

NATIONAL RESEARCH COUNCIL CANADA
100 SUSSEX DRIVE
OTTAWA, ONTARIO
K1A 0R6



**DESIGNATED SUBSTANCES SURVEY
BUILDING S-77
OTTAWA, ONTARIO**

Prepared by:



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EXECUTIVE SUMMARY

Oakhill Environmental (Oakhill) was retained by National Research Council Canada (NRC) to conduct a designated substances survey within Building S-77 in Ottawa, Ontario. All site work was completed from May 7th to June 29th, 2007.

All work carried out meets the requirements of the Ontario Occupational Health and Safety Act and WHMIS Regulation (formerly Bill 208). The purpose of the investigation was to identify any potential designated substances and mould.

Based on the visual inspection and laboratory analyses, designated substances were identified to be present in the facility. A summary of the survey recommendations is presented in Table 1.

Table 1 - Summary of Findings and Recommendations

| Issue | Comments | Recommendations |
|----------|--|--|
| Asbestos | South Corridor and Rooms B146, B148, B148A, B154, B156, B158 (FS#SB02) | |
| | Damaged MagBlock pipe insulation was identified on the hot water heating system. (1.2 LM) | Eight encapsulations are required on the damaged MagBlock pipe insulation on the hot water heating system. |
| | Two damaged mud joint compound fittings were identified on the hot water heating system. | Encapsulate the two damaged mud joint compound fittings on the hot water heating system. |
| | Damaged MagBlock pipe insulation was identified on the steam system. (0.1 LM) | One encapsulation is required on the damaged MagBlock pipe insulation on the steam system. |
| | Damaged MagBlock pipe insulation (under fibreglass pipe insulation) was identified on the steam system. (0.5 LM) | Remove the damaged MagBlock pipe insulation (under fibreglass pipe insulation) on the steam system. |
| | One damaged mud joint compound fitting was identified on the steam system. | Encapsulate the one damaged mud joint compound fitting on the steam system. |
| | One severely damaged mud joint compound fitting insulation (residual) was identified on the steam system. | Remove the one severely damaged mud joint compound fitting insulation (residual) on the steam system. |
| | Damaged duct insulation (fibreglass with tar paper and ACM parging) was identified on the duct system. (0.8 LM) | Two encapsulations are required on the damaged duct insulation on the duct system. |



| Issue | Comments | Recommendations |
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| | Severely damaged duct insulation (fibreglass with tar paper and ACM parging) was identified on the duct system. (0.8 LM) | Two removals are required on the damaged duct insulation on the duct system. |
| | An intact and unconnected section of MagBlock pipe insulation was identified. (3 LM) | Remove the intact and unconnected section of MagBlock pipe insulation. |
| East Corridor and Rooms B29, B37, B41, B43 (FS#SB03) | | |
| | ACM debris (MagBlock pipe insulation) was identified on top of the sprinkler system. (0.6 m ²) | Clean-up ACM debris observed on top of the sprinkler system. |
| | Damaged sweat wrap pipe insulation (with tar paper) was identified on the river water system. (0.1 LM) | One encapsulation is required on the damaged sweat wrap pipe insulation on the river water system. |
| | Damaged MagBlock pipe insulation was identified on the hot water heating system. (0.9 LM) | Four encapsulations are required on the damaged MagBlock pipe insulation on the hot water heating system. |
| | Damaged MagBlock pipe insulation was identified on the hot water heating system. (0.5 LM) | Remove the damaged MagBlock pipe insulation on the hot water heating system. |
| | Three damaged mud joint compound fittings were identified on the hot water heating system. | Encapsulate the three damaged mud joint compound fittings on the hot water heating system. |
| | One severely damaged mud joint compound fitting was identified on the hot water heating system. | Remove the one severely damaged mud joint compound fitting on the hot water heating system. |
| | ACM debris (MagBlock pipe insulation) was identified on top of the hot water heating system. (0.2 m ²) | Clean-up ACM debris observed on top of the hot water heating system. |
| North Corridor (FS#SB05) | | |
| | Damaged MagBlock pipe insulation was identified on the steam system. (0.3 LM) | Remove the damaged MagBlock pipe insulation on the steam system. |
| | One severely damaged mud joint compound fitting was identified on the steam system. | Remove the one severely damaged mud joint compound fitting on the steam system. |
| | Damaged Aircell pipe insulation was identified on the domestic cold water system. (0.4 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the domestic cold water system. |
| | Damaged MagBlock pipe insulation was identified on the hot water heating system. (0.1 LM) | One encapsulation is required on the damaged MagBlock pipe insulation on the hot water heating system. |



| Issue | Comments | Recommendations |
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| | Damaged MagBlock pipe insulation was identified on the hot water heating system. (0.8 LM) | Two removals are required on the damaged MagBlock pipe insulation on the hot water heating system. |
| | Three severely damaged mud joint compound fittings were identified on the hot water heating system. | Remove the three severely damaged mud joint compound fittings on the hot water heating system. |
| | ACM debris (MagBlock pipe insulation) was identified on top of the hot water heating system. (0.5 m ²) | Clean-up ACM debris observed on top of the hot water heating system. |
| Room B3 (FS#SB06) | | |
| | Damaged sweat wrap pipe insulation (with tar paper) was identified on the river water system. (0.2 LM) | One encapsulation is required on the damaged sweat wrap pipe insulation on the river water system. |
| | Damaged Aircell pipe insulation was identified on the domestic cold water system. (0.2 LM) | Two encapsulations are required on the damaged Aircell pipe insulation on the domestic cold water system. |
| Room B21 (FS#SB10) | | |
| | Severely damaged 9"x9" floor tile was identified on the floor. (10 m ²) | Remove the severely damaged 9"x9" floor tile on the floor. |
| | Two severely damaged mud joint compound fittings were identified on the hot water heating system. | Remove the two severely damaged mud joint compound fittings on the hot water heating system. |
| | Damaged Aircell pipe insulation was identified on the domestic cold water system. (0.3 LM) | Remove the damaged Aircell pipe insulation on the domestic cold water system. |
| Rooms B9 & B15 (FS#SB11) | | |
| | Two damaged mud joint compound fittings were identified on the hot water heating system. | Encapsulate the two damaged mud joint compound fittings on the hot water heating system. |
| Rooms B5 & B7 (FS#SB12) | | |
| | Severely damaged 9"x9" floor tile was identified on the floor. (1 m ²) | Remove the severely damaged 9"x9" floor tile on the floor. |
| | Open ended Aircell pipe insulation was identified on the domestic hot water system. (0.2 LM) | One encapsulation is required on the open ended Aircell pipe insulation on the domestic hot water system. |
| | One severely damaged mud joint compound fitting was identified on the hot water heating system. | Remove the one severely damaged mud joint compound fitting on the hot water heating system. |
| | One damaged mud joint compound fitting was identified on the domestic cold water system. | Encapsulate the one damaged mud joint compound fitting on the domestic cold water system. |



| Issue | Comments | Recommendations |
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| | ACM debris (mud joint compound fitting insulation) was identified on the floor from the hot water heating system. (0.3 m ²) | Clean-up ACM debris observed on the floor from the hot water heating system. |
| Rooms B5A-C (FS#SB13) | | |
| | Severely damaged 9"x9" floor tile was identified on the floor. (3 m ²) | Remove the severely damaged 9"x9" floor tile on the floor. |
| Room B161A (FS#SB14) | | |
| | Two areas of damaged MagBlock pipe insulation were identified on the hot water heating system. (0.4 LM) | Two encapsulations are required on the damaged MagBlock pipe insulation on the hot water heating system. |
| | One severely damaged mud joint compound fitting insulation was identified on the hot water heating system. | Remove the one damaged mud joint compound fitting on the hot water heating system. |
| Rooms B157 & B157B (FS#SB15) | | |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system. (0.2 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the domestic hot water system. |
| | One damaged mud joint compound fitting was identified on the domestic cold water system. | Encapsulate the one damaged mud joint compound fitting on the domestic cold water system. |
| Rooms B129, B135, B141 & B141A (FS#SB17) | | |
| | Damaged MagBlock pipe insulation was identified on the hot water heating system. (0.2 LM) | Remove the damaged MagBlock pipe insulation on the hot water heating system. |
| | One severely damaged mud joint compound fitting was identified on the domestic cold water system. | Remove the one severely damaged mud joint compound fitting on the domestic cold water system. |
| West Corridor (FS#SB19) | | |
| | Damaged MagBlock pipe insulation was identified on the steam system. (0.5 LM) | One encapsulation is required on the damaged MagBlock pipe insulation on the steam system. |
| | Damaged sweat wrap pipe insulation (with tar paper) was identified on the river water system. (1.6 LM) | Six encapsulations are required on the damaged sweat wrap pipe insulation (with tar paper) on the river water system. |
| | Four damaged mud joint compound fittings were identified on the river water system. | Encapsulate the four damaged mud joint compound fittings on the river water system. |
| | Damaged Aircell pipe insulation was identified on a disconnected system. (0.1 LM) | Remove the damaged Aircell pipe insulation on the disconnected system. |



| Issue | Comments | Recommendations |
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| | Damaged MagBlock pipe insulation was identified on a disconnected system. (0.1 LM) | Remove the damaged MagBlock pipe insulation on the disconnected system. |
| Rooms B161, 161D & 161L (FS#SB21) | | |
| | Damaged fireproofing insulation was identified on the ceiling. (0.75 m ²) | Three encapsulations are required on the damaged fireproofing insulation on the ceiling. |
| Room B163 (FS#SB28) | | |
| | Two damaged mud joint compound fittings were identified on the condensate system. | Encapsulate the two damaged mud joint compound fittings on the condensate system. |
| | One severely damaged mud joint compound fitting was identified on the condensate system. | Remove the one severely damaged mud joint compound fitting on the condensate system. |
| | One damaged mud joint compound fitting was identified on the steam system. | Encapsulate the one damaged mud joint compound fitting on the steam system. |
| | Damaged MagBlock pipe insulation was identified on the condensate system. (0.2 LM) | Two encapsulations are required on the damaged MagBlock pipe insulation on the condensate system. |
| | Damaged MagBlock pipe insulation was identified on the steam system. (0.4 LM) | Three encapsulations are required on the damaged MagBlock pipe insulation on the steam system. |
| | Damaged Aircell pipe insulation was identified on the hot water heating system. (1 LM) | Seven encapsulations are required on the damaged Aircell pipe insulation on the hot water heating system. |
| | ACM debris (Aircell pipe insulation) was identified on top of the duct system. (0.25 m ²) | Clean-up ACM debris (Aircell pipe insulation) observed on top of the duct system. |
| Rooms B121 & 121A including stairwell (FS#SB32) | | |
| | Four severely damaged areas of transite panel were identified on the wall. (0.4 m ²) | Four removals are required of the damaged transite panel on the wall. |
| | One damaged mud joint compound fitting was identified on the hot water heating system. | Encapsulate the one damaged mud joint compound fitting on the hot water heating system. |
| Room B40K (FS#SB38) | | |
| | Damaged Aircell pipe insulation was identified on the hot water heating system. (0.2 LM) | Two encapsulations are required on the damaged Aircell pipe insulation on the hot water heating system. |
| Rooms B40C & B40D (FS#SB41) | | |
| | Damaged fireproofing insulation was identified on the columns. (3.3 m ²) | Three encapsulations are required on the damaged fireproofing insulation on the columns. |



| Issue | Comments | Recommendations |
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| Room B40N (FS#SB42) | | |
| | Damaged fireproofing insulation was identified on a vertical column. (0.5 m ²) | Six encapsulations are required on the damaged fireproofing insulation on the vertical column. |
| Room B162 (FS#SB44) | | |
| | ACM debris (fireproofing) was identified lying on top of the ceiling of room 162E. (1 m ²) | Clean-up ACM debris (fireproofing) observed on top of the ceiling (of room 162E). |
| | Damaged Aircell pipe insulation was identified on the condensate system. (0.3 LM) | Remove the damaged Aircell pipe insulation on the condensate system. |
| | Damaged Aircell pipe insulation was identified on the steam system. (0.3 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the steam system. |
| | Damaged Aircell pipe insulation was identified on the condensate system. (0.5 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the condensate system. |
| | Two damaged mud joint compound fittings were identified on the condensate system. | Encapsulate the two damaged mud joint compound fittings on the condensate system. |
| Room B44 (FS#SB46) | | |
| | ACM debris (Aircell and MagBlock pipe insulation) was identified on the floor. (1 m ²) | Clean-up ACM debris (Aircell and MagBlock pipe insulation) observed on the floor. |
| | Severely damaged Aircell pipe insulation was identified on the hot water heating system. (0.3 LM) | Remove the severely damaged Aircell pipe insulation on the hot water heating system. |
| | Damaged Aircell pipe insulation was identified on the hot water heating system. (0.2 LM) | Two encapsulations are required on the damaged Aircell pipe insulation on the hot water heating system. |
| | Two severely damaged mud joint compound fittings were identified on the hot water heating system. | Remove the two severely damaged mud joint compound fittings on the hot water heating system. |
| | One damaged mud joint compound fitting was identified on the hot water heating system. | Encapsulate the one damaged mud joint compound fitting on the hot water heating system. |
| Rooms 21, 23, 25, 27, 29, 39, 43, 45, 47, 49, 53 & 57 (FS#B004) | | |
| | Damaged Aircell pipe insulation was identified on the hot water heating system. (0.1 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the hot water heating system. |
| Room 72 (FS#B042) | | |



