January 31, 1996

REPORT: Full Building Survey

TO: Chuck Koncker, Project Development, 400 Shops Building, 319 15th Avenue S.E., Minneapolis, MN 55414

FROM: Mark Liske, Asbestos Group, Environmental Health and Safety (EH&S), 241 Darland Administration Building, 10 University Drive, Duluth, MN 55812-2496

SUBJECT: Asbestos Material Survey - Kirby Student Center
EH&S Project No: 523-95-054
Client Project No: 523-94-1540

Scope of Work: A full building asbestos material survey was conducted during January of 1996. 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, to 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 Kirby Student Center.

Project Description: Two-hundred forty-three (243) bulk samples of suspect ACM were collected on-site and one-hundred eighty-one (181) analyzed via polarized light microscopy (PLM) by University Department of Environmental Health and Safety's Asbestos Group for asbestos content. Results of analyses are listed in Appendix I of this report. Appendix I is formatted to provide an inventory of suspect ACM, the asbestos content of each material listed, and friability. An explanation of the tables and abbreviations used in the tables are included with Appendix I. Appendix II is a 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" fibrous pipe insulation and associated pipe fitting insulation
- <4" felt with tar pipe insulation and associated pipe fitting insulation
- <4" fibrous pipe fitting insulation on fiberglass with tar pipe insulation
- <4" fibrous pipe fitting insulation on aircell pipe insulation
- 4"-8" fibrous pipe insulation and associated pipe fitting insulation
- 4"-8" fibrous pipe fitting insulation on fiberglass pipe insulation
- 4"-8" fibrous pipe fitting insulation on fiberglass with tar pipe insulation
- 4"-8" fibrous pipe fitting insulation on felt pipe insulation
- 4"-8" fibrous pipe fitting insulation on aircell pipe insulation
- 9"-14" fibrous pipe insulation and associated pipe fitting insulation
- 9"-14" fibrous pipe fitting insulation on felt pipe insulation
• 24" fiberglass pipe insulation with putty wrap
• 2'x2' ceiling tile, white with holes
• 2'x2' ceiling tile, white with small & large holes
• 9"x9" floor tile (under carpet)
• 9"x9" floor tile, grey with white
• 9"x9" floor tile, green with dark green
• 9"x9" floor tile, beige with black
• 9"x9" floor tile, white
• 9"x9" floor tile, chocolate with dark brown
• 9"x9" floor tile, grey with large patches
• 12"x12" floor tile, white with brown
• 12"x12" floor tile, cream with grey and orange
• 12"x12" floor tile, white with grey
• 12"x12" floor tile, light green with green
• 12"x12" floor tile, beige with brown
• 12"x12" floor tile, light green with green, red, and yellow
• 12"x12" floor tile, light green with brown
• white backing on cream sheet flooring
• duct expansion cloth, white
• white fibrous debris on back of ceiling tile
• white fibrous debris in shaft
• widow sill

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

• <4" fibrous pipe fitting insulation on fiberglass
• <4" aircell pipe insulation
• 4"-8" felt pipe insulation
• 4"-8" aircell pipe insulation
• 9"-14" felt pipe insulation
• fiber glass pipe insulation
• fiber glass duct insulation
• brick mortar
• wall and ceiling sheetrock
• concrete block mortar
• pyrobar
• wall and ceiling plaster
• clay tile mortar
• 2'x2' ceiling tile, pinhole and fissure
• 2'x2' ceiling tile, cloth
• 2'x2' ceiling tile, design
• 2'x2' ceiling tile, strand
• 2'x2' ceiling tile, fissure
• 2'x2' ceiling tile, with circle
• 2'x2' ceiling tile, with square
• 2'x4' ceiling tile, worm and hole
• 2'x4' ceiling tile, large hole
• 2'x4' ceiling tile, textured with stripes
• 9"x9" floor tile, green with stripes
• golden brick mortar
• red brick mortar
• ceramic tile mortar
• baseboard adhesive
• duct expansion cloth, green
• fiber glass duct insulation with foil
• spray-on fireproofing

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

• floor tile adhesive
• ceiling tile adhesive
• wall tar

Observations and Recommendations:

**Basement Level** - Storage Room 5 contains white fibrous ACM scattered throughout the dirt floor space, which consists of about two-hundred and fifty (250) square feet. The dirt floor area should be considered contaminated and in need of a clean-up prior to any work taking place on the unexcavated area.

**First Floor** - The following areas had limited accessibility at the time of the survey: Room 107 above plaster ceiling, Room 108 above plaster ceiling, Room 109 above plaster ceiling, pipe chase adjacent to Room 109 had limited accessibility and twenty (20) square feet of white fibrous ACM scattered on the floor. Hatch access to plaster ceiling. Rooms 100, 101, 102, 104, 105, 106, 134B, 134, 134A, 110, 111, 112, 113, 114, 115, 120, 123, 125, 130, 190, 191, 192, 193, 194, and 196 are under metal pan ceiling and the space above this ceiling contains debris that tested positive as ACM. This area should be HEPA vacuumed and wet wiped by qualified personnel with proper respiratory protection. Room 130C above gypsum board, Room 171 above plaster ceiling, and the pipe chase adjacent to Room 171 had limited visibility.

**Second Floor** - The following areas had limited accessibility at the time of the survey: Room 200 above plaster ceiling, Room 232 above plaster ceiling, Room 207 above plaster ceiling, Room 211 above plaster ceiling, pipe chase adjacent to Room 211, Room 231 above plaster ceiling and Room 261 above plaster ceiling. Rooms 267 and 269 had dust samples that tested positive which were taken from the backs of the ceiling tiles. However, these ceiling tiles are part of sampling that contains mixed results and will need further analysis.

The pipe chase adjacent to Room 211 had ACM debris in the shaft. This debris should be pre-cleaned utilizing a HEPA vacuum and wet methods before any work takes place in this chase.

**Third Floor** - The following areas had limited accessibility above plaster ceilings: Room 302, Room 304, Room 304A, Room 308, Room 320, Room 331, Room 324, Room 334 and Room 361A.

Samples taken of the 2'x2' white with holes ceiling tile produced mixed results. Therefore, this material is listed in the Appendices as being asbestos containing. Project specific sampling would be recommended to minimize abatement costs.

Asbestos containing floor tile has been identified under many carpeted areas. Some areas did not allow an inspection without damaging the carpet. Therefore all areas should be assumed to have asbestos containing floor tile under the carpeting. A project specific detailed investigation should be requested before carpets are to be impacted.

**Cost Information:** The approximate cost for the removal of 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 requirements and unit costs can be calculated for impacted areas.

<table>
<thead>
<tr>
<th>MATERIAL TYPE</th>
<th>LOW RANGE</th>
<th>HIGH RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• thermal system insulation</td>
<td>$103,553</td>
<td>$134,170</td>
</tr>
<tr>
<td>• floor tile &amp; adhesive</td>
<td>51,416</td>
<td>102,832</td>
</tr>
<tr>
<td>• ceiling tile</td>
<td>18,240</td>
<td>36,480</td>
</tr>
<tr>
<td>• ceiling tile adhesive</td>
<td>18,350</td>
<td>36,700</td>
</tr>
<tr>
<td>• miscellaneous materials</td>
<td>4,000</td>
<td>8,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$195,559</strong></td>
<td><strong>$318,182</strong></td>
</tr>
</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 report, please contact Mark Liske at (218) 726-6332.

Written By:

Mark Liske  
Environmental Health & Safety  
Senior Asbestos Technician

Reviewed By:

Roger L. Jeremiah  
Environmental Health & Safety  
Asbestos Group Manager
cc: Tim Nelson