

November 19, 2002

REPORT: Full Building Survey

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SUBJECT: Asbestos Material Survey - Bell Museum East & West Sections
EH&S Project No: 061-94-072 & 061-94-074
Client Project No: for database

Scope of Work: A full building asbestos material survey was conducted on June 1, 1994. 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 above mentioned sections of Bell Museum.

Project Description: On the **East Section** one hundred and thirty-one (131) bulk samples of suspect ACM were collected on-site and one hundred and seven (107) analyzed via polarized light microscopy (PLM) by Twin City Engineering for asbestos content. Furthermore, on the **West Section** eighty-seven (87) bulk samples of suspect ACM were collected on-site and sixty-nine (69) analyzed via polarized light microscopy (PLM) at Environmental Health and Safety 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.

EAST SECTION RESULTS

The following friable or potentially friable materials tested positive as ACM in the **East Section**:

- <4" white fibrous pipe insulation and associated pipe fitting insulation (1 & 2)
- <4" aircell pipe insulation and associated pipe fitting insulation (3 & 4)
- <4" felt with tar pipe insulation and associated pipe fitting insulation (5 & 6)
- <4" pipe fitting insulation on fiberglass with tar pipe insulation (8)
- <4" blue fibrous pipe insulation (76)
- 4"-8" white fibrous pipe insulation and associated pipe fitting insulation (10 & 11)
- 4"-8" aircell pipe insulation and associated pipe fitting insulation (12 & 13)
- 4"-8" felt with tar pipe insulation and associated pipe fitting insulation (14 & 15)
- 4"-8" pink fibrous pipe insulation and associated pipe fitting insulation (74 & 75)
- 9"-14" white fibrous pipe insulation and associated pipe fitting insulation (19 & 20)
- 9"x9" floor tile, black with white streaks (31)
- 9"x9" floor tile, brown (32)
- 9"x9" floor tile, beige with white streaks (33)
- 9"x9" floor tile, gray with white streaks (34)

- **12"x36" black stair tile (35)**
- **12"x12" floor tile, rust with brown and white mottling (40)**
- **12"x12" floor tile, white with tan streaks (42)**
- **black lab top (66)**
- **tarpaper duct insulation (72)**
- **tar on fiberboard (73)**

The following suspect materials tested none detected (ND) as ACM in the **East Section:**

- <4" fiberglass with tar pipe insulation and associated pipe fitting insulation (7)
- <4" fibrous pipe fitting insulation on fiberglass (9)
- <4" fibrous pipe fitting insulation on blue fibrous pipe insulation (77)
- 4"-8" fiberglass with tar pipe insulation and associated pipe fitting insulation (16 & 17)
- ceiling plaster (24)
- wall plaster (25)
- red brick mortar (26)
- clay tile mortar (27)
- sheet rock and taping compound (29)
- baseboard adhesive (30)
- 4"x4" floor tile, blue (36)
- 4"x4" floor tile, gray (37)
- 12"x12" floor tile, brown with dark brown streaks (41)
- 12"x12" floor tile, black with white streaks (43)
- floor tile adhesive (31.5, 32.5, 36.5, 37.5, 41.5, & 43.5)
- 12"x12" ceiling tile, peg hole (51)
- 12"x12" ceiling tile, white rough (52)
- ceiling tile adhesive (51.5 & 52.5)
- ceramic tile mortar (61)
- concrete block mortar (64)
- canvas vibration joint (65)
- stage curtain (black) (67)
- stage curtain (peach) (68)
- brown linoleum (69)
- black linoleum (70)
- brown pipe putty (78)

The following nonfriable with low potential to become friable materials tested positive as ACM in the **East Section:**

- **floor tile adhesive (33.5, 34.5, 35.5, 40.5, & 42.5)**
- **black tar wrap (79)**

WEST SECTION RESULTS

The following friable or potentially friable materials tested positive as ACM in the **West Section:**

- **<4" white fibrous pipe insulation and associated pipe fitting insulation (1 & 2)**
- **<4" fibrous pipe fitting insulation on fiberglass with tar pipe insulation (8)**
- **<4" fibrous pipe fitting insulation on fiberglass insulation (9)**
- **4"-8" white fibrous pipe insulation (10)**
- **4"-8" fibrous pipe fitting insulation on fiberglass with tar pipe insulation (17)**
- **9"-14" white fibrous pipe insulation and associated pipe fitting insulation (19 & 20)**
- **9"x9" floor tile, beige with pink and blue and white (31)**
- **9"x9" floor tile, gray marble (32)**
- **9"x9" floor tile, white with black swirls (33)**
- **2"x2" ceiling tile, random pinhole (55)**
- **2"x2" ceiling tile, crater fissure pinhole (57)**