| Issue | Comments | Recommendations |
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| | Damaged Aircell pipe insulation was identified on the hot water heating system. (0.1 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the hot water heating system. |
| | One damaged mud joint compound fitting was identified on the domestic cold water system. | Encapsulate the one damaged mud joint compound fitting on the domestic cold water system. |
| Room 1027 (FS#1005) | | |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system. (0.1 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the domestic hot water system. |
| Rooms 1069 & 1071 (FS#1013) | | |
| | Severely damaged Aircell pipe insulation was identified on the domestic hot water system. (0.6 LM) | Remove the severely damaged Aircell pipe insulation on the domestic hot water system. |
| Room 1105 (FS#1022) | | |
| | Two severely damaged mud joint compound fittings were identified on the hot water heating system. | Remove the two severely damaged mud joint compound fittings on the hot water heating system. |
| Room 1107 (FS#1023) | | |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system. (0.4 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the domestic hot water system. |
| Room 1058 (FS#1043) | | |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system. (0.3 LM) | Three encapsulations are required on the damaged Aircell pipe insulation on the domestic hot water system. |
| | Damaged MagBlock pipe insulation was identified on the hot water heating system. (0.4 LM) | Four encapsulations are required on the damaged MagBlock pipe insulation on the hot water heating system. |
| | One damaged mud joint compound fitting was identified on the hot water heating system. | Encapsulate the one damaged mud joint compound fitting on the hot water heating system. |
| | One damaged mud joint compound fitting was identified on the domestic cold water system. | Encapsulate the one damaged mud joint compound fitting on the domestic cold water system. |
| Rooms 1108, 1116 & 1118 (FS#1048) | | |
| | Three damaged mud joint compound fittings were identified on the domestic cold water system. | Encapsulate the three damaged mud joint compound fittings on the domestic cold water system. |
| South Hallway (FS#1058) | | |



| Issue | Comments | Recommendations |
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| | Damaged MagBlock pipe insulation was identified on the hot water heating system above the ceiling. (0.1 LM) | One encapsulation is required on the damaged MagBlock pipe insulation on the hot water heating system above the ceiling. |
| | Severely damaged MagBlock pipe insulation was identified on the hot water heating system above the ceiling. (0.4 LM) | Remove the severely damaged MagBlock pipe insulation on the hot water heating system above the ceiling. |
| | One damaged mud joint compound fitting was identified on the domestic cold water system above the ceiling. | Encapsulate the one damaged mud joint compound fitting on the domestic cold water system above the ceiling. |
| North Hallway (FS#1060) | | |
| | Damaged MagBlock pipe insulation was identified on the hot water heating system above the ceiling. (0.7 LM) | Seven encapsulations are required on the damaged MagBlock pipe insulation on the hot water heating system above the ceiling. |
| | ACM debris (MagBlock pipe insulation & mud joint compound fitting insulation) was identified above the ceiling. (2 m ²) | Clean-up ACM debris (MagBlock pipe insulation & mud joint compound fitting insulation) above the ceiling. |
| Rooms 2095, 2099, 2099A, 2101, 2101A & 2105 (FS#2019) | | |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system. (0.2 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the domestic hot water system. |
| | One severely damaged mud joint compound fitting was identified on the domestic cold water system. | Remove the one severely damaged mud joint compound fitting on the domestic cold water system. |
| Rooms 2115, 2119, 2121, 2125 & 2129 (FS#2023) | | |
| | Damaged MagBlock pipe insulation was identified on the steam system. (0.5 LM) | Two encapsulations are required on the damaged MagBlock pipe insulation on the steam system. |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system. (0.3 LM) | Two encapsulations are required on the damaged Aircell pipe insulation on the domestic hot water system. |
| | Two damaged mud joint compound fittings were identified on the domestic cold water system. | Encapsulate the two damaged mud joint compound fittings on the domestic cold water system. |
| Rooms 2135, 2137, 2143, 2147, 2151, 2151A (FS#2025) | | |
| | Open end of Aircell pipe insulation was identified on the steam system. (0.2 LM) | Two encapsulations are required on the open ends of Aircell pipe insulation on the steam system. |
| Room 2139 (FS#2026) | | |



| Issue | Comments | Recommendations |
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| | Two damaged mud joint compound fittings were identified on the domestic cold water system. | Encapsulate the two damaged mud joint compound fittings on the domestic cold water system. |
| Rooms 2006 & 2008 (FS#2031) | | |
| | ACM debris (mud joint compound fitting insulation) was identified in the limited access hatch. (0.25 m ²) | Clean-up ACM debris (mud joint compound fitting insulation) in the limited access hatch. |
| Hallway (FS#2064) | | |
| | Damaged Aircell pipe insulation was identified on the steam system above the ceiling. (0.2 LM) | Two encapsulations are required on the damaged Aircell pipe insulation on the steam system above the ceiling. |
| Room 3099 (FS#3022) | | |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system. (0.1 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the domestic hot water system. |
| Room 3117 (FS#3026) | | |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system. (0.2 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the domestic hot water system. |
| Rooms 3108, 3108A, 3118 & 3118A (FS#3059) | | |
| | Severely damaged MagBlock pipe insulation was identified on the hot water heating system. (0.2 LM) | Removal is required on the severely damaged MagBlock pipe insulation on the hot water heating system. |
| | Damaged MagBlock pipe insulation was identified on the hot water heating system. (0.1 LM) | One encapsulation is required on the damaged MagBlock pipe insulation on the hot water heating system. |
| Hallway (FS#3073) | | |
| | Severely damaged MagBlock and Aircell pipe insulation and ACM debris are located throughout the south-west corner of this area (43m ²) above the ceiling on the domestic hot water and hot water heating systems. | Type 3 removal is required for this entire 43 m ² area. |
| | Damaged MagBlock pipe insulation was identified on the hot water heating system above the ceiling. (0.2 LM) | Two encapsulations are required on the damaged MagBlock pipe insulation on the hot water heating system above the ceiling. |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system above the ceiling. (1.5 LM) | Twelve encapsulations are required on the damaged Aircell pipe insulation on the domestic hot water system above the ceiling. |



| Issue | Comments | Recommendations |
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| | Two damaged mud joint compound fittings were identified on the domestic hot water system above the ceiling. | Encapsulate the two damaged mud joint compound fittings on the domestic hot water system above the ceiling. |
| | ACM debris (Aircell pipe insulation) was identified above the ceiling. (1 m ²) | Clean-up ACM debris (Aircell pipe insulation) above the ceiling. |
| Rooms 4119, 4119A & 4121 (FS#4001) | | |
| | Damaged Aircell pipe insulation was identified on the domestic hot water system. (0.2 LM) | One encapsulation is required on the damaged Aircell pipe insulation on the domestic hot water system. |
| Rooms 4093 & 4095A (FS#4010) | | |
| | One damaged mud joint compound fitting was identified on the condensate system. | Encapsulate the one damaged mud joint compound fitting on the condensate system. |
| Penthouse 4 (FS#PH10) | | |
| | Damaged MagBlock pipe insulation was identified on the steam. (0.3 LM) | Three encapsulations are required on the damaged MagBlock pipe insulation on the steam system. |
| | Nine damaged mud joint compound fittings were identified on the steam system. | Encapsulate the nine damaged mud joint compound fittings on the steam system. |
| | One severely damaged mud joint compound fitting insulation (residual) was identified on the steam system. | Remove the one severely damaged mud joint compound fitting insulation (residual) on the steam system. |
| | One damaged mud joint compound fitting insulation was identified on the domestic cold water system. | Encapsulate the one damaged mud joint compound fitting on the domestic cold water system. |
| Lead | Sixteen paint samples were submitted for lead analysis. Six of the samples submitted; the dark red and yellow paint in room B12 (FS#SB17), the light grey over red paint in room B129 (FS#SB17), the dark green paint in room B121 (FS#SB32), the black paint in the library (FS#2063), and the medium grey paint in room B15 (FS#SB11) contained greater than 5,000 ppm of lead and are therefore classified as lead-based paint. The remaining samples were not found to contain significant levels of lead (i.e., equal to or greater than | The draft Proposed Lead Regulation on Construction Projects, May 5, 1995, (enforced by the Ministry of Labour) does not require removal of lead paint or lead-based materials, unless work on these materials is likely to produce lead fumes or dust, for example during welding, torch cutting, grinding, sanding or sandblasting. In the event that such work is conducted at this facility, ensure that lead fumes or dust do not exceed the maximum allowable Time Weighted Average Exposure Value (TWAEV) of 0.15 mg/m ³ as prescribed by the OHSA. |



| Issue | Comments | Recommendations |
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| | 5000 ppm). Lead may also be present in the solder used on copper domestic water lines, as caulking in bell fittings for cast iron drainage pipes, in glazing on the ceramic tiles and in electrical equipment, wiring or fixtures. | |
| Mercury | Mercury vapour may be present in fluorescent light tubes and thermostats. Mercury may also be present in paints and adhesives. | Mercury, or mercury vapour within light fixtures, pose no risk to workers or occupants, provided the mercury containers remain intact and undisturbed. Where possible, fluorescent lights should be recycled at an approved recycling facility. Mercury must be handled and disposed of in accordance with O. Reg. 390/00 and O. Reg. 558/00. |
| Silica | Silica may be present in concrete, cement mortar and non-fibreglass acoustic ceiling tiles. | Ensure workers performing demolition work are not exposed to airborne silica levels in excess of 0.20 mg/m ³ by providing respiratory protection, and/or wetting down work area, and providing workers with a facility to properly wash prior to exiting the work area as prescribed by O.Reg.845/90. |
| Mould | Rms. B12, B24, B36 & B38 (FS# SB01) | |
| | Mould was observed in four locations on the chiller system pipe insulation below the solid ceiling. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| | Corridor (FS# SB07) | |
| | Mould was observed in one location on the duct system insulation below the solid ceiling. (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| | Room B17 (FS# SB08) | |
| | Mould was observed in three locations on the chiller system pipe insulation below the solid ceiling. (>1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room B159A (FS# SB31) | | |



| Issue | Comments | Recommendations |
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| | Mould was observed in four locations on the chiller and steam system pipe insulation below the solid ceiling. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room B40B (FS# SB34) | | |
| | Mould was observed in three locations on the chiller system pipe insulation below the solid ceiling. (<1 m ² respectively) | Bulk fungal analysis was performed. The following fungi were identified: ascomycetes NOS, Aspergillus / Penicillium, Cladosporium, Stachybotrys and Ulocladium. Only ascomycetes and Ulocladium indicate fungal growth. Ulocladium is classified as a human allergenic and is normally found in dead plant material. Ascomycetes is a class of fungi that may cause allergies in humans but for plants they are plant pathogens. Oakhill recommends that the mould be removed and insulating materials that may be used to re-insulate the chiller pipe insulation be re-evaluated to prevent future occurrences of mould growth. |
| Room B162 (FS# SB44) | | |
| | Mould was observed in one location on the chiller system pipe insulation below the solid ceiling. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room B44 (FS# SB46) | | |
| | Mould was observed in four locations on the chiller system pipe insulation below the solid ceiling. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 41 (FS# B005) | | |
| | Mould was observed in four locations on the chiller system fitting insulation below the solid ceiling. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 101, 101A & 101B (FS# B015) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling (>1 m ²) and in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |



| Issue | Comments | Recommendations |
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| Room 111A (FS# B021) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 121 (FS# B024) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling (<1 m ²) and in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 135, 135A-B & 141 (FS# B027) | | |
| | Mould was observed in one location on the duct system below the solid ceiling (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 151 (FS# B031) | | |
| | Mould was observed in two locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 153 (FS# B032) | | |
| | Mould was observed in one location (<1 m ²) and one location (>1 m ²) on the chiller system pipe insulation below the solid ceiling. | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 157 & 157A-C (FS# B033) | | |
| | Mould was observed in two locations on the chiller system pipe insulation (<1 m ² respectively), two locations on the 2' x 4' ceiling tile (<1 m ² respectively) and one location on the wood panelling (>1 m ²) below the suspended ceiling. Although not confirmed through intrusive investigation, there is potential mould growth behind the wall cavity in this area. | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 24, 36 & 36A (FS# B041) | | |



| Issue | Comments | Recommendations |
|---|--|--|
| | Mould was observed in two locations on the chiller system pipe insulation below the solid ceiling. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 58 (FS# B045) | | |
| | Mould was observed in one location on the chiller system pipe insulation (<1 m ²) and one location on the hot water heating system pipe insulation (<1 m ²) below the solid ceiling. | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 100 (FS# B054) | | |
| | Mould was observed in two locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 148 & 148A-C (FS# B063) | | |
| | Mould was observed in three locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 158 (FS# B066) | | |
| | Mould was observed in one location on the chiller system pipe insulation (<1 m ²) and one location on the hot water heating system pipe insulation (<1 m ²) below the solid ceiling. | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 1047A-H, 1056A, 1057 & 1061 (FS# 1009) | | |
| | Mould was observed in two locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 1036 (FS# 1039) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 1064 & 1064 A-D (FS# 1045) | | |



| Issue | Comments | Recommendations |
|--|---|--|
| | Mould was observed in two locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 1146 (FS# 1054) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling (>1 m ²) and in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 1150A (FS# 1056) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 1152, 1152A & 1158 (FS# 1057) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling (<1 m ²) and in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| South Hallway (FS# 1058) | | |
| | Mould was observed in two locations on the chiller system pipe insulation above the solid ceiling. (>1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| West Hallway (FS# 1061) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the solid ceiling. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 1160, 1160A & 1160B (FS# 1062) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling (<1 m ²) and in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 2003, 2007, 2013, 2017, 2017A, 2006, 2009, 2011 & 2003B (FS# 2001) | | |



| Issue | Comments | Recommendations |
|---|---|--|
| | Mould was observed in three locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 2029, 2031 & 2031B (FS# 2003) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 2033, 2033A, 2035, 2035A, 2037 & 2037A (FS# 2004) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling (<1 m ²) and in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 2051 & 2051A-D (FS# 2006) | | |
| | Mould was observed in two locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2063 (FS# 2010) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling. (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2069 (FS# 2013) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2073 (FS# 2015) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2077, 2083 & 2087 (FS# 2016) | | |



| Issue | Comments | Recommendations |
|---|--|--|
| | Mould was observed in one location on the 2' x 4' ceiling tile (>1 m ²) and in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2089 (FS# 2017) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2093 (FS# 2018) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2109 (FS# 2021) | | |
| | Mould was observed in two locations on the chiller system pipe insulation above the suspended ceiling (<1 m ² respectively) and in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 2135, 2137, 2143, 2147, 2151 & 2151A (FS# 2025) | | |
| | Mould was observed in two locations on the chiller system pipe insulation above the suspended ceiling (<1 m ² respectively) and in one location on the 2' x 4' ceiling tile. (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2139 (FS# 2026) | | |
| | Mould was observed in multiple locations on the chiller system pipe insulation above the suspended ceiling. (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 2153A, 2155 & 2155A (FS# 2028) | | |
| | Mould was observed in two locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2157 (FS# 2029) | | |



