

**POTENTIALLY HAZARDOUS MATERIAL  
BUILDING INSPECTION REPORT**

for

Michigan State University  
Engineering and Architectural Services  
Physical Plant Division  
East Lansing, Michigan 48823

at the

Owen Graduate Hall  
Building #320  
East Lansing, Michigan 48823

Inspection conducted by:

Fibertec Industrial Hygiene Services, Inc.  
1914 Holloway Drive  
Holt, Michigan 48842

Project #25624-1

Project dates: July 28 – August 7, and September 24, 2008

Final Report Date: November 4, 2008

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# POTENTIALLY HAZARDOUS MATERIAL AND LIMITED DEMOLITION INSPECTION REPORT

for  
Michigan State University  
Owen Graduate Hall  
Project #25624-1

## INTRODUCTION

Fibertec Industrial Hygiene Services, Inc. (Fibertec IHS) was retained by Michigan State University to conduct a comprehensive pre-renovation asbestos building inspection and to inspect the building for the presence of potentially hazardous materials. The project was discussed with Mr. Greg Houghtaling of the Engineering and Architectural Services, Physical Plant Division. Mr. Houghtaling requested a comprehensive asbestos building inspection and an inventory of other potentially hazardous building materials within Owen Graduate Hall, including the collection of an appropriate number of bulk asbestos samples pursuant to the requirements of the Asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP) and the EPA Asbestos Sampling Bulletin of September 30, 1994. The pre-renovation inspection was to use the previous asbestos building inspection report as its foundation (see Fibertec Report of July 25, 2005). The information from that previous inspection has been synthesized into this report.

The potentially hazardous building material inspection took place from July 28 through August 7, and September 24, 2008.

### Asbestos

During the inspection, bulk samples of suspect asbestos-containing material (ACM) were collected and submitted to the Fibertec IHS Polarized Light Microscopy (PLM) laboratory for analysis. Quantities of suspect asbestos-containing materials were estimated. Additionally, limited destructive testing (*e.g.*, borescope wall demolition) was conducted to attempt to identify areas of hidden ACM.

### Hazardous Materials

A visual inspection was conducted for lead paint, polychlorinated biphenyls (PCB) in light ballasts and transformers, chlorofluorocarbons in air conditioners and water coolers, mercury vapor in fluorescent light bulbs, elemental mercury in switches and thermostats, lead or other metals (nickel, cadmium) in capacitors or batteries, hydraulic oil in hydraulic door closers and elevator systems.

### Incinerator Ash

Incinerator access doors were not opened for sample collection of incinerator ash at the time of this investigation.

## CERTIFICATION

The building inspection was conducted by John Luna and Jeff Suty, both State of Michigan Accredited Asbestos Building Inspectors. Ms. Luna and Mr. Suty also maintain accreditation as Asbestos Contractor Supervisors. A copy of their inspector credentials appear in Appendix A.

Trained Polarized Light Microscopists analyzed all bulk asbestos samples in the Fibertec IHS Polarized Light Microscopy (PLM) laboratory. The Fibertec IHS PLM laboratory maintains current National Voluntary Laboratory Accreditation Program (NVLAP) accreditation (Lab Code 101510-0). A copy of the Fibertec IHS NVLAP certificate of accreditation can be found in Appendix B.

Trained chemists analyzed all of the paint samples in the Fibertec, Inc. Metals Laboratory. The Fibertec, Inc. Laboratory maintains current National Environmental Laboratory Accreditation Council (NELAC) accreditation (Accreditation Number 100312). A copy of the Fibertec, Inc. NELAP accreditation certificate also appears in Appendix B.

## GENERAL INSPECTION PROCEDURES

In an effort to identify ACM and potentially hazardous materials at the Owen Graduate Hall, an extensive inspection procedure was followed. A visual inspection of the building was combined with the collection of an appropriate number and distribution of bulk asbestos and paint samples.

### Asbestos

Determination of suspect asbestos-containing material was based on visual examination, bulk sample analysis and material age. Specifically, materials similar in color and texture were classified into homogenous areas (*e.g.*, smooth wall and ceiling plaster). An appropriate number of samples were collected from material in each homogenous area. The samples were analyzed by Polarized Light Microscopy (PLM) in the Fibertec IHS PLM Laboratory using EPA Method 600/R-93/116. When the results of analysis of all samples from a homogenous area indicate no asbestos present (less than or equal to one percent), the homogenous area is considered to be a non-asbestos containing material. When the results of analysis indicate asbestos present (in a quantity greater than one percent) in just one sample of those collected from a single homogenous area, the material in the entire homogenous area must be considered asbestos-containing.

