) construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof that contain asbestos (D) disposal, storage, transportation, containment of and housekeeping activities associated with asbestos or products containing asbestos.

OSHA 29 CFR 1910.134 General Industry Standard for Respiratory Protection – Purpose proper use, fitting instructions, maintenance, care and limitations of respirators. Requires development of standard operating procedures and a written respirator program.

OSHA 29 CFR 1910.20 Access to Employee Exposure and Medical Records - Record keeping and employee access to records including exposure monitoring information, medical surveillance and training records.

OSHA 29 CFR 1910.1200 Hazard Communication Standard - Requires employers to provide information to their employees about hazardous chemicals/materials to which they are exposed. This information is transmitted by means of a hazard communication program, labels and other forms of warning, material safety data sheets and training.

EPA ASHARA Model Accreditation Plan (MAP) - Expands TSCA Section 206 specifically the training and accreditation requirements to persons performing asbestos work in public and commercial buildings. Applicable to anyone who inspects for ACM designs or conducts a response action with respect to friable ACM.

Department of Transportation (DOT) 49 CFR 171-178 - Includes requirements for classification of materials, packaging, hazard communication (package marking, labeling, placarding, and shipping documentation), transportation, handling and incident reporting.

Asbestos is classified as follows:

Proper Shipping Name:	Environmentally Hazardous Substance (Asbestos)
Special Provisions:	None
Hazard Class or Division:	9
I.D. Numbers:	NA 2212
Packing Group:	III
Label:	Class 9

EPA 40 CFR Part 61 National Emission Standards for Hazardous Air Pollutants - Rules concerning the application, removal, and disposal of ACM. Also covers notification requirements to a regional NESHAP Coordinator which specifies quantities, project dates, description of planned removal methods, procedures to be used to comply with the requirements of the regulation, and disposal site information.

Asbestos materials can be categorized into one of the following three common material types: (1) surfacing material, (2) thermal system insulation, and (3) miscellaneous material. According to the U.S. Environmental Protection Agency (EPA), asbestos materials are classified as friable, Category I nonfriable or Category II nonfriable in 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPS). The NESHAPS classifications are defined as follows:

- “Friable asbestos material” - any material containing greater than one percent (>1%) asbestos that when dry can be crumbled, pulverized, or reduced to powder by hand pressure.
- “Category I nonfriable ACM” - means asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing greater than one percent (>1%) asbestos.
- “Category II non-friable ACM” - means any non-friable material, excluding Category I non-friable ACM, containing greater than one percent (>1%) asbestos.

3.0 SAMPLING PLAN AND SAMPLE COLLECTION PROCEDURES

The objective of the asbestos survey investigation was to identify suspect visible and accessible asbestos-containing building materials (ACM) grouped by homogeneous materials and functional spaces. Mr. Adam Cobb, (Appendix C- Inspector Accreditation), conducted the on-site investigation on October 23, 2007 through October 31, 2007. The following subsections describe the sampling plan and data collection phases of the survey.

3.1 Plan Review

One of the first steps in conducting an asbestos survey is to review building plans or specifications of the subject property to determine the construction type and materials used. However, specifications could be located at the time of inspection for the subject buildings.

3.2 Site Walk Through and Visual Survey

A site walk-through and visual survey was conducted to identify various suspect building materials. The inspection included the observation of wall and ceiling materials, flooring systems, various structural building components, utility/mechanical components and thermal system insulation.

3.3 Sampling Plan

Homogeneous areas of material appear uniform in texture and color, and appear identical in every other respect. Materials were categorized into one of the following three material types commonly known to contain asbestos: (1) surfacing material, (2) thermal system insulation, and (3) miscellaneous material. Each type contains many different and distinct variations. For classification purposes, each distinct material was assigned a unique identification number. Suspect homogeneous materials were also quantified within each building. Information regarding homogenous materials is located in Table 1-Homogeneous Materials List.

According to the U.S. Environmental Protection Agency (EPA), asbestos materials are classified as friable, Category I nonfriable or Category II nonfriable in 40 CFR Part 61, National Emissions

Standards for Hazardous Air Pollutants (NESHAPS). The NESHAPS classes are defined as follows:

"Friable asbestos material" - any material containing greater than one percent (>1%) asbestos that when dry can be crumbled, pulverized, or reduced to powder by hand pressure.

"Category I nonfriable ACM" - means asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing greater than one percent (>1%) asbestos.

"Category II non-friable ACM" - means any non-friable material, excluding Category I non-friable ACM, containing greater than one percent (>1%) asbestos.