| Issue | Comments | Recommendations |
|-------------------------------|--|--|
| | Mould was observed in two locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2012 (FS# 2032) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2016 (FS# 2034) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 2004 & 2044A (FS# 2042) | | |
| | Mould was observed in two locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2072 (FS# 2048) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 2092 & 2094 (FS# 2049) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 2108 (FS# 2052) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Hallway (FS# 2064) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the solid ceiling. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |



| Issue | Comments | Recommendations |
|-------------------------------------|--|--|
| Rooms 3073 & 3077 (FS# 3016) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 3085 (FS# 3019) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 3089 & 3091S (FS# 3020) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 3105, 3109A & 3109 (FS# 3024) | | |
| | Mould was observed in one location on the chiller system pipe insulation above the suspended ceiling (<1 m ² respectively) and in three locations on the 2' x 4' ceiling tile. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 3121 & 3121A (FS# 3028) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 3137 & 3141 (FS# 3033) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 3143 & 3143A-B (FS# 3034) | | |
| | Mould was observed in one location on the chiller system pipe insulation below the solid ceiling. (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 3024 & 3024A-E (FS# 3045) | | |



| Issue | Comments | Recommendations |
|---|--|--|
| | Mould was observed in two locations on the chiller system pipe insulation above the suspended ceiling (>1 m ² & <1 m ² respectively) and in one location on the 2' x 4' ceiling tile. (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 3108, 3108A, 3118, & 3118A (FS# 3059) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Hallway (FS# 3073) | | |
| | Mould was observed in four locations on the chiller system pipe insulation above the solid ceiling. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 4107 (FS# 4006) | | |
| | Mould was observed in one location on the 2' x 4' ceiling tile. (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Rooms 4116 & 4104 (FS# 4018) | | |
| | Mould was observed in one location on the chiller system pipe insulation below the solid ceiling. (<1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Room 4095 (FS# 4023) | | |
| | Mould was observed in two locations on the chiller system pipe insulation above the solid ceiling. (<1 m ² respectively) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |
| Penthouse 5 (FS# PH02) | | |
| | Mould was observed in various locations on the chiller system pipe insulation below the solid ceiling. (>1 m ²) | Bulk fungal analysis should be performed to the species level. Once the hazard is qualified, the mould should be removed and the source of the moisture should be mitigated. |

None of the other designated substances were observed during the course of the survey inspection.



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1.0 INTRODUCTION

Oakhill Environmental (Oakhill) was retained by the National Research Council Canada (NRC) to perform a survey for Designated Substances and mould of Building S-77 in Ottawa, Ontario. Building S-77 was surveyed from May 7th to June 29th, 2007.

The purpose of the investigation was to identify any building materials or equipment containing certain substances termed “Designated Substances” and mould.

This survey will enable NRC to:

1. Manage asbestos containing materials (ACM’s) to ensure that these materials are in good condition and provide recommendations for ACM’s that are in need of repair,
2. Provide this report to NRC building managers, project managers, contractors and subcontracts enabling them to comply with O. Reg. 278/05, the regulation regarding asbestos on construction projects and in buildings and repair operations, and
3. Provide a comprehensive survey, which will enable NRC to develop a Management Plan to deal with designated substances.

1.1 Limitations

This report details the accessible Designated Substances found within the building and the exterior walls. Representative views were made above accessible suspended ceiling systems. Throughout the process of inspection there were, on numerous occasions, areas that were inaccessible. These areas include but are not limited to: areas above solid ceilings, areas behind solid walls and internal components of machinery or equipment. These areas require intrusive investigative techniques, which may compromise the integrity of that system. An example of an intrusive issue is asphaltic roofing felts (tar paper), which may contain asbestos. However, due to the potential for damages to the building and its contents, as well as safety reasons, no samples were obtained from the roofing systems at the facility. Intrusive investigative techniques are only undertaken at the expressed request of NRC staff where forthcoming renovations projects are known.

Any area that was not inspected and considered inaccessible in this report should be dealt with cautiously in future endeavours before undertaking any form of work, as there may be ACM in this area. In such future situations, samples should be collected and analyzed of all suspect ACM before commencing work. Any area that was not accessible at the time of inspection would be noted within the report.



The report reflects the observations of accessed areas, findings and analysis of materials sampled during the survey. Designated Substances may have been removed from or added to the project area. It is the NRC's responsibility to disclose whether any Designated Substances have been added to or removed from the project area.

The material in it reflects Oakhill's best judgement based on the information discovered at the time of preparation and within the Designated Substance Survey scope of work. There may be materials on-site, which are not represented by these investigations. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Oakhill accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

2.0 SCOPE OF WORK

The purpose of the investigation was to identify any building materials or equipment containing certain substances termed "Designated Substances" and mould. The scope defined for this project is summarized below.

1. To provide assessments for the presence of Designated Substances which include:
 - Acrylonitrile
 - Arsenic
 - Asbestos
 - Benzene
 - Coke Oven Emissions
 - Ethylene Oxide
 - Isocyanates
 - Lead
 - Mercury
 - Silica (free crystalline silica)
 - Vinyl Chloride (vinyl chloride monomer, not PVC)
 - And in addition Mould



2. Assessment will include building materials and components incorporated in the structure and finishes (including exterior finishes). Items not included are building and service tunnels, owner or occupant articles within the building (e.g. process materials or equipment, furniture, etc.), soil contaminants, groundwater, vessels, drums or underground storage tanks)
3. To collect samples of suspect building materials to verify the presence of asbestos and lead
4. To provide testing from a certified laboratory on samples collected of suspect asbestos and lead
5. Provide three hard and electronic (PDF) copies of the final report

3.0 REGULATORY CRITERIA, STANDARDS AND GUIDELINES

The following regulatory criteria, standards, and guidelines were applied for the interpretation and reporting of observations, laboratory data, and on-site monitoring data. The building materials and contents were visually examined to determine the presence of the following designated substances in accordance with the requirements of the Ministry of Labour's (MOL) Occupational Health and Safety Act, Section 30:

| | |
|----------------|---|
| Acrylonitrile | O. Reg. 835/90 as amended by O. Reg. 101/04 |
| Arsenic | O. Reg. 836/90 as amended by O. Reg. 102/04 |
| Asbestos | O. Reg. 278/05 and O. Reg. 347/90 |
| Benzene | O. Reg. 839/90 as amended by O. Reg. 105/04 |
| Ethylene Oxide | O. Reg. 841/90 as amended by O. Reg. 107/04 |
| Isocyanates | O. Reg. 842/90 as amended by O. Reg. 108/04 |
| Lead | O. Reg. 843/90 as amended by O. Reg. 109/04 |
| Mercury | O. Reg. 844/90 as amended by O. Reg. 110/04 and the MOL guideline |
| Silica | O. Reg. 845/90 as amended by O. Reg. 111/04 |
| Vinyl Chloride | O. Reg. 846/90 as amended by O. Reg. 112/04 |

Asbestos-Containing Material (ACM) is defined as "Material that contains 0.5% or more asbestos by dry weight". Friable Material is defined as "material that: (a) when dry, can be crumbled, pulverized or powdered by hand pressure, or (b) is crumbled, pulverized or powdered".

For asbestos, lead and silica the above regulations define exposure guidelines for a worker's time-weighted average exposure of the material in air. Airborne levels should not exceed 0.01 fibres/m³ of asbestos in air, 0.15 mg/m³ of lead in air, 4.3 mg/m³ of acrylonitrile in air, 0.2 mg/m³ of arsenic in air, 3.0 mg/m³ of benzene in air and 0.2 mg/m³ of silica in air. The above regulations classify disturbances (Type 1, Type 2, and Type 3), handling requirements, respiratory requirements and monitoring requirements.



The Ministry of Labour published, The Safe Handling of Mercury, A Guideline for the Construction Industry, Jan 1991, outlining the health effects, sources, respiratory protection during the clean up of mercury. From the U.S. Department of Housing and Urban Development, Lead- Based Paint is classified as any paint application containing at least 1.0 milligrams of lead per square centimetre of surface area (1.0 mg/cm²) or at least 0.5% lead content by weight (5,000 ppm) or 5,000 µg/g.

The Provincial Government has issued O. Reg. 558/00 controlled under R.R.O. 1990, Regulation 347 outlining generator, hauler and receiver requirements for wastes dependant on the results of leachate analyses. Provincial and Federal regulations also outline the packaging and transportation of wastes.

4.0 SURVEY METHODOLOGY

4.1 Background Information Review

Reviewing existing reports, interviewing knowledgeable NRC staff, and reviewing as-built drawings allowed Oakhill to obtain a basic understanding of potential issues regarding each building.

4.2 Field Investigation

A detailed visual survey of all accessible areas of the building on a room-by-room basis, including ceiling spaces above removable acoustical ceiling tiles; and wall spaces behind removable panels. Each area or room of the building was assigned a four-digit functional space identification number beginning with 1001. A room-by-room inspection was conducted for Designated Substances in all accessible areas. All suspect ACM and lead were sampled and were categorized with a unique homogeneous material number. Visual assessment of all known and suspect ACM included assessment as to friability, type, quantity, condition, accessibility, appropriate response, as well as comments made on the potential or likelihood of future damage or exposure to ACM by building occupants. Quantification of all ACM's were approximations only, not actual measurements. Square metres or linear metres were generally used for quantifying ACM. All ACM's are documented through functional space forms and photographs.

In the performance of this Designated Substances survey, Oakhill utilized the project team comprised of the following staff:

Mr. Fil Barillaro, M.A.Sc., P.Eng.
Mr. Kevin Christian, M.Sc., P.Geo.
Mr. Bill McGovern
Mr. Raivo Tahiste

Project Manager
QA Reviewer
Environmental Analyst
Environmental Analyst



Mr. Gino Barillaro
Mr. Sean Bagnulo
Ms. Tanya Fiocca

Environmental Analyst
Environmental Analyst
Administration

4.2.1 Homogenous Materials

Materials were grouped to be homogenous. That is, materials that are uniform in colour and texture were assumed to be similar in content. Regarding asbestos, samples collected of suspect materials adhered to O. Reg. 278/05, Table 1 Bulk Material Samples – Section 3 (3), for minimum sample requirements for respective suspect materials and quantities. Samples were randomly collected to be representative of each suspect ACM and lead material and then assigned a homogenous material number accordingly. A homogenous materials list was generated which consists of suspect ACM sampled, with positive materials highlighted. The Homogenous Materials List is located in Table 2 of this report.

4.3 Sample Collection

Collection of bulk samples of suspect materials for submission to AGAT Laboratories Ltd., in Mississauga, Ontario for analysis for asbestos (as percentage asbestos fibre, and type of asbestos fibre) and for lead (ug/g).

4.3.1 Bulk Sample Collection

Oakhill field staff wore half-face respirators with P100 cassettes during bulk sampling events. Building materials were pre-dampened with an application of amended water from a spray bottle to suppress surface and airborne fibres prior to disturbance for sample collection.

The building material sampled was sealed with caulking after sample collection to restore the material to its original condition. Every effort to minimize intrusion of the sampled building materials was always of paramount consideration. Each sample was sealed in a new plastic bag and labeled with a unique sample number and then double bagged. Chain of custody records were completed on-site and submitted with all samples to an approved laboratory.

All bulk materials sampled were randomly collected and are representative of each area of homogenous material. The minimum number of bulk materials to be collected from an area of homogenous material was in accordance with O. Reg. 278/05, Section 3 (3) (Table 1). All analysis of suspect asbestos containing materials was conducted according to O. Reg. 278/05, Section 3 (1) which states that the following standard



be used: U.S. Environmental Protection Agency. Test method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials. June 1993. Sample locations are depicted in Appendix D.

4.3.2 Sample Analysis

All bulk samples were submitted to AGAT Laboratories Inc. (AGAT) in Mississauga, Ontario, an independent laboratory, for analysis.

AGAT has been evaluated and has been found to comply with the criteria and standards established by the Canadian Association for Environmental Laboratories (CAEAL) for asbestos fibre analysis by phase contrast microscopy. The American Industrial Hygiene Association (AIHA) has accredited AGAT for the Industrial Hygiene Laboratory Accreditation Program for Asbestos using optical microscopy. Suspect bulk samples were analyzed using polarized light microscopy, and were based on a “test for first positive” approach. Laboratory results of the asbestos and lead sampling can be found in Appendices B and C respectively.

5.0 FINDINGS AND RECOMMENDATIONS

The results of the survey for designated substances and mould at building S-77 are discussed below.

5.1 Asbestos

All potential asbestos-containing materials sampled have been compiled into a homogenous materials list. Each homogenous material is given a homogeneous number, description, analytical result and corresponding sample numbers. The homogeneous materials list for building S-77 is shown in Table 2.