Destructive testing (*i.e.*, limited demolition) was conducted as part of this building inspection. However, some asbestos-containing material hidden from view (*e.g.*, pipe insulation in unknown pipe chases and between floors, or floor leveling compound below floor tile) may be present and may not have been accounted for as part of this inspection.

### Paint

Determination of the lead content of paint was based on visual examination and bulk paint sample analysis. Specifically, a sample of each observed major paint color (maroon, yellow and white paint) was collected pursuant to the requirements of ASTM Standard D1729-99 Standard Practice for Field Collection of Dried Paint Samples. All paint samples were submitted to the Fibertec, Inc. Analytical Laboratory for analysis by EPA Method 6020. When the results of sample analysis indicated lead present in a quantity equal to or greater than 0.5 weight percent, the paint is considered lead-based. When the results indicate lead present in a quantity below 0.5 weight percent and at or above the method detection limit, the paint is considered lead-containing. When the results indicate lead present below the method detection limit, the paint is considered non-lead containing.

### Hazardous Materials

A visual inspection was conducted for PCBs (Polychlorinated Biphenyls) in ballasts and transformers, chlorofluorocarbons in air conditioners and water coolers, mercury vapor in fluorescent light bulbs, mercury in thermostats and switches (silent switches), lead or other metals in batteries and capacitors in emergency lights and exit signs and hydraulic oil in door closers. The ballasts in each room (minimum of one light fixture per room) were checked for PCB content. If the ballast had a label that did not indicate the ballast was PCB free it was assumed to contain PCBs. Unlabeled ballasts were presumed to contain PCBs. Both PCB containing and non-PCB containing ballasts were found throughout the building. The fluorescent bulbs were assumed to contain mercury vapor if green end caps were not present on the bulbs. Those fluorescent bulbs with green plastic end caps are not known to contain Mercury vapor. Back-up batteries in emergency lighting and exit signs were assumed to contain lead or other metals (*e.g.*, nickel, cadmium). Hydraulic door closer mechanisms were assumed to contain hydraulic oil.

## RESULTS OF VISUAL INSPECTION

### Asbestos

Based on the inspection, 49 distinct suspect asbestos-containing materials were identified in Owen Graduate Hall. Some suspect asbestos-containing materials were sampled a number of times in different locations, smooth wall and ceiling plaster, being an example. All suspect asbestos-containing materials observed at the time of the inspection are listed in the Room by Room Hazard Assessment Forms. The following rooms were not accessible during the

time of this inspection: S14, S14A, B, and C, SB17, E36, W114A, W700B, W706 and the elevator mechanical rooms and shafts.

### Paint

Based on the inspection, three major paint colors were identified in Owen Graduate Hall. All major paints observed at the time of the inspection are listed in the Room by Room Hazard Assessment Forms.

### Hazardous Materials

Based on the inspection, PCB containing light ballasts, chlorofluorocarbon containing units in air conditioners and water coolers, mercury vapor in fluorescent light bulbs, batteries and capacitors in emergency lights and exit signs and hydraulic door closers were identified in Owen Graduate Hall. All hazardous materials are listed in the Room by Room Hazard Assessment Forms.

### SAMPLE RESULTS

The information gathered from the inspection is included in Appendices C (Bulk Asbestos and Paint Sample Log), D (Bulk Asbestos, Paint Sample Analytical Report), E (Room By Room Hazard Assessment Forms), F (Photograph Log), G (Floor Plan Sketches and New Sample Locations) and H (Cost Estimates).

All paint samples were collected pursuant to the requirements of ASTM Standard D1729-99 Standard Practice for Field Collection of Dried Paint Samples. All paint samples were submitted to the Fibertec, Inc. Analytical Laboratory for analysis by EPA Method 6020. No paints were found to be lead-based. Two paints were found to be lead-containing. One paint was found to be non lead-containing.

