

April 16, 1993

REPORT: Full Building Survey

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SUBJECT: Lind Hall
EHS Project No: 031-93-006
Client Project No: N/A

Scope of Work: A full asbestos material building survey was conducted between January 19 and March 11, 1993. The purpose of the survey was to identify asbestos-containing materials (ACM) as defined by the Environmental Protection Agency (EPA). Any material that is greater than 1% asbestos is considered to be ACM. The scope of the survey was to identify both friable and nonfriable suspect ACM, identify nonfriable ACM that may become friable under demolition or renovation conditions, and to provide approximate cost estimates for the removal of identified ACM prior to renovation of Lind Hall.

Project Description: Two hundred and fifty-five (255) bulk samples of suspect ACM were collected on-site and one hundred and ninety-one (191) samples were analyzed via polarized light microscopy (PLM) by Nova Environmental Services, Inc. for asbestos content. Results of analyses are listed in Appendix I of this report. Appendix I is formatted to provide a room by room inventory of suspect ACM, the asbestos content of each material listed, quantities and friability. An explanation of the tables and abbreviations used in the tables is included with Appendix I. Appendix II is a room by room listing of only those suspect materials that tested >1% asbestos. Minnesota Department of Health (MDH) Asbestos Rules regulate only friable ACM (material may be reduced to powder or dust under hand pressure) while the EPA regulates ACM that may become friable under demolition or renovation conditions.

The following friable or potentially friable materials tested positive as ACM:

- <4" white fibrous pipe insulation (PI) and associated pipe fitting insulation
- <4" felt PI (tar layer only)
- <4" white fibrous pipe fitting insulation (PFI) on felt line
- <4" white fibrous PFI on fiberglass
- 4"-8" white fibrous PI and associated PFI
- 9"-14" white fibrous PI
- white fibrous tank insulation
- 9"x 9" beige w/ brown and cream FT and associated mastic
- 9"x 9" grey w/ white streak FT and associated mastic
- 9"x 9" dark grey w/ white streak FT and associated mastic
- 9"x 9" tan w/ olive flecks FT
- 9" x 9" mocha and peach FT
- 9"x 9" tan FT
- 9"x 9" grey w/ white and black spots FT
- 9"x 9" white w/ black spots FT
- 9"x 9" cream w/ tan flecks FT
- 9"x 9" grey w/ large white streak FT

- 9"x 9" white w/ olive flecks FT
- 9"x 9" olive w/ grey fleck FT
- 9"x 9" grey FT
- 12"x 12" olive w/ white FT
- 12"x 12" beige , brown and white FT
- 12"x 12" grey w/ black and white FT
- 12"x 12" beige w/ white and grey spots FT
- 12"x 12" brown w/ white streak FT
- 12"x 12" beige w/ tan, white and grey short streak FT
- 12"x 12" white w/ tan flecks FT
- 12"x 12" white w/ grey FT
- 12"x 12" dark grey w/ white whisps FT
- 12"x 12" grey w/ white and black streak FT
- grey w/ white pebble linoleum
- 2'x 2' nail irregular CT
- 2'x 2' nail hole CT
- 2'x 2' pinhole worm CT
- transite board

The following suspect materials tested none detected (ND) as ACM:

- fiber glass PI w/ tar layer
- fiber glass duct insulation
- 12"x 12" small hole CT
- 12"x 12" fissured CT and associated mastic
- 12"x 12" pencil irregular CT
- 12"x 12" pinhole fissured CT and associated mastic
- 12"x 12" pencil computer CT
- 2'x 2' nail small crater CT
- 12"x 12" random hole CT (fiberglass w/ tar paper)
- 2'x 2' nail fissured CT
- 2'x 2' crater CT
- 2'x 2' foiled CT
- 2'x 2' pinhole fissured CT
- 2'x 2' pinhole crater CT
- 2'x 4' fissured pinhole CT
- 2'x 4' pinhole crater CT
- 9"x 9" lt. grey w/ cream and black swirls FT (mastic is positive)
- 9"x 9" grey w/ cream and black marble FT
- 9"x 9" grey w/ thin white streaks FT
- 12"x 12" white w/ grey and black smears FT
- 12"x 12" grey w/ black and white smears FT
- 12"x 12" beige w/ brown and black smear FT (mastic is positive)
- 12"x 12" raspberry FT
- 12"x 12" white w/ black streaks FT
- 12"x 12" black FT
- black tile
- blackboard
- grey stair tread
- plaster ceiling
- plaster wall
- concrete patching compound
- red clay tile mortar
- yellow clay tile mortar
- yellow brick mortar
- fiberboard

- concrete block mortar
- exterior brick mortar
- black vibration joint
- black sink
- roof shingles
- roof tar and felt
- floor tile mastic

The following nonfriable with low potential to become friable materials tested positive as ACM:

- **floor tile mastic**

Observations and Recommendations:

Several observations were made throughout the course of this building survey. Extensive contamination exists in the **sub basement area**. Generally speaking, the visible contamination is characterized by localized piles of white fibrous insulation. More specifically, the **crawl space under the South Hall** contains excessive amounts of white fibrous debris. This area was not entered due to the extent of contamination. No visible debris was found under the **North Hall**. The presence of polyethylene sheeting in this area would indicate that some remediation has occurred. Dust samples were taken in several locations throughout the sub-basement area. Six (6) samples (out of seven) were found to contain asbestos. As a result, this entire area must remain regulated until remediation and subsequent air tests have been conducted. Building occupants using this area for storage must be informed that proper operations and maintenance (O&M) procedures are required for the removal of stored items from this area until a clean up has occurred. Questions concerning these procedures should be directed to Tim Nelson, the Facilities Management Asbestos Coordinator, at 625-5052.