Table 2 – Homogeneous Materials List

| Hom. Mat. # | Material Description | Asbestos Type & Conc. | Sample No. |
|--------------------|---|---|-------------------|
| 01 | Plaster (cementitious) | N/D | S77-01 |
| 02 | Mud Joint Compound Fitting Insulation (high temp) | 20% Chrysotile | S77-02 |
| 03 | MagBlock Pipe Insulation | 25% Chrysotile 30% Amosite | S77-03 |
| 04 | Sweat Wrap Pipe Insulation (with tar paper layer) | 5% Chrysotile | S77-04 |
| 05 | 9" x 9" Floor Tile | 2% Chrysotile | S77-05 |
| 06 | 12" x 12" Floor Tile (tan) | N/D | S77-06 |
| 07 | Thermal Patch (Functional Space# SB01 Only) | N/D | S77-07 |
| 08 | 12" x 12" Floor Tile (white with dark red streaks) | N/D | S77-08 |
| 09 | Plaster (texture coat) | N/D | S77-09 |
| 10 | Transite Panel | 25% Chrysotile | S77-10 |
| 11 | Fireproofing | N/D | S77-11 |
| 12 | 12" x 12" Floor Tile (black) | N/D | S77-12 |
| 13 | 12" x 12" Floor Tile (grey) | N/D | S77-13 |
| 14 | 12" x 12" Floor Tile (beige with brown streaks) | N/D | S77-14 |
| 15 | 12" x 12" Floor Tile (off-white) | N/D | S77-15 |
| 16 | Plaster | N/D | S77-16 |
| 17 | Aircell Pipe Insulation | 60% Chrysotile | S77-17 |
| 18 | Mud Joint Compound Fitting Insulation (low temp) | 40% Chrysotile | S77-18 |
| 19 | Linoleum (green) | N/D | S77-19 |
| 20 | Linoleum (red) | N/D | S77-20 |
| 21 | Mastic (from previous 9" x 9" Floor Tile location) | N/D | S77-21 |
| 22 | Linoleum (brown) | N/D | S77-22 |
| 23 | 4' x 8' Panel (with uniform hole pattern) | N/D | S77-23 |
| 24 | Sweat Wrap Pipe Insulation (with white paper layer) | 30% Chrysotile | S77-24 |
| 25 | Sweat Wrap Pipe Insulation (with tar paper and parging) (river water only) | 35% Chrysotile | S77-25 |
| 26 | Fireproofing | 40% Amosite | S77-26 |
| 27 | Duct Insulation (fibreglass with tar paper & ACM parging) | 60% Chrysotile | S77-28 |
| 28 | MagBlock Pipe Insulation (under fibreglass) (FS#SB02 only) | 15% Chrysotile 40% Amosite | S77-27 |
| 29 | Linoleum (brown cobble-stone pattern) | N/D | S77-29 |
| 30 | 12" x 12" Ceiling Tile (scattered hole pattern) | N/D | S77-30 |
| 31 | Linoleum (small square pattern) | N/D | S77-31 |
| 32 | Sweat Wrap Pipe Insulation (with tar paper) (DCW only) | N/D | S77-32 |
| 33 | 12" x 12" Floor Tile (olive green with white streaks) | N/D | S77-33 |
| 34 | Transite Pipe | 20% Chrysotile 15% Crocidolite | S77-34 |
| 35 | Mud Joint Compound Fitting Insulation (beige) | N/D | S77-35 |



| Hom. Mat. # | Material Description | Asbestos Type & Conc. | Sample No. |
|-------------|----------------------|-----------------------|------------|
| 36 | Linoleum (gold) | 20% Chrysotile | S77-36 |

Hom. Mat. # – Homogeneous Material Number Conc. – Concentration

5.1.1 Survey Findings

The fourteen building materials that contain asbestos are as follows:

- 1) Mud joint compound fitting insulation on the steam, condensate and hot water heating systems.
- 2) Mud joint compound fitting insulation on the domestic cold water, drain and river water systems.
- 3) Aircell pipe insulation on the hot water heating, steam, condensate, domestic cold water, domestic hot water and hot water heating systems.
- 4) 9” x 9” floor tile.
- 5) Duct insulation (fibreglass with tar paper and ACM parging) on the duct system.
- 6) Mag block pipe insulation on the steam, condensate and hot water heating systems.
- 7) Mag block pipe insulation under fibreglass insulation on the steam system (FS# SB02 only).
- 8) Transite panel on the walls and ceilings and inside fumehoods.
- 9) Transite piping on the vent systems.
- 10) Fireproofing on the walls and columns (sub-basement level only).
- 11) Linoleum (gold) on the flooring (4th floor only).
- 12) Sweat wrap pipe insulation (with tar paper layer) on the river water system.
- 13) Sweat wrap pipe insulation (with tar paper layer and parging) on the river water system.
- 14) Sweat wrap pipe insulation (with white tar paper layer) on the domestic cold water system.

Table 3 provides a summary of all asbestos-containing materials by room. This table can be cross-referenced with the functional space forms in Appendix B to find a complete description of the room where ACM materials were encountered.

