April 7, 1995

REPORT: Full Building Survey

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    Fay Thompson, Department of Environmental Health and Safety, Director

FROM: John Allen, Asbestos Group, Environmental Health and Safety, Suite 153 U-Tech East
      Building, 2331 University Ave. S.E., Minneapolis, MN 55414

SUBJECT: Asbestos Material Survey - Library, Duluth
         EH&S Project No: 522-95-019
         Client Project No: For Data Base

Scope of Work: A full building asbestos material survey was conducted on February 17 and 18, 1995. 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 the UMD Library.

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" felt with tar insulation and associated pipe fitting insulation
- <4" fibrous pipe fitting insulation on fiberglass with tar
- 4"-8" white fibrous pipe insulation and associated pipe fitting insulation
- 4"-8" fibrous pipe fitting insulation on fiberglass with tar
- 4"-8" fibrous pipe fitting insulation on fiberglass
- 9"-14" white fibrous pipe insulation and associated pipe fitting insulation
- 9"x9" floor tile, grey with white
- 9"x9" floor tile, off white with charcoal
- 9"x9" floor tile, white with taupe
- 9"x9" floor tile, light grey with black and white
- 9"x9" floor tile, white with olive
• 12"x12" floor tile, white with beige
• 12"x12" floor tile, light grey with white

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

• <4" fiberglass pipe insulation
• <4" fiberglass with tar pipe insulation
• 4"-8" metal clad white fibrous pipe insulation and associated pipe fitting insulation
• 4"-8" fiberglass with tar pipe insulation
• 4"-8" fiberglass pipe insulation
• 9"-14" metal clad white fibrous pipe insulation and associated pipe fitting insulation
• wall plaster
• ceiling plaster
• fiberglass duct insulation
• 12"x12" ceiling tile, random hole
• 12"x12" ceiling tile, textured spline
• 12"x12" ceiling tile, fissured and splined
• 12"x12" ceiling tile, fissured
• 2′x2′ ceiling tile, white worm and hole
• 2′x2′ ceiling tile, ribbed drop
• 2′x2′ ceiling tile, textured
• 2′x2′ ceiling tile, pinhole and nail hole
• 9″x9″ floor tile, grey with black marble
• 9″x9″ floor tile, sea grey with black and white
• 12″x12″ floor tile, white with salmon and white
• 12″x12″ floor tile, grey with charcoal and white
• baseboard adhesive, brown
• sheetrock and taping compound
• concrete block mortar
• red brick mortar
• clay tile mortar
• ceramic tile mortar
• stone mortar
• troweled-on plaster
• ceiling tile adhesive

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

• floor tile adhesive
• wall tar patching
• pipe patching compound

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

Observations and Recommendations:

1. Department of Environmental Health & Safety (DEHS);
   Please refer to condition assessments for specific damaged areas. In general, materials were found to be in good to excellent shape and do not pose significant health concerns to the building occupants.
2. Facilities Management;
In the Appendices, material descriptions followed by a date refer to samples referenced from previous surveys conducted by the Department of Environmental Health & Safety. The date refers to the original sampling date.

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

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

According to a limited building survey conducted previously by DEHS, asbestos containing debris was found on the dirt floor of the Basement crawl spaces. This area must be considered a controlled access space until it is decontaminated. Contact Tim Nelson, Facilities Management's Asbestos Coordinator, for proper remediation techniques.

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.

Rooms 157A, 160, 305, and 441 and hatches in Rooms 129 and 370A were 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.

<table>
<thead>
<tr>
<th>MATERIAL TYPE</th>
<th>LOW RANGE</th>
<th>HIGH RANGE</th>
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</thead>
<tbody>
<tr>
<td>• thermal system insulation</td>
<td>$104,930</td>
<td>$139,378</td>
</tr>
<tr>
<td>• floor tile</td>
<td>$42,466</td>
<td>$84,932</td>
</tr>
<tr>
<td>• white fibrous debris</td>
<td>$45,000</td>
<td>$60,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$192,396</td>
<td>$284,310</td>
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</tbody>
</table>

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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