July 5, 2007

REPORT: Full Building Survey

TO: Linda McCracken-Hunt, Project Development, 400 Shops Building
Fay Thompson, Department of Environmental Health and Safety, Director
Tim Nelson, Facilities Management Asbestos Coordinator, 400 Shops Building

FROM: Bryan Angstman, Asbestos Group, Environmental Health and Safety, 153 U-Tech Building, 2331 University Avenue S.E., Minneapolis, MN 55414

SUBJECT: Asbestos Material Survey -Akerman Hall
EH&S Project No: 266-95-021
Client Project No: for database

Scope of Work: A full building asbestos material survey was conducted on February 1, 1995 through March 1, 1995. 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 Akerman Hall.

Project Description: One hundred fifty-one (151) bulk samples of suspect ACM were collected on-site and one hundred two (102) were analyzed via polarized light microscopy (PLM) by Milan 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. A previous limited asbestos building survey was performed on the Holman Building by Delta Environmental Consultants on September 18, 1990. Information from the previous survey was included as part of this survey.

The following friable or potentially friable materials tested positive as ACM in the building:

• <4" white fibrous pipe insulation (PI)(1)
The following suspect materials tested none detected (ND) as ACM in the building:

- <4" fiberglass w/tar PI (7)
- <4" fiberglass PI (9)
- 4"-8" fiberglass PI (19)
- black foam PI (25)
- FG duct insulation (31)
- ceiling plaster (34)
- wall plaster (35)
- red brick mortar (36)
- clay tile mortar (37)
- concrete block mortar (38)
- baseboard adhesive (40)
- floor tile mastic (41.5)
- floor tile mastic (43.5)
- floor tile mastic (44.5)
- 12"x12" floor tile, gold, yellow & brown (70)
- floor tile mastic (71.5)
- floor tile mastic (74.5)
- floor tile mastic (76.5)
- 9"x9" floor tile, gray w/gray, white marble (77)
- floor tile mastic (77.5)
• 9"x9" floor tile, cream w/white & black specks (78)
• floor tile mastic (79.5)
• 12"x12" floor tile, gray brown marble (81)
• floor tile mastic (81.5)
• 12"x12" ceiling tile, pencilhole (100)
• ceiling tile mastic (100.5)
• 12"x12" ceiling tile, deep fissure (101)
• ceiling tile mastic (101.5)
• 2'x2' ceiling tile, chicken scratch (110)
• 2'x2' ceiling tile, pencilhole wormhole (111)
• 2'x2' ceiling tile, pinhole (112)
• 2'x4' ceiling tile, pinhole fissured (120)
• 2'x4' ceiling tile, pinhole w/random fissured (121)
• ceiling tile mastic (121.5)
• tar expansion joint w/ tar paper (136)
• red duct putty (137)
• tan pipe putty (140)

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

• floor tile mastic (42.5, 70.5, 73.5, 75.5, 78.5, 80.5)

The following material tested less than 1% asbestos:

• sheet rock and taping compound (39)

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.

Thermal pipe insulation located in pipe chases (12A, 112A, 212A, 312A) accessed through janitorial closets was observed to be damaged from the storage of cleaning equipment and supplies. The asbestos containing materials should be removed from the area or other areas should be found to store these materials.
The suspect materials that were analyzed and found to contain trace amounts of asbestos do not meet the strict definition of asbestos-containing materials. However, as with any dust creating activity, precautions and work practices should be implemented to minimize nuisance dust levels. Dust suppression techniques (mist the air with water and keeping materials wet during general construction activities) should be required of the general contractor.

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.

Crawl spaces contain asbestos contaminated soil. These spaces are accessed through Rooms 4 and 7. The door to Room 4 is posted with the proper label. Access to the crawl spaces through Room 7 is unrestricted, however, the Facilities Management Zone was notified and a work order was issued for the installation of doors to restrict the area.

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.

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.

The floor tiles and mastics under carpet that were assumed to be asbestos containing were either inaccessible to sampling or unidentifiable. The floor tile and mastic under carpet should be sampled prior to being disturbed.

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>$104,759</td>
<td>$134,623</td>
</tr>
<tr>
<td>• floor coverings &amp; mastic</td>
<td>$77,528</td>
<td>$155,056</td>
</tr>
<tr>
<td>• transite &amp; lab top</td>
<td>$5,727</td>
<td>$8,370</td>
</tr>
<tr>
<td>• debris &amp; debris in soil</td>
<td>$6,093</td>
<td>$10,093</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$194,107</strong></td>
<td><strong>$308,142</strong></td>
</tr>
</tbody>
</table>

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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 Bryan Angstman at 627-4887.

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