Table 3 – Summary of ACM by Room Listing

| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|--------------------------|----------------|--|------------------|
| Sub-Basement | | | | |
| SB01 | Rms. B12, B24, B36 & B38 | 03 | MagBlock Pipe Insulation on the hot water heating system. – 3 LM | O&M |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|---|----------------|---|------------------|
| SB02 | South Corridor and Rooms: B146, B148, B148A, B154, B156, B158 | 03 | MagBlock Pipe Insulation on the hot water heating system. – 175 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 33 Units | O&M |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 120 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 9 Units | O&M |
| | | 27 | Duct Insulation (fibreglass with tar paper and ACM parging) on the duct system. – 30 LM | O&M |
| | | 04 | Sweat Wrap Pipe Insulation (with tar paper) on the river water system. – 39 LM | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the river water system. – 9 Units | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 1.2 LM | 8 Encaps |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | 2 Encaps |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 0.1 LM | 1 Encap |
| | | 28 | MagBlock Pipe Insulation (under fibreglass pipe insulation) on the steam system. – 0.5 LM | Removal |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 1 Unit | 1 Encap |
| | | 02 | Mud Joint Compound Fitting Insulation (residual) on the steam system. – 1 Unit | Removal |
| | | 27 | Duct Insulation (fibreglass with tar paper and ACM parging) on the duct system. – 0.8 LM | 2 Encaps |
| | | 27 | Duct Insulation (fibreglass with tar paper and ACM parging) on the duct system. – 0.8 LM | 2 Removals |
| SB03 | East corridor and rooms: B43, B41, B37& B29 | 03 | MagBlock Pipe Insulation (disconnected section). – 3 LM | Removal |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 42 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 3 Units | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | O&M |
| | | 04 | Sweat Wrap Pipe Insulation (with tar paper) on the river water system. – 20 LM | O&M |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 87 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 37 Units | O&M |
| | | 03 | ACM Debris (MagBlock Pipe Insulation) loose on the sprinkler system. – 0.6 m ² | 2 Clean-ups |
| | | 04 | Sweat Wrap Pipe Insulation (with tar paper) on the river water system. – 0.1 LM | 1 Encap |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.9 LM | 4 Encaps |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.5 LM | Removal |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 3 Units | 3 Encaps |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 1 Unit | Removal |
| 03 | ACM Debris (MagBlock Pipe Insulation) on hot water heating system. – 0.2 m ² | Clean-up | | |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|-----------------|----------------|---|------------------|
| SB05 | North Corridor | 04 | Sweat Wrap Pipe Insulation (with tar paper) on the river water system. – 116 LM | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the river water system. – 27 Units | O&M |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 230 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 24 Units | O&M |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 96 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 15 Units | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the condensate system. – 8 Units | O&M |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 0.3 LM | Removal |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 1 Unit | Removal |
| | | 17 | Aircell Pipe Insulation on the domestic cold water system. – 0.4 LM | 1 Encap |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.1 LM | 1 Encap |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.8 LM | 2 Removals |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 3 Units | 3 Removals |
| | | 03 | ACM Debris (MagBlock Pipe Insulation) on hot water heating system. – 0.5 m ² | Clean-up |
| SB06 | Rm. B3 | 03 | MagBlock Pipe Insulation on the hot water heating system. – 4 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 6 Units | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic cold water system. – 0.4 LM | O&M |
| | | 25 | Sweat Wrap Pipe Insulation (with tar paper) on the river water system. – 1 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic cold water system. – 0.1 LM | 1 Encaps |
| | | 25 | Sweat Wrap Pipe Insulation (with tar paper) on the river water system. – 0.2 LM | 1 Encap |
| SB09 | Rms. B19 & B19A | 05 | 9" x 9" Floor Tile on the floor. – 4 m ² | O&M |
| SB10 | Rm. B21 | 05 | 9" x 9" Floor Tile on the floor. – 68 m ² | O&M |
| | | 05 | 9" x 9" Floor Tile on the floor. – 10 m ² | Removal |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 4 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 14 Units | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | 2 Removals |
| | | 17 | Aircell Pipe Insulation on the domestic cold water system. – 0.3 LM | Removal |
| SB11 | Rms. B9 & B15 | 05 | 9" x 9" Floor Tile on the floor. – 92 m ² | O&M |
| | | 10 | Transite Panel on the wall – 6 m ² | O&M |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 33 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 17 Units | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | 2 Encaps |
| SB12 | Rms. B5 & B7 | 05 | 9" x 9" Floor Tile on the floor. – 74 m ² | O&M |
| | | 05 | 9" x 9" Floor Tile on the floor. – 1 m ² | Removal |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|---|----------------|---|------------------|
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 28 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 20 Units | O&M |
| | | 24 | Sweat Wrap Pipe Insulation (with white paper) on the domestic cold water system. – 4 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 1 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.2 LM | 1 Encap |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 1 Unit | Removal |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | 1 Encap |
| | | 02 | ACM Debris (Mud Joint Compound Fitting Insulation) on the floor from the hot water heating system. – 0.3 m ² | Clean-up |
| SB13 | Rms. B5A, B5B & B5C | 05 | 9" x 9" Floor Tile on the floor. – 20 m ² | O&M |
| | | 05 | 9" x 9" Floor Tile on the floor. – 3 m ² | Removal |
| SB14 | Rm. B161A | 03 | MagBlock Pipe Insulation on the hot water heating system. – 8 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 5 Units | O&M |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.4 LM | 2 Encap |
| | | 02 | Mud Joint Compound Fitting Insulation (residual) on the hot water heating system. – 1 Unit | Removal |
| SB15 | Rms. B157 & B157B | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.2 LM | 1 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | 1 Encap |
| SB17 | Rms. B141A, B141, B135 & B129 | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.2 LM | Removal |
| | | 18 | Mud Joint Compound Fitting Insulation (residual) on the domestic cold water system. – 1 Unit | Removal |
| SB19 | West Corridor | 03 | MagBlock Pipe Insulation on the hot water heating system. – 19 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 11 Units | O&M |
| | | 04 | Sweat Wrap Pipe Insulation (with tar paper) on the river water system. – 36 LM | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation Residual on the river water system. – 13 Units | O&M |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 15 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 5 Units | O&M |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 0.5 LM | 1 Encap |
| | | 04 | Sweat Wrap Pipe Insulation (with tar paper) on the river water system. – 1.6 LM | 6 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the river water system. – 4 Units | 4 Encap |
| | | 17 | Aircell Pipe Insulation on a disconnected system. – 0.1 LM | Removal |
| 03 | MagBlock Pipe Insulation on a disconnected system. – 0.1 LM | Removal | | |
| SB21 | Rms. B161 | 26 | Fireproofing on the ceiling. – 1320 m ² | O&M |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|--|----------------|--|------------------|
| | & B161D B161L | 26 | Fireproofing on the ceiling. – 0.75 m ² | 3 Encap |
| SB27 | Cafeteria Foyer & Hallway | 05 | 9" x 9" Floor Tile on the floor. – 96 m ² | O&M |
| SB28 | Rm. B163 | 03 | MagBlock Pipe Insulation on the steam system. – 11 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 5 Units | O&M |
| | | 03 | MagBlock Pipe Insulation on the condensate system. – 10 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the condensate system. – 5 Units | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the condensate system. – 2 Units | 2 Encap |
| | | 02 | Mud Joint Compound Fitting Insulation on the condensate system. – 1 Unit | Removal |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 1 Unit | 1 Encap |
| | | 03 | MagBlock Pipe Insulation on the condensate system. – 0.2 LM | 2 Encap |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 0.4 LM | 3 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 7 Units | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 9 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 1 LM | 7 Encap |
| | | 17 | ACM Debris (Aircell Pipe Insulation) on the duct system. – 0.25 m ² | Clean-up |
| SB32 | Rms. B121 & B121A including stairwell | 10 | Transite Panel on ceiling. – 31 m ² | O&M |
| | | 10 | Transite Panel on walls – 89 m ² | O&M |
| | | 10 | Transite Panel on wall. – 0.4 m ² | 4 Removals |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 4 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 1 Unit | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 1 Unit | 1 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the chiller system. – 5 Units | O&M |
| SB33 | Rm. B40A | 05 | 9" x 9" Floor Tile on the floor. – 14 m ² | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 4 Units | O&M |
| SB34 | Rm. B40B | 05 | 9" x 9" Floor Tile on the floor. – 54 m ² | O&M |
| SB36 | Rm. B40H | 05 | 9" x 9" Floor Tile on the floor. – 10 m ² | O&M |
| SB37 | Rm. B40J | 05 | 9" x 9" Floor Tile on the floor. – 10 m ² | O&M |
| SB38 | Rm. B40K | 05 | 9" x 9" Floor Tile on the floor. – 10 m ² | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 5 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 0.2 LM | 2 Encap |
| SB39 | Rm. B40M (Hallway) | 05 | 9" x 9" Floor Tile on the floor. – 27 m ² | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 1 LM | O&M |
| SB40 | Rm. B40L | 05 | 9" x 9" Floor Tile on the floor. – 20 m ² | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 4 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 5 Units | O&M |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|--|----------------|--|------------------|
| SB41 | Rms. B40C & B40D | 05 | 9" x 9" Floor Tile on the floor. – 52 m ² | O&M |
| | | 26 | Fireproofing on the ceiling and columns. –232 m ² | O&M |
| | | 26 | Fireproofing on columns. – 3.3 m ² | 4 Encap |
| SB42 | Rm. B40N | 05 | 9" x 9" Floor Tile on the floor. – 6 m ² | O&M |
| | | 26 | Fireproofing on column. – 0.5 m ² | 6 Encap |
| | | 10 | Transite Panel on wall. –18 m ² | O&M |
| | | 10 | Transite Panel on ceiling. – 6 m ² | O&M |
| SB43 | Rm. B40 | 05 | 9" x 9" Floor Tile on the floor. – 19 m ² | O&M |
| SB44 | Rm. B162 | 05 | 9" x 9" Floor Tile on the floor. – 153 m ² | O&M |
| | | 26 | Fireproofing on ceiling and columns. – 199 m ² | O&M |
| | | 26 | ACM Debris (Fireproofing) on top of ceiling (of room 162E). – 1 m ² | Clean-up |
| | | 17 | Aircell Pipe Insulation on the condensate system. – 14 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the steam system. – 13LM | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | O&M |
| | | 17 | Aircell Pipe Insulation on the condensate system. – 0.3 LM | Removal |
| | | 17 | Aircell Pipe Insulation on the steam system. – 0.3 LM | 1 Encap |
| | | 17 | Aircell Pipe Insulation on the condensate system. – 0.5 LM | 1 Encap |
| | | 02 | Mud Joint Compound Fitting Insulation on the condensate system. – 2 Units | 2 Encap |
| SB45 | Rm. B162D | 05 | 9" x 9" Floor Tile on the floor. – 19 m ² | O&M |
| SB46 | Rm. B44 | 26 | ACM Debris (Aircell and MagBlock Pipe Insulation) on floor. – 1 m ² | Clean-up |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 7 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 29 Units | O&M |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 10 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 0.3 LM | Removal |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 0.2 LM | 2 Encap |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | 2 Removals |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 1 Unit | 1 Encap |
| Basement | | | | |
| B004 | Rms. 21, 23, 25, 27, 29, 39, 43, 45, 47, 49, 53, 57 (FEMTO Labs) | 17 | Aircell Pipe Insulation on the hot water heating system. – 8 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 0.1 LM | 1 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | O&M |
| B009 | Rm. B75C | 05 | 9" x 9" Floor Tile on the floor. – 27 m ² | O&M |
| B011 | Rms. 77 & 77A | 05 | 9" x 9" Floor Tile on the floor. – 6 m ² | O&M |
| | | 17 | Aircell Pipe Insulation on the steam system. – 4 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 1 Unit | O&M |
| B017 | Ramp | 17 | Aircell Pipe Insulation on the hot water heating system. – 14 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 12 Units | O&M |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|--|--|--|------------------|
| B024 | Rm. 121 | 10 | Transite Panel on wall. – 40 m ² | O&M |
| B033 | Rms. 157, 157A, 157B & 157C | 05 | 9" x 9" Floor Tile on the floor. – 9 m ² | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 3 LM | O&M |
| B035 | Rm. 6 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| B043 | Rm. 44 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| B045 | Rm. 58 | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 1 Unit | O&M |
| | | 10 | Transite Panel in fumehood. – 1 unit | O&M |
| B046 | Rm. 62 (men's washroom) | Limited access to a trench under the floor. ACM Pipe insulation and debris was observed in the trench. No determinations could be made regarding types of ACM's, quantities or condition. | | |
| B048 | Rm. 72 | 05 | 9" x 9" Floor Tile on the floor. – 23 m ² | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 2 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 0.1 LM | 1 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | 1 Encap |
| B053 | Rms. 92, 94 & 96 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| B054 | Rm. 100 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 10 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 2 Units | O&M |
| B066 | Rm. 158 | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 10 Units | O&M |
| B067 | Basement Hallway | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 2 Units | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 6 LM | O&M |
| First Floor | | | | |
| 1001 | Rms. 1003, 1005, 1007, 1009, 1011, 1013, 1015 & 1017 | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | O&M |
| 1005 | Rm. 1027 | 17 | Aircell Pipe Insulation on the domestic hot water system. – 5 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.1 LM | 1 Encap |
| | Vertical Mechanical Chase | Limited access to this area through an access hatch. ACM was observed on mechanical systems throughout this area. No determinations could be made regarding types of ACM's, quantities or condition. | | |
| 1009 | Rms. 1047A-H, | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|--|----------------|--|------------------|
| | 1057, 1056A & 1061 | 17 | Aircell Pipe Insulation on the domestic hot water system. – 4 LM | O&M |
| 1013 | Rms. 1069 & 1071 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 4 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on domestic hot water system. – 1 Unit | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.6 LM | Removal |
| 1014 | Rms. 1075, 1075A 1081 & 1083A | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 3 Units | O&M |
| 1015 | Rms. 1083 & 1087 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| 1018 | Rm. 1095 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | O&M |
| | | 17 | Aircell Pipe Insulation on the hot water heating system. – 6 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 2 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 6 Units | O&M |
| 1019 | Rm. 1097 | 17 | Aircell Pipe Insulation on the hot water heating system. – 4 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 5 Units | O&M |
| 1020 | Rm. 1099 | 03 | MagBlock Pipe Insulation on the steam system. – 3 LM | O&M |
| 1022 | Rm. 1105 | 17 | Aircell Pipe Insulation on the hot water heating system. – 6 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | 2 Removals |
| 1023 | Rm. 1107 | 17 | Aircell Pipe Insulation on the domestic hot water system. – 6 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.4 LM | 1 Encap |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 6 LM | O&M |
| 1043 | Rm. 1058 | 17 | Aircell Pipe Insulation on the domestic hot water system. – 3 LM | O&M |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 2 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 1 Unit | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.3 LM | 3 Encap |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.4 LM | 4 Encap |
| | | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 1 Unit | 1 Encap |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 1 Unit | 1 Encap |
| 1045 | Rms. 1064 & 1064A-D | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 3 Units | O&M |
| 1048 | Rms. 1108, | 17 | Aircell Pipe Insulation on the domestic hot water system. – 1 LM | O&M |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|--|----------------|--|------------------|
| | 1116 & 1118 | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 1 Unit | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 3 Units | 3 Encap |
| 1058 | South Hallway | 03 | MagBlock Pipe Insulation on the hot water heating system. – 2 LM | O&M |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.1 LM | 1 Encap |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.4 LM | Removal |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | 1 Encap |
| 1059 | East Hallway | 03 | MagBlock Pipe Insulation on the hot water heating system. – 6 LM | O&M |
| 1060 | North Hallway | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.7 LM | 7 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| | | 02&03 | ACM Debris (MagBlock Pipe Insulation and Mud Joint Compound Fitting Insulation) on ceiling. – 2 m ² | Clean-up |
| Second Floor | | | | |
| 2004 | Rms. 2033, 2033A, 2035, 2035, 2037 & 2037A | 18 | Mud Joint Compound Fitting Insulation on the drain system. – 1 Unit | O&M |
| 2007 | Rms. 2053 & 2055 | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 2 Units | O&M |
| 2019 | Rms. 2095, 2099, 2099A, 2101, 2101A & 2105 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | Removal |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.2 LM | 1 Encap |
| | | 34 | Transite Pipe on the vent system. – 5 LM | O&M |
| | Vertical Mechanical Chase | | Limited access to this area through an access hatch. Aircell Pipe Insulation ACM was observed on domestic hot water systems throughout this area. No determinations could be made regarding quantities or condition. | |
| 2021 | Rm. 2109 | 34 | Transite Pipe on the vent system. – 0.5 LM | O&M |
| 2023 | Rms. 2115, 2119, 2121, 2125 & 2129 | 03 | MagBlock Pipe Insulation on the hot water heating system. – 12 LM | O&M |
| | | 03 | MagBlock Pipe Insulation on the condensate system. – 6 LM | O&M |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 6 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 12 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the steam system. – 6 LM | O&M |
| | | 34 | Transite Pipe on the vent system. – 0.5 LM | O&M |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 0.5 LM | 2 Encap |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.3 LM | 2 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | 2 Encap |
| 2025 | Rms. 2135, 2137, 2143, 2147, 2151 & 2151A | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| | | 17 | Aircell Pipe Insulation on the steam system. – 0.2 LM | 2 Encap |
| | | 17 | Aircell Pipe Insulation on the steam system. – 6 LM | O&M |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|--|----------------|---|------------------|
| 2026 | Rm. 2139 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | 2 Encap |
| 2028 | Rms. 2155, 2155A & 2153A | 17 | Aircell Pipe Insulation on the steam system. – 6 LM | O&M |
| 2031 | Rms. 2006 & 2008 | 18 | ACM Debris (Mud Joint Compound Fitting Insulation) in vertical mechanical closet. – 0.25 m ² | Clean-up |
| 2044 | Rm. 2058 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | O&M |
| 2050 | 2096 & 2100 | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| 2054 | Rms. 2118, 2120 & 2120A | 34 | Transite Pipe on the vent system. – 0.5 LM | O&M |
| 2064 | Hallway | 17 | Aircell Pipe Insulation on the steam system. – 6 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the steam system. – 0.2 LM | 2 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 Units | O&M |
| Third Floor | | | | |
| 3003 | Rms. 3011, 3015 & 3009A-B | 34 | Transite Pipe on the vent system. – 0.5 LM | O&M |
| 3011 | Rms. 3051 & 3051A-C | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.5 LM | O&M |
| 3020 | Rms. 3089 & 3091S | 34 | Transite Pipe on the vent system. – 0.5 LM | O&M |
| 3022 | Rm. 3099 | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.4 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.1 LM | 1 Encap |
| 3024 | Rms. 3105, 3109 & 3109A | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| 3026 | Rm. 3117 (storage) | 17 | Aircell Pipe Insulation on the domestic hot water system. – 6 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.2 LM | 1 Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| 3032 | Rm. 3135 | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.5 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 1 Unit | O&M |
| 3042 | Rms. 3016 upper and lower & 3018 upper | 05 | 9" x 9" Floor Tile on the floor. – 9 m ² | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 Unit | O&M |
| 3047 | Rm. 3042 | 34 | Transite Pipe on the vent system. – 0.5 LM | O&M |
| 3059 | Rms. 3108, 3118, 3108A & 3118A | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.2 LM | Removal |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.1 LM | 1 Encap |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|----------------------|--|----------------|--|------------------|
| 3068 | Rms. 3152 3156 & 3158 | 34 | Transite Pipe on the vent system. – 0.7 LM | O&M |
| 3069 | Rm. 3158 | 34 | Transite Pipe on the vent system. – 6 LM | O&M |
| 3073 | Hallway | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 unit | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 39 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 7 units | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 7 units | O&M |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 19 LM | O&M |
| | | 34 | Transite Pipe on the vent system. – 1 LM | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 2 units | 2 Encap |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 1.5 LM | 12 Encap |
| | | 02 | Mud Joint Compound Fitting Insulation on the domestic hot water system. – 2 units | 2 Encap |
| | | 03 | MagBlock Pipe Insulation on the hot water heating system. – 0.2 LM | 2 Encap |
| | | 17 | ACM Debris (Aircell Pipe Insulation) above the ceiling. – 1 m ² | Clean-up |
| 03, 17 | MagBlock and Aircell Pipe Insulation and ACM debris – 43m ² | Type 3 Removal | | |
| Fourth Floor | | | | |
| 4001 | Rms. 4119, 4119A & 4121 | 05 | 9" x 9" Floor Tile on the floor. – 88 m ² | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.4 LM | O&M |
| | | 17 | Aircell Pipe Insulation on the domestic hot water system. – 0.2 LM | 1 Encap |
| 4006 | Rm. 4107 | 05 | 9" x 9" Floor Tile on the floor. – 3 m ² | O&M |
| 4009 | Rm. 4099 & 4099A | 36 | Linoleum (gold) on the floor. – 70 m ² | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 17 units | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the condensate system. – 8 units | O&M |
| | | 10 | Transite Panel on the ceiling. – 70 m ² | O&M |
| 4010 | Rms. 4093 & 4095A | 36 | Linoleum (gold) on the floor. – 44 m ² | O&M |
| | | 34 | Transite Pipe on the vent system. – 6 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 11 units | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the condensate system. – 11 units | O&M |
| | | 18 | Mud Joint Compound Fitting Insulation on the drain system. – 2 units | O&M |
| 4011 | Rm. 4091 | 36 | Linoleum (gold) on the floor. – 6 m ² | O&M |
| 4012 | Rm. 4094 | 36 | Linoleum (gold) on the floor. – 38 m ² | O&M |
| 4013 | Rms. 4100 & 4100A-B | 36 | Linoleum (gold) on the floor. – 46 m ² | O&M |
| 4015 | Rm. 4104 | 05 | 9" x 9" Floor Tile on the floor. – 18 m ² | O&M |
| 4017 | Rms. 4108 & 4108A | 05 | 9" x 9" Floor Tile on the floor. – 12 m ² | O&M |



| Functional Space ID# | Location | Homo. Mat. No. | Material Description and Quantity | Response Measure |
|-----------------------|-------------------------------------|----------------|---|------------------|
| 4018 | Rms. 4116 & 4104C | 05 | 9" x 9" Floor Tile on the floor. – 34 m ² | O&M |
| 4020 | Rm. 4120 | 05 | 9" x 9" Floor Tile on the floor. – 21 m ² | O&M |
| 4023 | Rm. 4095 Hallway | 36 | Linoleum (gold) on the floor. – 32 m ² | O&M |
| | | 10 | Transite Panel on the ceiling. – 25 m ² | O&M |
| Library Stacks | | | | |
| LS07 | 7 th level library stack | 17 | Aircell Pipe Insulation on the hot water heating system. – 44 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 18 Units | O&M |
| LS08 | 8 th level library stack | 17 | Aircell Pipe Insulation on the hot water heating system. – 12 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the hot water heating system. – 4 Units | O&M |
| LS09 | 9 th level library stack | 10 | Transite Panel on wall. – 18 m ² | O&M |
| Penthouse | | | | |
| PH06 | Penthouse 19 | 10 | Transite Panel on walls. –21 m ² | O&M |
| | | 10 | Transite Panel on ceiling. – 7 m ² | O&M |
| PH10 | Penthouse 4 | 03 | MagBlock Pipe Insulation on the steam system. – 15 LM | O&M |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 14 units | O&M |
| | | 03 | MagBlock Pipe Insulation on the steam system. – 0.3 LM | 3 Encaps |
| | | 02 | Mud Joint Compound Fitting Insulation on the steam system. – 9 units | 9 Encaps |
| | | 02 | Mud Joint Compound Fitting Insulation (residual) on the steam system. – 1 unit | Removal |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 unit | Encap |
| | | 18 | Mud Joint Compound Fitting Insulation on the domestic cold water system. – 1 unit | O&M |
| PH12 | Penthouse 20 | 10 | Transite Panel on walls. – 14 m ² | O&M |
| | | 10 | Transite Panel on ceiling. – 7 m ² | O&M |

LM – linear metre
Encap – Encapsulation
O&M – Operations & Maintenance
Homo. – Homogeneous Mat. -Materials

Asbestos was detected in fourteen homogeneous building materials sampled from the facility. The ACM was categorized as to whether it was friable or non-friable. Further, the materials were grouped according to their similar composition, system and general appearance. The following sub-sections are the result of which materials were considered friable or non-friable. Photographs are provided along with a brief description of the material.



