July 5, 2007

REPORT: Full Building Survey

TO: Bob Kretchmer, Project Support Supervisor, Room G-20B, Comstock Hall

FROM: John Allen, Asbestos Group, Environmental Health and Safety, W-140 Boynton Health Service, 410 Church Street, S.E., Minneapolis, MN 55455

SUBJECT: Asbestos Material Survey - Middlebrook Hall
EH&S Project No: 208-96-027
Client Project No: Not Available

Scope of Work: A full building asbestos material survey was conducted on March 11, through April 1, 1996. The purpose of the survey was to identify asbestos-containing materials (ACM) as defined by the Environmental Protection Agency (EPA), the Occupational Health & Safety Administration (OSHA), and the Minnesota Department of Health (MDH). Any material that is greater than 1% asbestos is considered to be ACM. The intent of the survey was to identify both friable and non-friable suspect ACM, identify non-friable ACM that may become friable under demolition or renovation conditions, and to provide approximate cost estimates for the removal of identified ACM in Middlebrook Hall.

Project Description: Ninety-seven (97) bulk samples of suspect ACM were collected on-site and eighty-three (83) were analyzed via polarized light microscopy (PLM) by University of Minnesota Asbestos Laboratory 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 in the building:

- <4" white fibrous pipe insulation and associated pipe fitting insulation
- <4" fibrous PFI on FG with tar pipe insulation
- <4" fibrous PFI on fiberglass pipe insulation
- 4"-8" white fibrous pipe insulation and associated pipe fitting insulation
- 4"-8" fibrous PFI on FG with tar pipe insulation
- 4"-8" fibrous PFI on fiberglass pipe insulation
- 9"-14" white fibrous pipe insulation and associated pipe fitting insulation
- 9"-14" fibrous PFI on fiberglass pipe insulation
- white fibrous tank
- 9"x9" floor tile, beige with brown & cream
- grey pipe putty
- transite

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

- <4" fiberglass with tar pipe insulation
- <4" fiberglass pipe insulation
• 4"-8" fiberglass with tar pipe insulation
• 4"-8" fiberglass pipe insulation
• 9"-14" fiberglass pipe insulation
• fiberglass duct insulation
• ceiling plaster
• wall plaster
• red brick mortar
• clay tile mortar
• concrete block mortar
• sheetrock
• baseboard adhesive
• 12"x12" floor tile, beige with brown & white
• 12"x12" floor tile, off-white with beige & white
• floor tile adhesive
• 12"x12" ceiling tile, fissure
• ceiling tile adhesive
• 2'x2' ceiling tile, crater pinhole
• canvass vibration joint
• styrofoam ceiling tile adhesive
• black tar on duct
• carpet mastic

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

• textured ceiling coating
• floor tile adhesive

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 (except where noted) and do not pose significant health concerns to the
   building occupants.

2. Facilities Management;
   All quantities in this survey are estimations and should not be considered exact measurements when
   used for abatement bids.

   The ceilings throughout the building contain a textured coating. The textured coating was analyzed
   to be asbestos containing material. This material should be treated as a non-friable asbestos
   containing material. Proper operations and maintenance procedures must be followed whenever this
   material is to be impacted.

3. General;
   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, or prior to roof removal or
   demolition.

   Due to limited access points in the 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. Many of the wall hatches located in the resident's rooms were inaccessible due to furniture or electronic equipment blocking or obscuring the hatch doors.

Due to the difficulty associated with identifying or sampling, fire doors and fire hoses were not included in the scope of the survey. Please note that these items frequently contain asbestos.

The kitchen and dining area contained 1'x2' plastic ceiling tiles. DEHS could not gain access to the area above the ceiling tiles without causing substantial damage to the tiles.

Room S44 contains a soil crawl space. The soil in this space was covered with plastic at the time of the survey and was not sampled for asbestos content.

**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>
</thead>
<tbody>
<tr>
<td>• thermal system insulation</td>
<td>$199,876</td>
<td>$247,366</td>
</tr>
<tr>
<td>• textured ceiling coating</td>
<td>$158,026</td>
<td>$316,052</td>
</tr>
<tr>
<td>• transite</td>
<td>$7,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>• floor coverings &amp; mastic</td>
<td>$3,184</td>
<td>$6,368</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$368,086</strong></td>
<td><strong>$580,286</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 request, please contact John Allen at 626-2199.

Written By: John F. Allen  
Reviewed By: Roger L. Jeremiah  
Environmental Health & Safety  
Asbestos Group Senior Technician  
Environmental Health & Safety  
Asbestos Group Manager