September 28, 1994

REPORT: Full Building Survey

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SUBJECT: Asbestos Material Survey - Murphy Hall
EH&S Project No: 062-94-086
Client Project No: For Data Base

Scope of Work: A full building asbestos material survey was conducted on July 25 through August 16, 1994. 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 intent 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 Murphy Hall.

Project Description: Bulk samples of suspect ACM were collected on-site and analyzed via polarized light microscopy (PLM) 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, 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 and associated pipe fitting insulation**
- **<4" aircell pipe insulation and associated pipe fitting insulation**
- **<4" felt with tar insulation and associated pipe fitting insulation**
- **<4" fibrous pipe fitting insulation on fiberglass with tar**
- **<4" fibrous pipe fitting insulation on fiberglass**
- **4"-8" white fibrous pipe insulation and associated pipe fitting insulation**
- **4"-8" aircell pipe insulation and associated pipe fitting insulation**
- **spray-on fireproofing**
- **12"x12" wall tile, pinhole worm**
- **2'x2' ceiling tile, pinhole worm**
- **2'x4' ceiling tile, pinhole worm**
- **9"x9" floor tile, maroon**
- **9"x9" floor tile, black**
- **9"x9" floor tile, beige marbled**
- **9"x9" floor tile, tan with olive and white**
- **12"x12" floor tile, white with charcoal**
- **12"x12" floor tile, tan with beige**
- **12"x12" floor tile, dark brown**
- **12"x12" floor tile, white with grey and olive**
- **12"x12" floor tile, beige with brown and cream**
- **1'x2' floor tile, black**
- **suspect duct paper**

- **transite panels**

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

- <4" fiberglass with tar pipe insulation
- ceiling plaster
- wall plaster
- 12"x12" ceiling tile, pegboard
- 12"x12" wall tile, pinhole crater
- 2'x2' ceiling tile, pinhole crater
- 12"x12" floor tile, white with brown
- 12"x12" floor tile, black with white
- 12"x12" floor tile, pistachio
- 12"x12" floor tile, light grey with blue and white
- 12"x12" floor tile, olive with white and brown
- 12"x12" floor tile, beige with white
- brown flooring
- fiberglass duct insulation
- baseboard adhesive
- sheetrock and taping compound
- red brick mortar
- clay tile mortar
- canvass vibration joints
- white pipe putty
- ceiling tile adhesive

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

- **floor tile adhesive**

The following nonfriable with low potential to become friable materials tested less than 1% asbestos:

- concrete block mortar
- 4"-8" fibrous pipe fitting insulation on fiberglass

For room locations of above noted materials, refer to Appendices.

Observations and Recommendations:

1. Department of Environmental Health & Safety (DEHS);
   Asbestos containing spray-on fireproofing is present above all ceilings on the west wing addition. Since this material is in good condition and the area above these ceilings is not an air plenum, it does not pose significant health concerns to the building occupants at this time. Please refer to condition assessments for specific damaged areas. In general, materials were found to be in good to excellent shape.

2. Facilities Management;
   In some rooms throughout the building, carpeting is covering the asbestos containing floor tile. This should be noted in case the carpeting is removed during any proposed renovation project. If the floor tile comes up with the carpet, the carpet should then be removed by the Facilities Management Asbestos Abatement Unit or a Minnesota Licensed asbestos abatement contractor.

   Samples taken of the <4" white fibrous pipe insulation and the <4" fibrous fittings on fiberglass lines produced mixed results. As a result all of these materials are listed in the Appendices as being asbestos containing. Project specific sampling would be recommended to minimize abatement costs.

Asbestos containing ceiling tiles were found in the following areas: Rooms 30 through 36, Rooms 130 through 136, Rooms 230 through 236, Rooms 330 through 336, Rooms 430 through 435, Room 30-36 Hall, Room 130-136 Hall, Room 230-236 Hall, Room 330-336 Hall, Room 430-435 Hall, and the North & South Halls on the 4th Floor. In addition, over-spray of the asbestos containing spray-on fireproofing was observed above the ceiling tiles in these areas. Proper Operation & Maintenance (O&M) procedures should be followed whenever working on or above these ceiling tiles.

Debris from asbestos containing pipe insulation was discovered throughout the Crawl Space of the Sub-basement in the dirt floor. Following a clean-up of the visible debris, it is recommended that either the area be sprayed with a penetrating encapsulant or, in the case of demolition, the area be wetted and locked down with encapsulant. Contact Facilities Management's Asbestos Coordinator Tim Nelson if these remediation techniques wish to be examined further.

3. General;
   Due to limited access points in the plaster ceilings and walls, some pipe chases were completely inaccessible or only slightly visible. As a result, the quantities listed reflect the visibility available at the time of the survey.

   Although no roof sampling was done, complete roof sampling is recommended at a time when a qualified roofing contractor is on-site to patch core sample holes in roofing.

   Room 15B was inaccessible at the time of the survey.

Cost Information: The approximate cost for the removal of all ACM is itemized below. These figures are based on the assumption that all friable and potentially friable ACM are going to be removed. For project specific removal costs, contact this office with your project requirements and unit costs can be calculated for the impacted areas.

MATERIAL TYPE	LOW RANGE	HIGH RANGE
• thermal system insulation	**$105,665**	**$135,356**
• spray-on fireproofing	**115,280**	**188,640**
• floor tile & adhesive	**50,858**	**101,716**
• ceiling tile	**21,783**	**43,566**
• suspect duct paper	**1,024**	**1,664**
TOTAL	**$294,610**	**$470,942**

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.

Air monitoring is required for many asbestos-related projects. Environmental Health and Safety (EH&S) is available to provide this service. The estimated cost for EH&S to complete air monitoring requirements for specific projects will be made available upon request. The cost of air monitoring is a function of contractor on-site days and may vary dependent upon project specific scope of work. EH&S will provide labor, equipment and project oversight as necessary. Project management and contract administration will be provided by the Facilities Management Project Development Group.

EH&S also recommends that throughout the general renovation activities associated with this building, precautions and work practices should be implemented to minimize nuisance dust levels. Dust suppression techniques (misting the air with water and keeping materials wet) should be required of the general contractor.

If there is any further information required, or other questions arise regarding this request, please contact John Allen at 627-4861.

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