The 9"x 9" dark grey w/ black and white streak FT in **Room 314, Room 30, Room 05A and Room 05B** tested positive for asbestos with the associated mastic testing negative. However, due to the "fibrous" nature of this particular tile, the mastic will be considered as positive. It is our opinion that the removal of the tile will contaminate the mastic necessitating abatement of the mastic.

Asbestos containing adhesives may be present in **Rooms 105 (Library), 106 and 106B** (associated with wood panels) as well as in the **restrooms** (associated with the stone panels.) If adhesives are discovered in these areas , please contact our office so that they may be tested.

Various floor tile mastics throughout the building tested positive as ACM. Please consult the individual room listings in Appendix II for specific results.

During the inspection of the crawl space above the third floor, debris consisting of felt insulation and associated fittings was discovered. These materials had been discarded in a wall cavity in Room 315. Access to these material can only be gained through the ceiling. Other similar situations may exist. Care should be used during access of pipe chase areas as well as any wall cavities which could only be entered by demolition. Any damaged materials should be immediately reported to the zone manager.

Roofing samples were taken of the tar shingles, the tar pitch and the roofing felt. These samples tested negative for asbestos. It should be noted that roofing materials are frequently layered in nature. Core samples of the roof could not be taken without negatively affecting the performance of roofing materials. If maintenance activities require the penetration of these materials, then core samples should be collected prior to the scheduled activities to ensure that asbestos is not a component of the inaccessible layers. An individual experienced in the repair of roofing materials would need to be present to immediately patch any cored areas.

An access hatch to the **crawl space above the third floor South Hall** was visible from the roof of the North Hall. Entrance to this space was not possible.

Lastly, contact the zone manager (William Chose at 625-8596) or this office if damaged material is found. He will take appropriate measures to ensure that the material is repaired.

Cost Information: The approximate cost for the removal of all ACM is itemized below. These figures are based on the assumption that all ACM is going to be removed. There is also a separate breakdown of costs for remediation of damaged materials in selected areas.

| MATERIAL TYPE | LOW RANGE | HIGH RANGE |
|-----------------------------|-----------|------------|
| • Thermal System Insulation | \$159,288 | \$209,649 |
| • Ceiling Tile | 11,772 | 23,544 |
| • Floor Tile | 91,774 | 188,072 |
| TOTAL | \$262,834 | \$421,265 |

The following table is a cost breakdown of recommended O&M remediation to rectify damaged ACM.

| MATERIAL TYPE | LOW RANGE | HIGH RANGE |
|-------------------------|-----------|------------|
| • Sub Basement | \$25,200 | \$36,000 |
| • 3rd Floor Crawl Space | 300 | 500 |
| TOTAL | \$25,500 | \$36,500 |

The cost to clean up the entire **sub basement** area would include the raking and removing of all visible debris in the South Crawl Space as well as Gypcrete entombment of the dirt floor. It would also include the Hepa vacuuming and wet wiping of all horizontal surfaces. Once these area were found to be visibly free of dust and debris, encapsulation would logically ensue. It is recommended that aggressive final air tests be conducted to clear the area for public occupancy. This cost estimate could possibly be reduced if a soil encapsulant were utilized in lieu of the Gypcrete. Air monitoring costs have not been factored into these estimates.

Lastly, we would recommend the clean up of the damaged felt and associated PFI which was found in the wall cavity adjacent to Room 315. Access to this area can only be gained via the **third floor crawl space**.

All ACM removal must be performed by a Minnesota licensed asbestos abatement contractor. All asbestos removal shall be performed within the specified procedures as outlined in the University of Minnesota Technical Specification for Asbestos Abatement. Please note that removal costs are highly variable and dependent on such factors as contractor availability, accessibility of work areas and site specific work plans.

Environmental Health and Safety (EHS) recommends that air quality monitoring be conducted throughout the duration of the project. The cost of air monitoring is a function of contractor on-site days and may vary greatly contingent upon project specifications. For project specific cost estimates, please contact our office as soon as the project specifications have been defined and we will gladly generate the air monitoring charges. EHS will provide labor, equipment and project oversight as necessary. Project management and contract administration will be provided by the Facilities Management Project Development Group. Please note that a project specific work plan, reviewed and approved by this office, is required for all asbestos related work.

If there is any further information required, or other questions arise regarding this request, please contact Greg Archer at 627-4911.

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