

November 18, 2002

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 - Elliott Hall  
EH&S Project No: 020-95-017  
Client Project No: for database

**Scope of Work:** A full building asbestos material survey was conducted February 20, 1995 through June 29, 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 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 in Elliott Hall.

**Project Description:** Two hundred & six (206) 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" fibrous PFI on fiberglass (10)
- 4"-8" white fibrous PI and associated PFI (11&12)
- 4"-8" fibrous PFI on FG (20)
- 9"-14" white fibrous PI(21)
- 9"-14" PFI on white fibrous (22)
- 4"-8" PFI on white foam (27)
- 9'-14' PFI on white foam (91)
- white fibrous tank ( 32)
- spray-on fireproofing (33)
- 9"x9" FT white w/gold streaks (41)
- 12"x12' FT off-white w/tan mottling (70)
- 12"x12" FT tan w/brown mottling (71)
- 12"x12" FT dk brown w/tan mottling (72)
- 12'x12' FT cream w/grey streaks (75)
- 12'x12' FT grey/grey streaks (78)
- textured spray-on(29)

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

- **floor tile adhesive (41.5 ,70.5, 71.5, 72.5, 73.5, 74.5, 76.5, 78.5, 80.5, 81.5,)**
- **gaskets (136)**
- **grey sink undercoating (141)**
- **transite (133)**
- **pink sink undercoat (140)**
- **grey concrete block sealer (149)**
- **electrical box insulation (143)**
- **fire door core (152)**
- **black lab top (131)**

The following suspect materials tested none detected (ND) for asbestos:

- <4" fiberglass PI (9)
- 4"-8" fiberglass PI (19)
- 9"-14" white foam PI (90)
- 4"-8" white foam PI (26)
- black foam PI (25)
- ceiling plaster (34)
- wall plaster (35)
- concrete block mortar (38)
- sheetrock & taping compound (39)
- baseboard adhesive (40)
- clay tile mortar (37)
- red brick mortar (36)
- FG duct insulation (31)
- 12'x12'FT grey w/white peach (77)
- 12"x12" FT cream with tan mottling (79)
- 12"x12" FT cream w/brown mottling (80)
- 12"x12" FT grey w/tan & white (81)
- tank insulation(black foam)(92)
- sheetrock ceiling (98)
- floor tile adhesives (75.5, .77.5 ,79.5 ,73.5 ,74.5)
- ceiling tile adhesive (100.5)
- techtum CT, stringboard (120)
- wall plaster (124)
- ceiling plaster (125)
- sheetrock ceiling & brown adhesive (127)
- tar gasket (128)
- blue styrofoam (129)
- canvass vibration joint (130)
- black lab sink (132)
- fiberglass batting w/foil (138)
- black rubber vibration joint (139)
- black sink undercoating (142)
- new PFI on pink PI (146)
- FG batting (148)
- sheetrock behind plaster wall (150)
- foam insulation behind radiators (151)
- outside plaster (153)

The following materials tested as less than one percent (<1%) for asbestos content:

- 12"x12" FT off-white w/gold splotches (73)
- 12"x12" FT olive w/grey & white flecks (74)

- 12"x12" FT tan w/brown & white streaks (76)
- 12"x12" FT cream w/tan mottling and mastic (79 & 79.5)
- 12"x12" CT white rough (100)
- 2'x2' CT pinhole fissure (110)
- sheetrock and taping compound (126)

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);

Asbestos containing spray-on fireproofing was found on first, second, third, fourth, fifth and sixth floors of the North and Middle Wing. On all six floors the area above the 1'x1' white rough ceiling tiles is used as a supply air plenum. Although the material is friable, it is in good condition. Air erosion is possible, but if material is undisturbed, management in place is appropriate.

Due to the presence of asbestos-containing spray-on fireproofing in the supply air plenum, DEHS recommends that ambient air samples be collected every three months in the building. Air samples taken during the asbestos survey and in previous years did not indicate an elevated fiber level in the building.

Please refer to condition assessments for specific damaged areas.

#### 2. Facilities Management;

The spray-on fireproofing contains asbestos. Results of the spray-on fireproofing ranged from 15% to 65% amosite.