5.1.2 Friable ACM

Mud Joint Compound

A representative photograph of mud joint compound fitting insulation. This material is a malleable grey insulation that has the appearance of granular mud. It appears smooth, round and hard when it is intact with appropriate exterior jacketing.



MagBlock

A representative photograph of MagBlock pipe insulation. This material is normally white or off-white in colour. MagBlock pipe insulation typically consists of a chalky, fibrous collection of blocks that is friable when found as seen in this photograph (without jacketing).



Aircell

A representative photograph of aircell pipe insulation. This material is grey and white in colour. Aircell is layers of corrugated paper, which gives it the appearance of a honeycomb pattern when the profile is observed.





Duct Insulation

A representative photograph of asbestos duct insulation. The ACM duct insulation in this building was found to contain fibreglass with a tar paper layer and ACM parging. The parging material is a malleable grey insulation that has the appearance of granular mud.



Sweat Wrap (with white paper layer)

A representative photograph of sweat wrap with white paper layer pipe insulation. This material has several layers of brown or grey waffle pattern paper layers with the outer layer consisting of a white paper layer that contains asbestos. This type of pipe insulation was used for low temperature applications only.





Sweat Wrap (with tar paper layer and parging)

A representative photograph of sweat wrap with tar paper layers and parging. This material has several layers of brown waffle pattern paper layers and tar paper layers with the outer layer consisting of parging and jacketing. This type of pipe insulation is typically used for low temperature applications.



Fireproofing

This material is painted in this facility and appears as a type of plaster finishing coat. It is however, readily friable if disturbed.





5.1.3 Non-Friable ACM

Transite Panel

A representative photograph of transite panel. Transite is a composite material made up of asbestos and cement that was a manufactured product at the time of installation. It was generally used in areas as a fire retardant. It is a rigid material that fractures when broken and may appear as other types of non-acm panel.



9" x 9" Floor Tile

A representative photograph of 9" x 9" vinyl asbestos floor tile (VAT). This material may be found in any number of different colours and patterns. VAT's are normally quite rigid and non-friable. VAT's are sometimes found under carpeting or they may be present as the only flooring.



Transite Pipe

A representative photograph of transite pipe. Transite is a composite material made up of asbestos and cement that was a manufactured product at the time of installation. It is a rigid material that fractures when broken.





Linoleum (Gold)

A representative photograph of Linoleum asbestos flooring. This material may be found in any number of different colours and patterns. They are normally semi-rigid and non-friable. They are sometimes found under carpeting or they may be present as the only flooring.



5.1.4 Survey Recommendations

Under O. Reg. 278/05 damaged and exposed ACM's are required to be repaired or removed. In building S-77, the damaged asbestos containing materials, found in Table 3 and summarized in Table 1, will require Type 2 asbestos abatement procedures for removal or repair of 1 square meter or less of material and Type 3 asbestos abatement precautions for removal of greater than 1 square meter of material. These issues should be addressed as soon as possible.

The O. Reg. 278/05 also requires the removal of all ACM's that have a potential of being disturbed during renovations or demolition. Should friable ACM's remain in the building, in GOOD condition, the regulation also requires that an Asbestos Management Plan be implemented and kept in place until such time that the ACM's have been removed. The management plan will include periodic assessment and record updating to be performed on the remaining ACM at least every 12 months.

Building staff and contractors should be made aware of the location and hazards associated with the ACM's and instructed to not disturb this material. Any disturbance of this material should be reported immediately to property management and appropriate control measures put into place without delay.

5.2 Lead

5.2.1 Survey Findings



Based on visual observations during Oakhill's room-by-room surveys, potential lead was sampled in sixteen paint finishes. Samples were collected from the painted interior surfaces of building S-77 and were analysed for lead content.

The analytical results are provided in Appendix C and are summarized below in Table 4.

Table 4 – Results of Lead Investigation

| Sample | Location | Colour | Results (ppm Lead) | Considered Lead Based Paint* |
|----------------|---------------------------------------|----------------------------------|---------------------------|-------------------------------------|
| S77-L1 | Floor in FS#SB01 | Dark Red Paint | 6540 | Yes |
| S77-L2 | Floor in FS#SB01 | Yellow Paint | 38000 | Yes |
| S77-L3 | Floor in FS#SB03 | Medium Grey Paint | 69.9 | No |
| S77-L4 | Floor in FS#SB03 | Bright Red Paint | 67.6 | No |
| S77-L5 | Wall in FS#SB03 | Pale Green Paint | 36.6 | No |
| S77-L6 | Wall in FS#SB17 | Pale Blue Paint | 816 | No |
| S77-L7 | Wall in FS#SB17 | Peach Paint | 748 | No |
| S77-L8 | Wall and door in FS#SB17 | Green Paint | 4420 | No |
| S77-L9 | Ceiling and I-Beams in FS#SB17 | Silver Paint | 1150 | No |
| S77-L10 | Floor in FS#SB17 | Light Grey over Red Paint | 6270 | Yes |
| S77-L11 | Panel in FS#SB19 | Gloss Black Paint | 1720 | No |
| S77-L12 | Wall in FS#SB32 | Dark Green Paint | 11100 | Yes |
| S77-L13 | Piping in FS#SB03 | Cream Paint | 938 | No |
| S77-L14 | Window Frames in FS#2063 | Black Paint | 159000 | Yes |
| S77-L15 | Darkroom Walls and Ceiling in FS#SB11 | Flat Black Paint | 2680 | No |
| S77-L16 | Oxygen Pipe in FS#SB11 | Medium Green Paint | 22500 | Yes |

*Note: Ontario Ministry of Labour (MOL) considers 5,000ppm lead to be a lead-based paint (LBP).

5.2.2 Survey Recommendations

Based on the analytical results, the dark red and yellow paint in room B12 (FS#SB17), the light grey over red paint in room B129 (FS#SB17), the dark green paint in room B121 (FS#SB32), the black paint in the library (FS#2063), and the medium grey paint in room B15 (FS#SB11) contained greater than 5,000 ppm of lead and are therefore classified as lead-based paint. The remaining samples did not contain greater than 5,000 ppm lead and are therefore classified as non-lead-based paints.



Lead may be present in the solder used on copper domestic water lines, as caulking in bell fittings for cast-iron drainage pipes and in electrical equipment, wiring or fixtures.

Direct disturbance of the materials can minimize the impact of lead products during removal. Removal of lead materials as an intact unit is the preferred method of removal. Mechanically powered tools increase the airborne concentration of lead dust.

Contractors are responsible to ensure that the workers are not exposed to airborne lead dust levels in excess of 0.15 mg/m³. This can be accomplished by:

- Providing respiratory protection and coveralls
- Suppressing dust levels by wetting with amended water, mops or HEPA vacuums
- Using drop-sheets and polyethylene barriers to control dust
- Ensuring the work areas have adequate ventilation
- Provide workers with the means to practice good hygiene practices when leaving the work area

The removal of metallic lead materials should be carried out in accordance with Ontario Regulation 843/90 and the Ontario Ministry of Labour (MOL) draft Proposed Lead Regulation on Construction Projects, both made under the Occupational Health and Safety Act. Any lead-containing materials should also be disposed of in accordance with Ontario Regulation 558 (formerly O. Reg. 347).

In addition, it is recommended that the United States Department of Housing and Urban Development Guideline, of 0.5 % lead (by weight) or 5,000 parts per million (ppm) lead be used as a guideline for determining whether the use of precautions as outlined in the proposed regulation would be required during the above noted operations. Airborne lead dust or fumes should not exceed the MOL TWAEV of 0.15 milligram per cubic metre (mg/m³) during the removal of lead based paints and products.

5.3 Mercury

5.3.1 Survey Findings

Mercury vapour is present inside fluorescent light fixtures. Tubes should be removed intact prior to removing the fixtures. Liquid mercury may also be present inside thermostats and manometers in mechanical equipment.

5.3.2 Survey Recommendations

Prior to removal of fluorescent light fixtures, the tubes should be removed from the fixtures intact to prevent the mercury vapour from escaping. As long as the tubes are not broken, workers will not be exposed to



hazardous mercury vapour. Prior to demolition of the facility, mercury-containing materials must be removed as per Ontario Regulation 844/90. During demolition, ensure that the maximum concentration of exposure to airborne mercury does not exceed 0.03 mg Hg/m³ of air.

If applicable, mercury should be collected from thermostats, thermometers, and manometers prior to demolition, however care should be taken to control the release of mercury into the air.

5.4 Silica

5.4.1 Survey Findings

Based on the historic composition of building materials, crystalline silica is present in the following building materials:

- Concrete floor slabs;
- Terra cotta and masonry block walls;
- Mortar; and
- Acoustic ceiling tiles.

5.4.2 Survey Recommendations

Contractors are responsible to ensure workers are not exposed to airborne silica levels in excess of 0.20 mg/m³ when dealing with the above materials. This can be accomplished by:

- Minimize disturbance of the material
- Providing respiratory protection and coveralls
- Suppressing dust levels by wetting with amended water, mops or HEPA vacuums
- Using drop-sheets and polyethylene barriers to control dust
- Ensuring the work areas have adequate ventilation
- Provide workers with the means to practice good hygiene practices when leaving the work area

Use of mechanically powered tools for any demolition work increases the concentration of airborne silica and therefore requires more stringent respiratory protection and controlled work procedures.

5.5 Isocyanates

5.5.1 Survey Findings

At the time of the site inspection, no evidence of isocyanates was noted as part of the structure or finishes.

5.6 Vinyl Chloride Monomer

5.6.1 Survey Findings



At the time of the site inspection, no evidence of vinyl chloride monomer was noted as part of the structure or finishes.

5.7 Benzene

5.7.1 Survey Findings

Benzene may be present in a stable form within roofing materials, paints and adhesives.

5.7.2 Survey Recommendations

It is not expected that benzene concentrations in air will exceed the maximum allowable TWAEV for a worker to benzene (3.0 mg/m^3). To minimize potential benzene exposure, apply paints and adhesives in well-ventilated areas.

5.8 Acrylonitrile

5.8.1 Survey Findings

At the time of the site inspection, no evidence of acrylonitrile was noted as part of the structure or finishes.

5.9 Coke Oven Emissions

5.9.1 Survey Findings

At the time of the site inspection, no evidence of coke oven emissions was noted as part of the structure or finishes.

5.10 Arsenic

5.10.1 Survey Findings

At the time of the site inspection, no evidence of arsenic was noted as part of the structure or finishes.

5.10.2 Survey Recommendations

Arsenic or arsenic-containing compounds may be present in stable form in paints and adhesives. It is not expected that arsenic concentrations in air will exceed the maximum allowable TWAEV for a worker to arsenic (0.2 mg/m^3). To minimize potential arsenic exposure, apply paints and adhesives in well-ventilated areas.



5.11 Mould

5.11.1 Survey Findings

At the time of the site inspection, mould was suspect to be present on the chiller pipe insulation system and 2' x 4' ceiling tiles in numerous locations. Suspect mould locations were identified in the following functional space areas: SB01, SB07, SB08, SB31, SB34, SB44, SB46, B005, B015, B021, B024, B027, B031-B033, B041, B045, B054, B063, B066, 1009, 1039, 1045, 1054, 1056, 1057, 1058, 1061-1062, 2001, 2003, 2004, 2006, 2010, 2013, 2015-2018, 2021, 2025-2026, 2028-2029, 2032, 2034, 2042, 2048, 2049, 2052, 2064, 3016, 3019-3020, 3024, 3028, 3033-3034, 3045, 3059, 3073, 4006, 4018, 4023 & PH02.

Outside the scope of work of this project, at the request of Douglas Ebeltoft P.Eng. (NRC), one sample was collected from room B40B (FS# SB34) on the sub-basement level and bulk fungal analysis was performed at Sporometrics Inc., located in Toronto, Ontario. The following fungi were identified: ascomycetes NOS, Aspergillus / Penicillium, Cladosporium, Stachybotrys and Ulocladium. Only ascomycetes and Ulocladium indicate fungal growth. Ulocladium is classified as a human allergenic and is normally found in dead plant material. Ascomycetes is a class of fungi that may cause allergies in humans but they are plant pathogens.

Oakhill recommends that the mould be removed and insulating materials that may be used to re-insulate the chiller pipe insulation be re-evaluated to prevent future occurrences of mould growth.

5.11.2 Survey Recommendations

Oakhill recommend that fungal laboratory sampling be added to the scope of work for this project in the next fiscal year. Continued diligence is recommended to avoid scenarios, which can support fungi growth specifically: water in the presence of cellulose-based surfaces. There must be moisture (such as leaking pipes, cracked window seals, etc.) as well as an indoor substrate (such as the paper layer of drywall, wood, potted plants, etc.) to support fungal growth. Simply replacing the substrate is not a solution to the problem. The root cause is required to be identified.

An excessive number of mould locations were identified in this building. The majority of the locations were on the chiller system or on ceiling tiles below the chiller system. Oakhill recommend NRC re-evaluate the insulating material of the chiller system, as the material currently promotes mould growth via:

1. The accumulation of excessive moisture through condensation on the chiller line and on occasional dripping of water to ceiling tiles below, and
2. Mould growth on the exterior jacketing of the fibreglass pipe insulation on the chiller line.



6.0 CLOSURE

This report has been prepared for the sole benefit of the National Research Council of Canada.

The conclusions presented represent the best judgement of the assessor based on current environmental standards and on the site conditions observed from May 7th to June 29th, 2007. Due to the nature of the investigation and the limitations of the available data, the assessor cannot warrant against undiscovered environmental liabilities. It is possible that additional, concealed designated substances may become evident during demolition activities.

Should additional information become available, Oakhill requests that this information be brought to our attention so that we may re-assess the conclusions presented herein.