### SUMMARY OF POTENTIALLY HAZARDOUS MATERIALS

#### Asbestos

The following materials were found to contain asbestos in Owen Graduate Hall:

- Steam and condensate supply and return pipe straight insulation
- Steam and condensate supply and return pipe joint and hanger insulation
- Domestic water supply and return pipe straight insulation
- Domestic water supply and return pipe joint and hanger insulation
- Drain pipe joint and hanger insulation
- Hot water holding tank insulation
- 9" x 9" black floor tile with cream streaks and associated mastic
- Mastic associated with 12" x 12" beige floor tile with marble pattern. NOTE: Although the tile was found not to contain asbestos, the mastic was found to contain asbestos. As such, the tile will become contaminated by the mastic during removal and should be considered asbestos-containing material.
- 12" x 12" maroon floor tile with marble pattern and associated mastic
- Mastic associated with 12" x 12" tan floor tile with marble pattern. NOTE: Although the tile was found not to contain asbestos, the mastic was found to contain asbestos. As such, the tile will become contaminated by the mastic during removal and should be considered asbestos-containing material.
- Mastic associated with 12" x 12" dark green floor tile with marble pattern
- Mastic associated with 12" x 12" red floor tile with marble pattern. NOTE: Although the tile was found not to contain asbestos, the mastic was found to contain asbestos. As such, the tile will become contaminated by the mastic during removal and should be considered asbestos-containing material.
- 12" x 12" forest green floor tile and associated mastic. NOTE: Although the tile was found not to contain asbestos, the mastic was found to contain asbestos. As such, the tile will become contaminated by the mastic during removal and should be considered asbestos-containing material.
- Mastic associated with green flooring material with black and white specks. NOTE: Although the tile was found not to contain asbestos, the mastic was found to contain asbestos. As such, the tile will become contaminated by the mastic during removal and should be considered asbestos-containing material.

Mastic associated with 9" x 9" tan floor tile. NOTE: Although the tile was found not to contain asbestos, the mastic was found to contain asbestos. As such, the tile will become contaminated by the mastic during removal and should be considered asbestos-containing material.

Spray-on acoustical ceiling plaster  
Ceramic tile bedding compound

The following materials were assumed to contain asbestos in Owen Graduate Hall:

Chalkboards and associated glue pods  
Fire doors and frames  
Window and door frame caulk compound  
Roofing products/materials  
Light reflective paper

The following materials were found not to contain asbestos in Owen Graduate Hall:

Plaster (smooth)  
Canvas wrap on fiberglass pipe straight insulation  
2' x 2' white drop-in ceiling tile with pin holes and fissures  
2' x 2' white lay-in ceiling tile with pin holes and fissures  
2' x 2' white lay-in smooth gypsum board ceiling tile  
12" x 12" white ceiling tile with pin holes and associated glue pods  
12" x 12" white ceiling tile with fissures and associated glue pods  
12" x 12" white ceiling tile with pin holes and fissures and associated glue pods  
18" x 18" green vinyl flooring with cream and black specks and associated mastic  
Green stair tread with cream and black specks and associated mastic  
4" brown cove molding and associated mastic  
4" gray cove molding and associated mastic  
4" black cove molding and associated mastic  
Gray vinyl flooring with black and white specks and associated mastic  
Gray HVAC duct compound  
Ventilation duct expansion cloth  
12" x 12" light gray floor tile with marble pattern and associated mastic  
Tan vinyl flooring with mosaic pattern and associated mastic  
White sink undercoating  
Gray sink undercoating  
12" x 12" green floor tile with marble pattern and associated mastic  
12" x 12" chocolate floor tile with yellow and rust streaks and associated mastic  
12" x 12" white ceiling tile with smooth finish and associated glue pods  
Tan mosaic pattern linoleum and associated mastic  
Drywall  
12" x 12" glued-on tan linoleum floor tile with geometric pattern and associated mastic

### Lead Paint

No paints sampled were found to be lead-based (greater than 0.5% lead by weight) in Owen Graduate Hall.

The following paints were found to be lead-containing in Owen Graduate Hall:

Maroon paint  
Yellow paint

The following paints were found to be non-lead containing in Owen Graduate Hall:

White paint

### Hazardous Materials

The following potentially hazardous materials were identified in Owen Graduate Hall at the time of the inspection: PCB containing light ballasts, chlorofluorocarbon containing air conditioners and water coolers, mercury vapor in fluorescent light bulbs, batteries and capacitors in emergency lights and exit signs and hydraulic door closers. Observed items are listed in the Room by Room Hazardous Materials Forms in Appendix E.