In areas where there is 1'x1' white rough ceiling tiles with black diffuser strips, the asbestos-containing spray-on is located in the supply air plenum. In some areas of the plenum, the supply air stream feeds directly on to the support beams. At the time of the survey, no signs of air erosion of the spray-on fireproofing from the beams was evident, but there is potential for air erosion. Due to the presence of the spray-on in the air plenum, the possibility of a fiber release exists, therefore strict adherence to proper Operation and Maintenance (O&M) procedures must be followed whenever working on or above the ceiling tiles. The old section of Elliott Hall (south section, or old department of health section) does not have spray-on fireproofing on the cement deck.

In areas where the supply air stream feeds directly onto the sprayed beam, erosion is blocked by a layer of accumulated material from the air handlers and ducts. It is recommended that this material be left in place as a barrier to the asbestos.

In areas of the building with 2'x2' pinhole fissure ceiling tiles there exists a sheetrock ceiling above the drop ceiling tiles. It is suspected that asbestos-containing spray-on fireproofing is located above the sheetrock ceiling. The condition of the material was not able to be assessed due to lack of accessibility.

A majority of the support beams in the building are covered with asbestos-containing fireproofing. It is assumed that the beams in the exterior support columns and the vertical beams which are entombed in plaster are also covered with asbestos-containing fireproofing. Since it was not possible to view these exterior support beams, quantities are not included for the beams. A previous survey of the spray-on fireproofing indicated there is approximately 39,596 square feet of spray-on fireproofing in the building.

Overspray of the asbestos-containing spray-on fireproofing was observed above the ceiling tiles on electrical conduit, concrete decking and duct work. There are certain areas where no fireproofing is evident on the beams, but the exterior of the duct work is contaminated with spray-on fireproofing overspray. Due to the presence of suspect dust and debris on the ceiling tiles and the possibility of delamination of the spray-on, proper Operation & Maintenance (O&M) procedures must be followed whenever working on or above the ceiling tiles.

In Rooms N411, N411A, N417, N417C, N417E, N450, N512, N514, N518, N519, N520, N521, N531, N534, N533, N540, N548, N556, N563, N595, N625, N625A, N625B, N625E, and N625F carpeting is covering the asbestos containing floor tile. This should be noted in case the carpeting is removed during any proposed renovation project. If the floor tile comes up with the carpet, the carpet should then be removed by Facilities Management Asbestos Abatement Unit.

Spray-on fireproofing debris was found on ceiling tiles located directly under the support beams. It is recommended that proper Operations and Maintenance procedures be used when access above the ceiling tiles.

In the small rooms numbered 439 thru 481, there were only a few hatches to access above the sheetrock ceiling. The materials visible above the ceiling were pipe insulation, spray-on fireproofing, plaster, and fiberglass batting which was contaminated with asbestos-containing fireproofing. This area is listed as an interstitial space in the material identification inventory. The material quantities for this area were estimated using the original plumbing blue prints.

In some areas of the building plaster is covering a sheetrock substrate. The sheetrock was difficult to locate, but samples of the material were taken, and tested none-detected for asbestos content.

The foam insulation with foil backing located behind the recessed radiators in the building was not listed in the Appendix 1 tables. This material was sampled and the foil/foam was none-detected for asbestos.

The grey concrete block sealer located between the concrete blocks and the concrete deck contains asbestos. This material was not listed in Appendix 1. The grey sealer is located in most areas where the block walls meet the concrete deck. This material is considered nonfriable and should it be impacted, proper O & M procedures should be used in order to not render it friable.

### 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 S-50A, N442 and N750 were inaccessible at the time of the survey.

Sampling of roofing materials was conducted on February 8, 1995. Results from the roof survey are available from the DEHS Asbestos group under project number 020-95-016.

**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.

MATERIAL TYPE	LOW RANGE	HIGH RANGE
• spray-on fireproofing	\$653,334	\$1,069,092
• thermal system insulation	\$605,475	\$785,462
• floor tile & adhesive	\$237,396	\$474,792
• spray-on & thermal debris	\$49,806	\$76,001
• white soft textured spray-on	\$25,465	\$41,670
• lab top, sink undercoats & transite	\$2,476	\$3,597
• contaminated soil	\$255	\$425
<b>TOTAL</b>	<b>\$1,574,207</b>	<b>\$2,451,039</b>

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 Dave Klaustermeier at 627-4887.

Written By:

Joan Goar  
Environmental Health & Safety  
Asbestos Group Senior Technician

Dave Klaustermeier  
Environmental Health & Safety  
Asbestos Group Senior Technician

Reviewed By:

Roger L. Jeremiah  
Environmental Health & Safety  
Asbestos Group Manager

cc: John Sundsmo  
Jo Ann Matson