We trust that the report meets your current requirements. Should you have any questions or concerns regarding the above, please do not hesitate to contact the undersigned.

Oakhill Environmental Inc.

Fil Barillaro, M.A.S.c., P.Eng.
Project Manager

APPENDIX A

DESIGNATED SUBSTANCES BACKGROUND INFORMATION

Acrylonitrile

Acrylonitrile is regulated in Ontario under Regulation 835/90 of the Occupational Health and Safety Act. Acrylonitrile is a clear liquid that may be colourless or yellow and that readily reacts with other chemicals to produce long, chain-like molecules (polymers). Acrylonitrile-based polymers are used to produce nitrile rubbers, plastics, acrylic fibres, coatings and adhesives. Workers are typically exposed to acrylonitrile at manufacturing facilities that produce the aforementioned products through inhaling its vapour, direct skin contact, or through ingestion. Although acrylonitrile may be present in some of the building materials, including adhesives and coatings, the chemical will likely be bonded in the polymer form. Therefore, it is not expected that an adverse exposure to acrylonitrile will occur unless the building materials are heated to extreme temperatures. Acrylonitrile vapours may become released from the acrylonitrile-based polymers during a process where high temperatures are applied. Acrylonitrile is classified as *possibly carcinogenic to humans (Group 2b)* as evidence from long-term epidemiological studies since 1980 is conflicting. It is not expected that acrylonitrile concentrations in the air will exceed the maximum allowable time weighted average exposure value (TWAEV) for a worker to acrylonitrile (4.3 mg/m³).

Arsenic

Arsenic is regulated in Ontario under Regulation 836/90 of the Occupational Health and Safety Act. The presence of arsenic in the paint coating on interior and exterior finishes is possible. There are no regulated procedures for the removal of paint containing arsenic. If the paint does not contain lead, but does contain arsenic, the comments concerning lead paint, discussed in below, are expected to address the potential arsenic emissions. As the painted surfaces will be handled as per the proposed lead regulation, it is not expected that arsenic concentrations in the air will exceed the maximum allowable TWAEV for a worker to arsenic (0.2 mg/m³). Human health studies from Argentina and Chile have concluded that arsenic ingestion can result in increased risk of bladder and lung cancer. Non-cancer effects include skin lesions and chronic respiratory disease.

Asbestos

The term "asbestos" describes six naturally occurring fibrous minerals, namely chrysotile, amosite, crocidolite, tremolite, anthophyllite and actinolite. Of the six forms of asbestos, chrysotile (white asbestos), amosite (brown asbestos) and crocidolite (blue asbestos) are the most commonly used. Asbestos has been known to man for centuries and has been used in literally hundreds of products. Asbestos was used because it is strong, insulates well, and resists fire and corrosion.

The Regulation for Asbestos, Ontario Regulation 278/05, made under the Occupational Health and Safety Act defines asbestos as any of the following fibrous silicates:

- Actinolite, Amosite, Anthophyllite, Chrysotile, Crocidolite and Tremolite.

It is important to note that asbestos is defined further as either "friable" or "non-friable". O. Reg. 278/05 defines friable as:

"friable material" means material that,

- *when dry, can be crumbled, pulverized or powdered by hand pressure, or*
- *is crumbled, pulverized or powdered;*

Non-friable is any material that doesn't fit the criteria for friable. Essentially, any material that cannot be *crumbled, pulverized or powdered by hand pressure or is not crumbled, pulverized or powdered.*

The distinction between whether an asbestos-containing material (ACM) is friable or non-friable is a notable characteristic as the *'friability'* of the ACM translates the **potential** risk of producing an airborne fibre release.

Non-friable ACM's offer far less potential risk of producing an airborne fibre release. These materials should not be cut or shaped using power tools, because this procedure allows for the release of asbestos fibres.

Materials that contain asbestos are commonly referred to as ACM's. O. Reg. 278/05, defines an ACM as:

- *material that contains 0.5 per cent or more asbestos by dry weight;*

The Revised Regulations of Ontario (1990), Regulation 347 (The General Waste Regulation) requires the disposal of asbestos waste in a double sealed container, properly labelled and free of cuts, tears or punctures. The waste must be disposed of in a licensed waste facility, which has been properly notified of the presence of asbestos waste. The federal "Transportation of Dangerous Goods Act" covers the transport of asbestos waste to the disposal site. Asbestos waste is to be handled by a licensed waste hauler.

Asbestos is typically found in plaster, mechanical insulation, gaskets, thermal insulation on pipes, refractory material, roofing felts, floor tiles, ceiling tiles and parging, heat resistant panels, incandescent light fixture reflector plates, and any other material requiring a high degree of durability or thermal resistance. The common use of potential friable (breakable by hand) ACM's in construction ceased voluntarily in the mid 1970s; however, the spray application of asbestos-containing fireproofing was not prohibited until 1986. The airborne maximum allowable TWAEV for a worker to asbestos depends on the type of asbestos, they include, amosite (0.1 f/cc), crocidolite (0.1 f/cc) and other forms of asbestos (1.0 f/cc). Asbestos fibres cumulate in the lungs. Human health effects are proportional to exposure. Studies show long term or high dose exposure can result in scarring of the lung and restricted breathing. Mesothelioma (cancer of the pleural lining) and other lung cancers are also related to asbestos exposure.

Benzene

Benzene is regulated in Ontario under Regulation 839/90 of the Occupational Health and Safety Act Historically; benzene has been produced as a by-product of coal gasification and metallurgical coke production in steel making. The light oil product from such processes contains benzene, toluene, ethyl benzene and xylene, and these components are separated by distillation. Today, most benzene is produced from the refining of petroleum.

Benzene has applications as a solvent in synthetic rubber manufacturing and processing, and in paints, varnishes, stains, adhesives, roofing materials and sealants. The use of benzene in tire and other rubber goods manufacturing and as a solvent and component of paints and adhesives has declined considerably as a result of concerns about workplace exposure. Nevertheless, it is often present in trace quantities in petroleum and aromatic solvents, some of which have replaced benzene in many uses. Benzene is also a minor component of gasoline sold in Canada.

The maximum allowable TWAEV for a worker to benzene is 3 mg/m³. Based on the age of the facility, it is possible that benzene was present in the paints, adhesives and roofing materials used during the original construction of the facilities. However, over time, the benzene component typically volatilizes out of the paints, solvents and roofing bitumens and is released into the ambient air. Therefore, it is likely that only trace levels of benzene presently exist in these building materials. It is not expected that benzene emissions from any existing building materials on site will exceed the allowable TWAEV.

Exposure to benzene can range in severity from nausea to suppression of the immune system and death. Long-term exposure to benzene can potentially result in Acute Myeloid Leukemia, Secondary Aplastic Leukemia and damage to the reproductive system.

Ethylene Oxides

Ethylene Oxides are regulated in Ontario under Regulation 841/90 of the Occupational Health and Safety Act. Ethylene oxide is a common by-product of fumigation or sterilization procedures. The airborne maximum

allowable TWAEV for a worker to Ethylene Oxides is 1.8 mg/m³. Acute exposure may result in vomiting, shortness of breath and dizziness. Chronic exposure has been associated with the occurrence of cancer, reproductive effects, mutagenic changes and neurotoxicity.

Isocyanates

Isocyanates is regulated in Ontario under Regulation 842/90 of the Occupational Health and Safety Act. Isocyanates are a class of chemicals used in the manufacture of certain types of plastics, foams and roof insulation. The Isocyanate (-NCO) group reacts very readily with certain other types of molecules, a property responsible for the usefulness of Isocyanates in industry. Due to the high reactivity of the Isocyanate group, exposure to Isocyanates can result in primary irritation, sensitization and hypersensitivity reactions. The respiratory system, the eyes and the skin are the main areas affected by exposure. Isocyanates in their initial form are found as a vapour, a mist, or a dust which become airborne and then taken into the body. Once the Isocyanates are chemically bonded to other chemicals during manufacturing processes, the Isocyanates are not readily available to become airborne unless heated. Therefore, Isocyanate exposure is not expected to be a concern as long as the burning of plastics, foams, and insulation is not carried out. The airborne maximum allowable TWAEV for a worker to Isocyanates is 0.005 ppm.

Lead

Lead is regulated in Ontario under Regulation 843/90 of the Occupational Health and Safety Act. The Ontario Ministry of Labour (MOL) draft Proposed Lead Regulation on Construction Projects, made under the Occupational Health and Safety Act, May 5, 1995, states that the removal of lead paint is not required unless work on these materials are likely to produce airborne lead dust or fumes, for example during welding, torch cutting, sanding and sand blasting. If these operations are likely to occur during building renovations or demolition, it is recommended that the removal of lead paint be carried out in accordance with procedures outlined in the proposed regulation.

Based on conversations with the MOL, it is recommended that the United States Department of Housing and Urban Development Guideline, of 0.5 % lead (by weight) or 5,000 parts per million (ppm) lead be used as a guideline for determining whether the use of precautions as outlined in the proposed regulation would be required during the above noted operations. Airborne lead dust or fumes should not exceed the MOL TWAEV of 0.15 milligram per cubic metre (mg/m³) during the removal of lead based paints and products.

Lead may be used in its pure metallic form or combined chemically with other elements to form lead compounds. Metallic lead is used to make products such as electric storage batteries, ammunition, lead solder, radiation shields, pipes, and sheaths for electric cables. Metallic lead is sometimes combined with other metals such as copper, tin and antimony as lead alloys for use in the manufacture of a variety of metal products.

Organic lead compounds contain a lead atom covalently bonded to carbon. Common examples of organic lead compounds include lead "soaps" such as lead oleates, high-pressure lubricants, and anti-knock agents in gasoline.

Inorganic lead compounds (or lead salts) result when lead is combined with an element other than carbon. Examples are lead oxide, lead chromate, lead carbonate and lead nitrate. Inorganic lead compounds may occur as solids or in solutions, and are used in insecticides, pigments, paints, frits, glasses, plastics, and rubber compounds.

Lead may affect the health of workers if it is in a form that may be inhaled, ingested or absorbed through the skin. Lead dust consists of small, solid particles of metallic lead or lead compounds that are generated by sanding, grinding, polishing, and sawing operations. Lead fume is produced in significant amounts when solid lead or materials containing lead are heated to temperatures above 500° C, as in welding and flame cutting or burning.

Mercury

Mercury is regulated in Ontario under Regulation 844/90 of the Occupational Health and Safety Act. Mercury is commonly found in buildings as mercury vapour lighting, in thermometers, thermostats and some electrical switches. Mercury can also be found in minor amounts in fluorescent lamp tubes and in paints and adhesives.

Mercury, or mercury vapour within light fixtures, thermometers, thermostats and electrical switches poses no risk to workers or occupants provided the mercury containers remain intact and undisturbed. Prior to demolition, remove mercury containers and store in a safe location. The airborne maximum allowable TWAEV for a worker to mercury is 0.05 mg/m³.

Short-term exposure to mercury is a rare occurrence due to the more stringent controls. Historically, short-term exposure to high concentrations of mercury vapour included: harmful effects of the nervous, respiratory and digestive systems and the kidneys.

Silica

Silica is regulated in Ontario under Regulation 845/90 of the Occupational Health and Safety Act. Silica, also referred to as free crystalline silica, is found in concrete, cement, mortar, ceramic wall and floor tiles, stucco finishes and acoustic ceiling tiles. Prolonged exposure to, and inhalation of free crystalline silica, may result in respiratory disease known as silicosis, which is characterised by progressive fibrosis of the inner lung tissue and marked shortness of breath or impaired lung function. The maximum TWAEV for airborne Silica dust is 0.20 mg/m³.

Precautions should be taken during work on concrete (coring etc.) and ceiling tiles to minimize exposure to free crystalline silica dust. Silica exposure should not exceed the MOL TWAEV of 0.20 milligrams per cubic metre (mg/m³) during demolition activities. This can be achieved by:

- . providing workers with respiratory protection;
- . wetting the surface of the materials to prevent dust emissions;
- . provide workers with facilities to properly wash prior to exiting the work area.

Vinyl Chloride

Vinyl Chloride is regulated in Ontario under Regulation 846/90 of the Occupational Health and Safety Act. Vinyl chloride is found in many applications in buildings such as plumbing pipes, protective coatings on insulated pipes and interior finishes (i.e., vinyl baseboard trim). Vinyl chlorides in the above materials are bound in a solid matrix and are unlikely to become airborne such that it would exceed the maximum allowable TWAEV of 5.2 mg/m³.

Human health effects from long-term exposure include: cancer of the liver, damage to the immune and reproductive systems.

Fungi

There is essentially no fungus-free environment in our daily lives. Fungal spores are abundant in outdoor air and exposure to fungi occurs commonly in indoor environments.

Continued cleaning diligence is recommended to avoid scenarios which can support fungi growth such as water in the presence of cellulose-based surfaces. There must be a moisture or water problem to support fungal growth.

