July 6, 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's Asbestos Coordinator, 400 Shops

FROM: Dave Klaustermeier, Asbestos Group, Environmental Health and Safety, Suite 153
      U-Tech East Building, 2331 University Ave. S.E., Minneapolis, MN 55414

SUBJECT: Asbestos Material Survey - Bailey Hall
          EH&S Project No: 383-95-088
          Client Project No: for database

Scope of Work: A full building asbestos material survey was conducted July 6, 1995 through August 16, 1995. 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 Bailey Hall.

Project Description: Two hundred sixty-one (261) bulk samples of suspect ACM were collected on-site and one hundred seventy-six (176) 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.

The following friable or potentially friable materials tested positive as ACM:

- <4" white fibrous pipe insulation (PI) (1)
- <4" pipe fitting insulation (PFI) on white fibrous (2)
- <4" felt w/tar PI (5)
- <4" fibrous PFI on felt (6)
- <4" fibrous PFI on fiberglass (FG) w/tar (8)
- <4" fibrous PFI on fiberglass (10)
- 4"-8" white fibrous PI and associated PFI (11&12)
- 4"-8" fibrous PFI on felt (16)
• 4"-8" FG over <4" white fibrous PI (24)
• white fibrous tank (32)
• 9"x9" grey w/black and white streaks FT (41)
• 9"x9" beige w/brown and white streaks FT (42)
• 9"x9" grey w/grey and white streaks FT (43)
• 12"x12" nailhole/pinhole ceiling tile CT (82)
• white textured spray-on (92)
• transite (101)
• pipe insulation debris (107)

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

• <4" fiberglass with tar PI (7)
• <4" fiberglass PI (9)
• 4"-8" felt w/tar PI (15)
• 4"-8" fiberglass PI (19)
• 4"-8" fibrous PFI on fiberglass (20)
• 4"-8" new PFI on FG PI (25)
• <4" new PFI on FG (26)
• fiberglass duct insulation (27)
• black foam PI (28)
• ceramic block mortar (29)
• fiberglass batting (30)
• wall plaster over sheetrock (31)
• ceiling plaster (34)
• wall plaster (35)
• red brick mortar (36)
• clay tile mortar (37)
• concrete block mortar (38)
• sheetrock and taping compound (39)
• baseboard adhesive (40)
• 12"x12" light tan w/ tan mottling FT (50)
• 12"x12" off white with tan mottling FT (51)
• 12"x12" white w/grey flecks FT (52)
• 12"x12" green w/ black flecks FT (53)
• 12"x12" black w/ white flecks FT (54)
• 12"x12" blue w/white streaks FT (55)
• grey floor covering (56)
• 12"x12" dark brown with brown mottling FT (60)
• 12"x12" off-white with grey streaks FT (61)
• 12"x12" black with white streaks FT (62)
• 12"x12" pitted fissure/pinhole CT and adhesive (79)
• 12"x12" random pencilhole CT and adhesive (80)
• 12"x12" fissure pinhole CT (81)
• ceiling tile adhesive for sample #82 (82.5)
• 12"x12" nailhole acoustical wall tile (83)
• 2'x2' random fissure CT (85)
• 2'x2' pitted pinhole CT (86)
• 2’x2’ fissured pinhole CT (87)
• 3’x3’ techtum grooved CT (89)
• 2’x4’ techtum (stringboard) CT and adhesive (90)
• black rubber vibration joint (93)
• foil face duct insulation (94)
• white rough spray-on (97)
• blue Styrofoam w/ adhesive (98)
• brown window caulk (99)
• black windowsills (100)
• black tar on fountain (102)
• sink undercoat (103)
• fiberglass batting w/ tar (108)

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

• floor tile adhesive (41.5, 42.5, 43.5, 50.5)
• canvass vibration joint (95)
• tar on wall (104)
• tar on metal (109)

The following friable or potentially friable materials tested as less than one percent (<1%) asbestos:

• fiberglass duct insulation with mud (110)

The following nonfriable with low potential to become friable materials test <1% asbestos:

• floor tile adhesive (51.5, 55.5, 60.5, 61.5)

For room locations of above noted materials, refer to Appendices. Sample numbers of the above materials are located in the parenthesis following the sample descriptions.

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 and do not pose significant health concerns to the building occupants.

2. Facilities Management;
   Debris from asbestos containing pipe insulation was discovered in rooms N5Aceiling hatch, N103pipechase and E304pipechase. Following a clean-up of the visible debris, it is recommended that the area be sprayed with an encapsulant. Contact Facilities Management's Asbestos Coordinator Tim Nelson if these remediation techniques wish to be examined further.

A majority of the white fibrous pipe insulation located on the fourth floor east wing in the radiators do not have a canvass wrap on the ends of the insulation. The material is not easily accessible by students, but should be repaired with a penetrating encapsulant. Contact Tim Nelson of Facilities Management with questions regarding the repair of pipe insulation.
In the north wing there is asbestos-containing white fibrous pipe insulation located under a majority of the fiberglass pipe insulation on the heating pipes.

3. General;
At the time of the survey Room E46B was inaccessible.

Due to limited access points in the ceilings and walls, some pipe chases and interstitial spaces were completely inaccessible or only slightly visible. As a result, the quantities listed reflect the visibility available at the time of the survey.

In some rooms of Bailey Hall carpeting is covering asbestos-containing floor tile. This should be noted in case the carpeting is removed during a renovation project. If the floor tile comes up with the carpet, the carpet should then be removed by the Facilities Management Asbestos Abatement Unit or a Minnesota Licensed asbestos abatement contractor.

The current Occupational Safety and Health Administration definition of a non-regulated asbestos material is anything that contains less than one percent asbestos by area.

Although no roofing 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.

**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>• thermal system insulation</td>
<td>160,241</td>
<td>204,242</td>
</tr>
<tr>
<td>• floor tile &amp; adhesive</td>
<td>93,486</td>
<td>186,972</td>
</tr>
<tr>
<td>• white textured spray-on</td>
<td>12,485</td>
<td>20,430</td>
</tr>
<tr>
<td>• tar on wall and metal</td>
<td>3,440</td>
<td>6,880</td>
</tr>
<tr>
<td>• nailhole/pinhole ceiling tile</td>
<td>1,893</td>
<td>3,786</td>
</tr>
<tr>
<td>• transite</td>
<td>553</td>
<td>850</td>
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<tr>
<td>• pipe insulation debris</td>
<td>222</td>
<td>240</td>
</tr>
<tr>
<td>• canvass vibration joint</td>
<td>210</td>
<td>400</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>272,530</strong></td>
<td><strong>423,800</strong></td>
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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 Dave Klaustermeier at 627-4887.

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