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 - Food Science and Nutrition Building
EH&S Project No: 381-95-084
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 the Food Science and Nutrition Building.

Project Description: Two hundred sixty-one (261) bulk samples of suspect ACM were collected on-site and one hundred eighty-three (183) 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" fibrous PFI on fiberglass (FG) w/tar(8)
- 4"-8" white fibrous PI and associated PFI (11&12)
- 4"-8" fibrous PFI on felt (16)
- 4"-8" fibrous PFI on FG w/tar (18)
- 9"-14" white fibrous PI (21)
• 9"-14" PFI on white fibrous (22)
• PFI on cork w/tar (26)
• PFI on black foam (27)
• spray-on fireproofing in room 45 (29)
• white fibrous tank (32)

light grey w/ black and white streaks FT (42)
beige w/ brown and white streaks FT (44)
• 9"x9" tan w/ rust FT (45)
• 9"x9" tan w/ rust and white FT (46)
• 9"x9" green w/ black and white streaks FT (47)

• transite (101)
• pipe insulation debris on ceiling tile (104)
• transite hood (106)

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 w/tar (17)
• 4"-8" fiberglass PI (19)
• 4"-8" fibrous PFI on fiberglass (20)
• black foam PI (24)
• cork w/tar PI (25)
• sheetrock ceiling (30)
• ceramic block mortar (31)
• ceiling plaster (34)
• wall plaster (35)
• red brick mortar (36)
• clay tile mortar (37)
• concrete block mortar (38)
• baseboard adhesive (40)
• 12"x12" white/tan marble FT (61)
• 12"x12" crater fissure white CT (81)
• grey vinyl flooring (83)
• 2'x2' pitted pinhole CT (84)
• 2'x4' vinyl covering plain white CT (88)
• 2'x4' nailhole pinhole CT (89)
• 2'x4' pinhole textured CT (90)
• 2'x4' pinhole fissure CT (91)
• 2'x4' vinyl covering white w/ grey CT (92)
• 2'x4' random fissured pinhole CT (93)
• maroon duct putty (94)
• black lab top (96)
• black rubber vibration joint (98)
• fiberglass duct insulation with tar (99)
• fiberglass duct insulation with foil (100)
• green duct putty (102)
• grey duct putty (103)
• black lab sink (105)
• fiberglass batting (115)
• new fiberglass PI (116)
• new PFI on fiberglass PI (117)
• plaster over black foam (120)
• PFI on pink fibrous (123)
• pink fibrous PI (124)
• tan granular ceiling insulation (125)

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

• floor tile adhesive (41.5, 42.5, 43.5, 44.5, 45.5, 46.5)
• galbestos (97)
• black sink undercoat (107)
• oven gasket (114)
• grey oven cloth (121)

The following friable or potentially friable materials were unable to be tested and are assumed to be ACM:

• elevator fire door (112)
• insulation on spray drier (122)

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

• spray-on fireproofing (33)
• sheetrock and taping compound (39)
• 9"x9" steel grey w/ black and white streaks FT (41)
• 9"x9" grey w/ white streaks FT (43)
• 12"x12" off white w/ grey streaks FT (60)
• 12"x12" cream w/ tan streaks FT (62)
• 12"x12" tan w/ brown and white FT (63)
• 12"x12" grey/tan/white mottling FT (64)
• 12"x12" grey w/ white motting FT (65)

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

• floor tile adhesive (47.5, 60.5, 62.5, 63.5, 64.5, 65.5)

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;
The spray-on fireproofing in Room 45 contains asbestos. This material currently is in good condition. The spray-on fireproofing found on the second floor tested as less than one percent (<1%) asbestos, therefore this material is not a regulated material under current Minnesota Department of Health Rules.

Debris from asbestos containing pipe insulation was discovered in Room 1, Room 15(south return air duct), Room 82, Hall by Room 83, and Room 205. 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.

The blue styrofoam insulation was not able to be accessed to be sampled at the time of the survey. This material is to be assumed asbestos-containing until testing proves otherwise.

3. General;
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.

Rooms 39 and 199 were inaccessible at the time of the survey.

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>
</tr>
</thead>
<tbody>
<tr>
<td>• thermal system insulation</td>
<td>288,073</td>
<td>367,018</td>
</tr>
<tr>
<td>• floor tile &amp; adhesive</td>
<td>16,735</td>
<td>33,470</td>
</tr>
<tr>
<td>• spray-on fireproofing</td>
<td>12,045</td>
<td>19,710</td>
</tr>
<tr>
<td>• transite and transite hoods</td>
<td>9,022</td>
<td>13,366</td>
</tr>
<tr>
<td>• elevator fire doors</td>
<td>1,200</td>
<td>2,400</td>
</tr>
<tr>
<td>• galbestos</td>
<td>832</td>
<td>1,664</td>
</tr>
<tr>
<td>• gaskets, undercoat, and oven cloth</td>
<td>500</td>
<td>1,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>328,407</td>
<td>438,628</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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