- **transite (71)**

The following suspect materials tested none detected (ND) as ACM in the **West Section**:

- <4" fiberglass with tar pipe insulation (7)
- 4"-8" fiberglass with tar pipe insulation (16)
- 9"-14" fiberglass with tar pipe insulation and associated pipe fitting insulation (76 & 77)
- spray-on fireproofing (23)
- ceiling plaster (24)
- baseboard adhesive (30)
- 12"x12" ceiling tile, gray acoustical (51)
- ceiling tile adhesive (51.5)
- 2'x2' ceiling tile, fissured pinhole (54)
- 2'x2' ceiling tile, crater pinhole (56)
- 2'x2' ceiling tile, cratered (62)
- 2'x4' ceiling tile, fissured pinhole (58)
- canvas vibration joint (65)
- black lab top (66)
- troweled-on plaster (68)
- concrete block mortar (69)
- yellow textured flooring (70)
- black/white/gray flooring (74)
- brown floor mastic (75)

The following nonfriable with low potential to become friable materials tested positive as ACM in the **West Section**:

- **floor tile adhesive (31.5, 32.5, & 33.5)**
- **sink undercoat, black (64)**
- **sink undercoat, white (67)**
- **galbestos (72)**
- **tar on metal siding (73)**

The following materials in the **West Section** tested less than 1% asbestos:

- 4"-8" fibrous pipe fitting insulation on white fibrous pipe insulation (11)
- 9"-14" fibrous pipe fitting insulation on fiberglass (21)
- wall plaster (25)
- sheet rock and taping compound (29)
- tar/canvas wall covering (63)

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

2. Facilities Management:

Several materials were analyzed as containing less than one per-cent (<1%) asbestos. Though these materials are not regulated by MDH or EPA, proper operations and maintenance procedures must be followed to meet OSHA guidelines. OSHA defines any material containing 0.1% asbestos as a potential hazard to worker

safety. As with any dust creating activity, precautions and work practices should be implemented to minimize nuisance dust levels. Dust suppression techniques (misting the air with water and keeping materials wet during general construction activities) should be required of the general contractor.

Asbestos containing ceiling tiles were found on the **West Section** in the following areas: Rooms 290, 292, 294, 340, 342, and 344 . Proper Operation & Maintenance (O&M) procedures should be followed whenever working on or above these ceiling tiles.

In the Appendices, material descriptions followed by a date refer to samples referenced from previous surveys conducted by Braun Environmental Consultants or by the Department of Environmental Health & Safety. The date refers to the original sampling date.

Aircell found in the **East Section** was assumed to be positive and not tested. Also, tar on fiberboard found in the **East Section** was inaccessible for testing and assumed positive.

3. General

Throughout the **East Section** of the building , plaster ceilings were inaccessible. Also, in rooms 125 and 225 , there was no access behind possible hollow walls on museum exhibits. In these areas, pipe insulation could be seen above the ceilings but access was limited. Extreme care should be taken around these exhibits.

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.

The quantities listed reflect the visibility available at the time of the survey.

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
<u>EAST SECTION</u>		
• Thermal System Insulation	\$55,616.00	\$70,693.00
• Floor Tile & Adhesive	\$18,258.00	\$36,516.00
• Tar Duct Insulation	\$480.00	\$960.00
• Tar on Fiberboard	\$400.00	\$800.00
• Black Lab Tops	\$375.00	\$563.00
TOTAL	\$75,129.00	\$109,532.00
<u>WEST SECTION</u>		
• Thermal System Insulation	\$61,669.00	\$79,900.00
• Floor Tile & Adhesive	\$3,658.00	\$7,316.00
• Ceiling Tile Adhesive	\$19,108.00	\$38,216.00
• Ceiling Tile	\$2,613.00	\$5,226.00
• Transite	\$750.00	\$1,125.00
• Galbestos	\$2,376.00	\$4,752.00
• Tar on Metal Siding	\$5,580.00	\$11,160.00
TOTAL	\$95,754.00	\$147,695.00

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 Bryan Angstman at 627-4861.

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