October 7, 1993

REPORT: Full Asbestos Building Survey

TO: Gayle Gedstad, Project Development, 100 Shops Building, 319 15th Avenue SE, Minneapolis, MN 55414

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

SUBJECT: Asbestos Material Survey - Agricultural Engineering Building
            EH&S Project No: 334-93-127
            Client Project No: 334-93-1418

Scope of Work: A full building asbestos material survey was conducted on September 13 though September 17, 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 the Agricultural Engineering Building.

Project Description: One hundred nineteen (119) bulk samples of suspect ACM were collected on-site and eighty-four (84) analyzed via polarized light microscopy (PLM) by Nova Environmental 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
- <4" fibrous pipe fitting insulation on fiberglass with tar pipe insulation
- <4" fibrous pipe fitting insulation on fiberglass pipe insulation
- 4"-8" white fibrous pipe insulation and associated pipe fitting insulation
- white fibrous tank insulation
- paper wrap on duct
• 2'x2' ceiling tile, crater pinhole
• 9"x9" floor tile, green with white
• 9"x9" floor tile, light grey with white
• 9"x9" floor tile, black with green and white
• 9"x9" floor tile, beige with white
• 9"x9" floor tile, grey with black and white
• 9"x9" floor tile, olive with black and white
• 9"x9" floor tile, white with brown and beige
• 12"x12" floor tile, tan with white
• 12"x12" floor tile, olive with white
• sheetrock and taping compound
• gasket on heater
• transite panels

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

• <4" felt pipe insulation
• <4" fiberglass with tar pipe insulation
• 4"-8" pipe fitting insulation on fiberglass
• ceiling plaster
• wall plaster
• 12"x12" ceiling tile, pegboard
• 12"x12" ceiling tile, fissured pinhole
• 2'x2' ceiling tile, fissured pinhole
• black lab tops
• baseboard adhesive, brown
• ceiling tile adhesive
• red clay tile mortar
• concrete block mortar
• brown putty
• white fibrous brick
• red brick mortar
• yellow brick mortar

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

• floor tile adhesive
• black tar on duct

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

**Observations and Recommendations:** Debris from asbestos containing pipe insulation was discovered throughout the Unexcavated area 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.

Rooms 14 and S12 A were inaccessible.
**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>
</tr>
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<tbody>
<tr>
<td>thermal system insulation</td>
<td>$124,176</td>
<td>$161,062</td>
</tr>
<tr>
<td>floor tile &amp; adhesive</td>
<td>47,156</td>
<td>94,312</td>
</tr>
<tr>
<td>ceiling tile</td>
<td>1,620</td>
<td>3,240</td>
</tr>
<tr>
<td>sheetrock &amp; taping compound</td>
<td>612</td>
<td>612</td>
</tr>
<tr>
<td>transite panels</td>
<td>600</td>
<td>900</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$174,164</strong></td>
<td><strong>$260,126</strong></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.

Environmental Health and Safety (EH&S) recommends that air quality monitoring be conducted during any asbestos related project. 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 greatly 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 (mist 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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