Elemental mercury was not observed in any switches, thermostat or device during this inspection.

### CONCLUSIONS

#### Asbestos

Undamaged and damaged, non-friable (cannot be crumbled, pulverized or reduced to powder by hand pressure when dry) known or assumed asbestos-containing materials, as well as undamaged and damaged friable (can be crumbled, pulverized or reduced to powder by hand pressure when dry) known asbestos-containing materials were discovered during the course of this inspection. As portions of the building are slated for renovation, all of the friable ACM and non-friable ACM likely to become friable during renovation (e.g.-ceramic tile bedding compound, acoustical ceiling plaster, etc.) are likely to be impacted by the renovation and must be removed by trained, accredited, protected individuals prior to their disturbance by the renovation pursuant to the requirements of the Michigan Occupational Safety and Health Administration (MIOSHA) Asbestos in Construction Standard, Part 602 and the Asbestos NESHAP, 40 CFR Part 61.

#### Lead Paint

Lead containing paints were identified throughout the building. Lead-containing paint may remain in the structure during renovation. The renovation contractor must be advised of the presence of lead containing paint and must comply with the provisions of the MIOSHA Lead in Construction Standard, Part 603.

#### Hazardous Materials

PCB ballasts, chlorofluorocarbons (CFCs) in air conditioners and water coolers, mercury vapor-containing fluorescent light bulbs, metals (*i.e.*, nickel, cadmium) in back-up batteries in emergency lighting and exit signs and hydraulic oil in hydraulic door closers were observed at Owen Graduate Hall and are likely to be impacted by the renovation and should be removed or recycled prior to the scheduled renovation.

### RECOMMENDATIONS

Based on the information collected during this pre-renovation potentially hazardous material building inspection, the following recommendations are offered. These recommendations are based on currently observed conditions and plans to renovate the building and may have to be adjusted if change of ownership, emergency, or other factors substantially alter the condition, use, or planned future use of the building.

1. Notify the building occupants, custodians, Physical Plant personnel and others who may encounter ACM during the routine execution of their assigned work of the presence of known or assumed asbestos-containing products in or on the building. This notification must be given to any outside contractors (*e.g.*, renovation contractor) who work within or atop the building and may disturb the asbestos-containing material(s). Depending on the specific activity being performed, maintenance or repair personnel may need to utilize personal protective equipment or other engineering controls and comply with the provisions of various asbestos regulations.
2. Provide 2-hour Asbestos Hazard Awareness Training, including specific information regarding the quantity, condition and location of ACM for those individuals in the building who may encounter asbestos during the course of their work. Ensure that contractors performing work in the building (construction trades) have equivalent training (at a minimum) and that they provide appropriate documentation of said training.

3. Draft specifications for the removal of asbestos containing materials and potentially hazardous materials prior to renovation.
4. Prior to renovation, consider inspecting areas outside the building like electrical vaults and tunnels which may be impacted by the renovation and which may contain ACM.
5. Properly remove any friable asbestos containing material and ACM likely to become friable during renovation and potentially hazardous materials which may be impacted by renovation prior to any renovation within the facility (e.g., asbestos-containing domestic water pipe joint and hanger insulation, fluorescent light bulbs, ballasts, etc.). Ensure that the abatement contractor submits a copy of the Notification of Intent to Renovate/Demolish to the Michigan Department of Labor and Economic Growth and the Department of Environmental Quality Air Quality Division 10, working days before beginning abatement. Ensure the contractor pays all required fees.
6. If during renovation the contractor discovers a previously undiscovered suspect asbestos containing material (between walls, pipe chases, *etc.*), discontinue renovation of that area/material and contact Fibertec IHS to sample and analyze said material.
7. Conduct appropriate air monitoring, including exposure and final clearance monitoring during all asbestos remediation efforts.
8. Should incinerator ash removal be disturbed in future renovation projects, the incinerator ash should be sampled and analyzed for metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, hexavalent chromium and mercury).
9. Label remaining ACM in all routine maintenance areas and mechanical rooms.

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