3.4 Sample Collection

Sampling procedures were performed in an Asbestos Hazard Emergency Response Act, 40 CFR Part 763 (AHERA) manner, by State of Michigan licensed asbestos inspectors. A total of 83 samples, including layers, were collected during the survey. Materials identified during this inspection included 4" and 6" cove base and mastic 9" x 9" and 12" x 12" floor tiles and mastic, plaster, mag. and fiberglass pipe insulation and associated fittings, 2' x 2', 2' x 4' and 12" x 12" ceiling tiles, HVAC fabric, HVAC duct calk, vinyl stair tread, transite lab hoods, sink undercoating, spray-on fire proofing and fire doors. Photographs of each homogenous material are located in Appendix A.

Random sampling methods were conducted in a manner to minimize unnecessary building material damage and to avoid disturbance of building occupants. When feasible, samples were collected on materials that exhibited signs of damage. This survey excluded inaccessible or hidden areas that could not be viewed without destructive access such as above fixed ceilings, materials located within equipment, or inside or behind walls. There may be materials located within equipment, behind walls, or above ceilings which are not accessible and therefore, not identified or quantified during the survey. Details about sample collection locations and results of samples are located in Table 2-Sample Locations and Results.

3.5 Sample Analysis

Samples of suspect ACM were submitted to Apex Research, an EPA accredited laboratory, for analysis by Polarized Light Microscopy (PLM) method EPA 600/R-93/116. A material is considered positive for asbestos is present in an amount greater than 1 percent. Laboratory analytical reports and chain-of-custody forms are included in Appendix B.

4.0 SURVEY RESULTS

A material that is positive for asbestos means that asbestos was present in the material in the amount of greater than 1% by weight. The following materials tested positive for asbestos:

- 9" x 9" Light green floor tile w/ gray specs and mastic
- 12" x 12" Cream floor tile w/ brown streaks and mastic (mastic only)
- 9" x 9" Gray vinyl squares w/ cream streaks
- White sink undercoating
- 12" x 12" Beige floor tile w/ marble pattern and mastic (mastic only)
- Mud fittings on fiberglass insulation
- Canvas wrap on fiberglass duct insulation
- Mag. Pipe insulation
- Mud fittings on mag. pipe insulation
- 9" x 9" Cream floor tile w/ green streaks
- Former exterior, window caulking (atrium/ hall)
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The following materials were assumed to contain asbestos:

- Transite lab hood
- Tagged fire door and frame
- Roofing materials
- Exterior window and doorframe caulk (building)
- Window caulk (greenhouses)

Locations of ACM materials and Quantities in each unit are located in Tables 3 and 4.

5.0 CONCLUSION

All ACM that will be impacted by any future renovations should be removed prior to work by a State of Michigan licensed Asbestos Abatement Contractor. Furthermore, abatement activities must be conducted in compliance with all applicable regulations, standards and generally accepted environmental and safety practices.

6.0 SURVEY LIMITATIONS

The following locations were not accessible at the time of the survey:

3, 4, 9, 20A, 02/ K500 & K1200 Vaults, Transfer Hall, Vault N3, N100, N101, N103, N104, N107A, N112, 100T, 102, 114A, 118, 126, 127, 129, 132T, 142A, 148, 154A, 178, 179, 215A, 221, 224T, 226 and 245. The new addition, West wing (1st floor, 2nd floor and lobby area) was not included in this survey.

If any new homogenous materials are identified in these locations, the materials should be assumed positive for asbestos until they can be sampled and submitted to a laboratory for analysis.

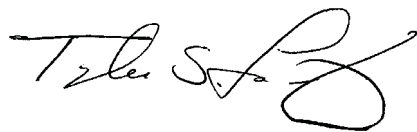
TEK has attempted to investigate the existing conditions within the Michigan State University Cyclotron Building using standard professional procedures. This asbestos survey is intended to identify containing materials associated with the Cyclotron Building. Regardless of the thoroughness of an asbestos survey, it is possible that some materials were inaccessible. Such areas may include mechanical equipment or wall cavities and pipe chases. Renovation or demolition may expose unidentified materials. If a newly identified suspect material is found, the material should be sampled prior to disturbance or removal.

Report prepared by:



Adam Cobb
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Report reviewed by:

A handwritten signature in black ink, appearing to read "Tyler S. Lenling". The signature is fluid and cursive, with the first name being the most prominent.

Tyler S. Lenling
Senior Project Manager
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