November 1, 1993

REPORT: Full Building Survey

TO: Linda McCracken-Hunt, Project Development, 100 Shops Building
Tim Nelson, Facilities Management Asbestos Coordinator
Fay Thompson, Department of Environmental Health and Safety, Director

FROM: John Allen, Asbestos Group, Environmental Health and Safety, B-7 U-Tech Building,
1313 5th St. S.E., Minneapolis, MN 55414

SUBJECT: Asbestos Material Survey - Wilson Library
EH&S Project No: 204-93-099
Client Project No: For Data Base

Scope of Work: A full building asbestos material survey was conducted on June 3 through July 2, 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 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 Wilson Library.

Project Description: Bulk samples of suspect ACM were collected on-site and analyzed via polarized light microscopy (PLM) by Twin City Testing 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" fibrous pipe fitting insulation on fiberglass
- 4"-8" white fibrous pipe insulation and associated pipe fitting insulation
- 4"-8" fibrous pipe fitting insulation on fiberglass
- 9"-14" white fibrous pipe insulation and associated pipe fitting insulation
- 9"-14" fibrous pipe fitting insulation on fiberglass
- >14" white fibrous pipe insulation and associated pipe fitting insulation
- >14" fibrous pipe fitting insulation on fiberglass
- white fibrous tank insulation
- spray-on fireproofing
- column plaster
- 12"x12" floor tile, white with black and tan
- 12"x12" floor tile, tan with beige
• 12"x12" floor tile, grey with black and olive
• transite panels

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

• fiberglass duct insulation
• ceiling plaster
• wall plaster
• 12"x12" ceiling tile, fissured
• 12"x12" ceiling tile, fissured pinhole
• 12"x12" ceiling tile, peghole
• 1'x2' ceiling tile, fissured
• 2'x2' ceiling tile, fissured pinhole
• 2'x4' ceiling tile, pinhole with deep fissures
• 9"x9" floor tile, grey with white
• 12"x12" floor tile, white with black and grey
• 12"x12" floor tile, olive with grey
• 12"x12" floor tile, tan with brown and cream
• baseboard adhesive, brown
• sheetrock and taping compound
• sheetrock/plaster material
• red brick mortar
• concrete block mortar
• styrofoam mastic
• clay tile mortar
• black tar paper
• corkboard adhesive
• red clay tile mortar
• ceiling tile adhesive

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

• floor tile adhesive

The following friable material tested less than 1% for asbestos:

• spray-on patch

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

Observations and Recommendations To:

1. Department of Environmental Health & Safety (DEHS);
   Although asbestos spray-on fireproofing is present throughout the building, it does not pose an immediate health risk to the occupants due to the closed duct return air system and the fireproofing's good condition.

2. Facilities Management;
   Over-spray of the asbestos containing spray-on fireproofing was observed above the ceiling tiles on electrical conduit, concrete decking and duct work. Although overall material condition was good the presence of suspect dust on the ceiling tiles and the possibility of future delamination of the
spray-on, proper Operation & Maintenance (O&M) procedures should be followed whenever working on or above the ceiling tiles.

In some rooms, the area between the ceiling plaster and the concrete decking was inaccessible. Although it was not visually confirmed, it is believed that asbestos containing spray-on fireproofing is present above the plaster ceilings [these rooms contain the designation: “Spray-on fireproofing (above ceiling)]. Due to possible contamination, any ceiling plaster demolition in these rooms should be done under negative pressure containment.

Abatement of the asbestos containing spray-on fireproofing has taken place in the south section of Room 5 in the Basement. Non-asbestos containing re-spray has been applied in this area.

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.

3. General;
The result of the spray-on fireproofing was referenced from samples taken during a November 3, 1992 survey conducted by the Department of Environmental Health & Safety. In the Appendices, the sample number for this material is preceded by the letter R.

The following areas were inaccessible at the time of the survey: Sub-basement North Hallway, and Rooms S50 C-F; Rooms 49, 52, 53, and 55 on the Basement Level; Room 496 on the 4th Floor; and Room 540 on the 5th Floor.

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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<tbody>
<tr>
<td>• spray-on fireproofing</td>
<td>$3,241,722</td>
<td>$5,304,636</td>
</tr>
<tr>
<td>• thermal system insulation</td>
<td>299,165</td>
<td>364,137</td>
</tr>
<tr>
<td>• floor tile &amp; adhesive</td>
<td>475,910</td>
<td>951,820</td>
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<tr>
<td>• transite panels</td>
<td>29,256</td>
<td>42,760</td>
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<tr>
<td>TOTAL</td>
<td>$4,046,053</td>
<td>$6,663,353</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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