APPENDIX B
ANALYTICAL RESULTS – ASBESTOS



Certificate of Analysis

AGAT WORK ORDER: 07T225437
PROJECT NO: PR-06-039

5623 McADAM ROAD
MISSISSAUGA, ON
CANADA L4Z 1N9

PH: (905)501-9998
FAX: (905)501-0589
<http://www.agatlabs.com>

CLIENT NAME: OAKHILL ENVIRONMENTAL

ATTENTION TO: Fil Barillo

Bulk Asbestos

| DATE SAMPLED: May 09, 2007 | | | DATE RECEIVED: May 18, 2007 | | | DATE REPORTED: Jun 05, 2007 | | | SAMPLE TYPE: Other | | |
|----------------------------|------|-------|-----------------------------|-------------------|-------------------|-----------------------------|-------------------|-------------------|--------------------|-------------------|-------------------|
| Asbestos | Unit | G / S | M.D.L. | S77-01a 711712 | S77-01b 711719 | S77-01c 711720 | S77-01d 711724 | S77-02a 711729 | S77-03a 711737 | S77-04a 711745 | S77-05a 711763 |
| | % | | 0.5 | ND | ND | ND | ND | 20 | 55 | 5 | 2 |
| Asbestos | Unit | G / S | M.D.L. | S77-06a 711798 | S77-06b 711799 | S77-06c 711800 | S77-07 711802 | S77-08a 711808 | S77-08b 711955 | S77-08c 711956 | S77-09a 711967 |
| | % | | 0.5 | ND | ND | ND | ND | ND | ND | ND | ND |
| Asbestos | Unit | G / S | M.D.L. | S77-09b 711968 | S77-09c 711969 | S77-10a 711970 | S77-11a 711973 | S77-11b 711974 | S77-11c 711975 | S77-12a 711976 | S77-12b 711977 |
| | % | | 0.5 | ND | ND | 25 | ND | ND | ND | ND | ND |
| Asbestos | Unit | G / S | M.D.L. | S77-12c 711978 | S77-13a 711979 | S77-13b 711980 | S77-13c 711981 | S77-14a 711982 | S77-14b 711983 | S77-14c 711984 | S77-15a 711985 |
| | % | | 0.5 | ND | ND | ND | ND | ND | ND | ND | ND |
| Asbestos | Unit | G / S | M.D.L. | S77-15b 711986 | S77-15c 711987 | S77-16a 711988 | S77-16b 711989 | S77-16c 711990 | S77-17a 711991 | S77-18a 711992 | S77-19a 711993 |
| | % | | 0.5 | ND | ND | ND | ND | ND | 60 | 40 | ND |
| Asbestos | Unit | G / S | M.D.L. | S77-19b 711994 | S77-19c 711995 | S77-20a 711996 | S77-20b 711997 | S77-20c 711998 | S77-21a 711999 | S77-21b 712000 | S77-21c 712001 |
| | % | | 0.5 | ND | ND | ND | ND | ND | ND | ND | ND |
| Asbestos | Unit | G / S | M.D.L. | S77-22a 712002 | S77-22b 712003 | S77-22c 712004 | S77-23a 712005 | S77-23b 712006 | S77-23c 712007 | S77-24a 712008 | S77-25 712011 |
| | % | | 0.5 | ND | ND | ND | ND | ND | ND | 30 | 35 |

Certified By: _____



Certificate of Analysis

AGAT WORK ORDER: 07T225437
PROJECT NO: PR-06-039

5623 McADAM ROAD
MISSISSAUGA, ON
CANADA L4Z 1N9

PH: (905)501-9998
FAX: (905)501-0589
<http://www.agatlabs.com>

CLIENT NAME: OAKHILL ENVIRONMENTAL

ATTENTION TO: Fil Barillo

Bulk Asbestos

DATE SAMPLED: May 09, 2007

DATE RECEIVED: May 18, 2007

DATE REPORTED: Jun 05, 2007

SAMPLE TYPE: Other

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard

711712-711724 Condition of sample was satisfactory at time of arrival in laboratory.
"ND" - Not Detected

711729 Condition of sample was satisfactory at time of arrival in laboratory.
Asbestos containing: Chrysotile

711737 Condition of sample was satisfactory at time of arrival in laboratory.
Asbestos containing: Chrysotile (25%) Amosite (30%)

711745-711763 Condition of sample was satisfactory at time of arrival in laboratory.
Asbestos containing: Chrysotile

711798-711969 Condition of sample was satisfactory at time of arrival in laboratory.
"ND" - Not Detected

711970 Condition of sample was satisfactory at time of arrival in laboratory.
Asbestos Containing: chrysotile

711973-711990 Condition of sample was satisfactory at time of arrival in laboratory.
"ND" - Not Detected

711991-711992 Condition of sample was satisfactory at time of arrival in laboratory.
Asbestos Containing: chrysotile

711993-712007 Condition of sample was satisfactory at time of arrival in laboratory.
"ND" - Not Detected

712008-712011 Condition of sample was satisfactory at time of arrival in laboratory.
Asbestos Containing: Chrysotile

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 07T227122
PROJECT NO:

5623 McADAM ROAD
MISSISSAUGA, ON
CANADA L4Z 1N9

PH: (905)501-9998
FAX: (905)501-0589
<http://www.agatlabs.com>

CLIENT NAME: OAKHILL ENVIRONMENTAL

ATTENTION TO: Fil Barillo

Bulk Asbestos

DATE SAMPLED: May 29, 2007

DATE RECEIVED: May 30, 2007

DATE REPORTED: May 31, 2007

SAMPLE TYPE: Other

| | Unit | G / S | M.D.L | S77-26A 719126 | S77-26E 719130 |
|----------|------|-------|-------|-------------------|-------------------|
| Asbestos | % | | 0.5 | 20 | 40 |

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard
719126-719130 Condition of sample was satisfactory at time of arrival in laboratory.

Asbestos Containing: Amosite

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 07T229535
PROJECT NO: PR-06-039

5623 McADAM ROAD
MISSISSAUGA, ON
CANADA L4Z 1N9

PH: (905)501-9998
FAX: (905)501-0589
<http://www.agatlabs.com>

CLIENT NAME: OAKHILL ENVIRONMENTAL

ATTENTION TO: Fil Barillo

Bulk Asbestos

| DATE SAMPLED: Jun 11, 2007 | | | DATE RECEIVED: Jun 18, 2007 | | | DATE REPORTED: Jul 03, 2007 | | | SAMPLE TYPE: Other | | |
|----------------------------|------|-------|-----------------------------|-------------------|-------------------|-----------------------------|-------------------|-------------------|--------------------|-------------------|-------------------|
| Asbestos | Unit | G / S | M.D.L. | S77-29A 734526 | S77-29B 734527 | S77-29C 734528 | S77-30A 734529 | S77-30B 734530 | S77-30C 734531 | S77-31A 734532 | S77-31B 734533 |
| | % | | 0.5 | ND | ND | ND | ND | ND | ND | ND | ND |
| Asbestos | Unit | G / S | M.D.L. | S77-31C 734534 | S77-32A 734535 | S77-32B 734536 | S77-33A 734537 | S77-33B 734538 | S77-33C 734539 | S77-32C 734540 | S77-36A 734541 |
| | % | | 0.5 | ND | ND | ND | ND | ND | ND | ND | 20 |
| Asbestos | Unit | G / S | M.D.L. | S77-34 734544 | S77-35A 734545 | S77-35B 734546 | S77-35C 734547 | | | | |
| | % | | 0.5 | 35 | ND | ND | ND | | | | |

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard

734526-734540 Condition of sample was satisfactory at time of arrival in laboratory.

"ND" - Not Detected

734541 Condition of sample was satisfactory at time of arrival in laboratory.

Asbestos Containing: Chrysotile

734544 Condition of sample was satisfactory at time of arrival in laboratory.

Asbestos Containing: Chrysotile (20%) Crocidolite (15%)

734545-734547 Condition of sample was satisfactory at time of arrival in laboratory.

"ND" - Not Detected

Certified By: _____

APPENDIX C

ANALYTICAL RESULTS – LEAD and MOULD



Certificate of Analysis

AGAT WORK ORDER: 07T225440
PROJECT NO: PR-06-039

5623 McADAM ROAD
MISSISSAUGA, ON
CANADA L4Z 1N9

PH: (905)501-9998
FAX: (905)501-0589
<http://www.agatlabs.com>

CLIENT NAME: OAKHILL ENVIRONMENTAL

ATTENTION TO: Fil Barillo

Lead in Paint

| DATE SAMPLED: May 09, 2007 | | DATE RECEIVED: May 18, 2007 | | | DATE REPORTED: May 31, 2007 | | | | SAMPLE TYPE: paint | | |
|----------------------------|------|-----------------------------|-------|------------------|-----------------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|
| | Unit | G / S | M.D.L | S77-L1 711546 | S77-L2 711563 | S77-L3 711565 | S77-L4 711567 | S77-L5 711569 | S77-L6 711572 | S77-L7 711574 | S77-L8 711576 |
| Lead | µg/g | | 10.0 | 6540 | 38000 | 69.9 | 67.6 | 36.6 | 816 | 748 | 4420 |
| | Unit | G / S | M.D.L | S77-L9 711578 | S77-L10 711580 | S77-L11 711582 | S77-L12 711584 | S77-L13 711587 | S77-L14 711589 | S77-L15 711590 | S77-L16 711593 |
| Lead | µg/g | | 10.0 | 1150 | 6270 | 1720 | 11100 | 938 | 159000 | 2680 | 22500 |

Comments: M.D.L - Method Detection Limit; G / S - Guideline / Standard

Certified By: _____



| | | | |
|--|-----------------------|--------------------------|---------------|
| RESULTS OF LABORATORY ANALYSES: | | JOB NO. 10250 | |
| To: | Fil Baricarro | Date of report: | June 01, 2007 |
| Company: | Oakhill Environmental | Date of sampling: | May 29, 2007 |
| Client Project: | PR-06-039 | Analyst: | Mike Saleh |

| | | | | | | |
|-----------------------------------|------------------|---|---|---|---|---|
| BIOTAPE SAMPLE ID: | 577-M01 | - | - | - | - | - |
| Location: | Chiller pipe | | | | | |
| Serial Number: | B354055 | | | | | |
| Expiry Date: | 01/08 | | | | | |
| FUNGAL IDENTIFICATION: | ELEMENTS: | MICROSCOPIC OBSERVATIONS* (RATING†): | | | | |
| ascomycetes NOS | mycelia | 2+ | | | | |
| | spores | 2+ | | | | |
| <i>Aspergillus/ Penicillium</i> | mycelia | - | | | | |
| | spores | 1+ | | | | |
| <i>Cladosporium</i> | mycelia | - | | | | |
| | spores | 1+ | | | | |
| <i>Stachybotrys</i> | mycelia | - | | | | |
| | spores | 1+ | | | | |
| <i>Ulocladium</i> | mycelia | 2+ | | | | |
| | spores | 2+ | | | | |
| OTHER OBSERVATIONS: | | | | | | |
| mite feces | | 1+ | | | | |
| FUNGAL GROWTH INDICATED?‡: | | Y | | | | |

AIHA EMPAT NO: 171117

* Mounted in lactofuchsin/ lactic acid, or other medium as required, with 50-100 fields examined in bright field microscopy at 400x magnification;

† - = not observed; tr = 10⁰-10¹ elements in total; 1+ = 10⁰-10¹ elements in each of ~25% fields; 2+ = 10¹-10² elements in each of ~50% fields; 3+ = 10²-10³ elements in each of ~75% fields; 4+ = > 75% fields obscured;

‡ Possibility of fungal growth *in situ* based on microscopic observations; Y = yes; N = no; ? = ambiguous. For explanation please refer to the final page of this report.

END OF REPORT

Examined by:

Released by:

Mike Saleh
Mycologist

Michael Warnock
Mycologist









| RESULTS OF LABORATORY ANALYSES: | | JOB NO. 10250 | |
|---------------------------------|-----------------------|-------------------|---------------|
| To: | Fil Baricarro | Date of report: | June 01, 2007 |
| Company: | Oakhill Environmental | Date of sampling: | May 29, 2007 |
| Client Project: | PR-06-039 | Analyst: | Mike Saleh |








Guidance on the interpretation of microscopic findings Samples of bulk materials as well as tape lift samples from potentially contaminated surfaces may be examined microscopically to assess the potential of these materials to be supporting fungal growth and serving as indoor fungal amplification sites. Guidelines on indoor microbial contamination proposed by Health Canada (HC. 1995. *Indoor air quality in office buildings: A technical guide*. Federal-Provincial Advisory Committee on Environmental and Occupational Health. Ottawa: Environmental Health Directorate 93-EHD-166 rev.) state unambiguously that indoor, active fungal growth sites are unacceptable regardless of the extent to which these amplifiers impact on the indoor airborne spore-load. Fungal spores are commonly borne on air currents and settle on flat surfaces as a matter of course. Thus, the observation of fungal spores alone is insufficient to characterize a specimen as a growth site. This judgment primarily requires the microscopic visualization of fungal filaments (“hyphae”, or *en masse*, “mycelia”). Additionally, the identification of different kinds of fungi usually requires the observation of spores (e.g. conidia, ascospores, etc.) along with the organs responsible for their production (e.g. conidiophores, ascomata, etc.). However, the latter rarely persist long after the spores have been produced, making definitive identification difficult or impossible in aged specimens. The rating system used by Sporometrics to score the frequency of structures observed microscopically is based on a 5-point assessment of 50-100 microscopic fields, usually taken at 400 x magnification. This system uses the following rating criteria:








| Descriptor | Criteria (based on 50-100 fields) | Interpretation of growth <i>in situ</i> according to observations: | |
|------------|--|--|--|
| | | Spores alone | Spores and spore-bearing structures or mycelia |
| tr | 10 ⁰ -10 ¹ elements in total | growth not indicated | growth not indicated |
| 1+ | 10 ⁰ -10 ¹ elements per ~25% fields | unclear | growth indicated |
| 2+ | 10 ¹ -10 ² elements per ~ 50% fields | growth indicated | growth indicated |
| 3+ | 10 ² -10 ³ elements per ~75% fields | growth indicated | growth indicated |
| 4+ | > 75% fields obscured by elements | growth indicated | growth indicated |








APPENDIX D
PHOTOGRAPH LOGS








S77 ASBESTOS PHOTOGRAPH LOG








| Photo # | Photograph | Functional Space # | Comments |
|---------|---|--------------------|--|
| 01 |  | SB32 | One removal is required of the damaged transite panel on the wall. (0.1m ²) |
| 02 |  | SB28 | One encapsulation is required on damaged the mag block pipe insulation on the steam system. (0.2 LM) |
| 03 |  | SB28 | Two encapsulations are required on the exposed ends of mag block pipe insulation on the steam and condensate systems. (0.2 LM) |
| 04 |  | SB28 | One encapsulation is required on the damaged mud joint compound fitting insulation on the condensate system. |
| 05 |  | SB28 | One encapsulation and one removal are required on the damaged mud joint compound fitting insulation on the condensate system. |
| 06 |  | SB28 | One encapsulation is required on the damaged mud joint compound fitting insulation on the steam system. |








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|----|--|---|--|------|---|
| 07 | |  | | SB28 | Two encapsulations are required on the damaged aircell pipe insulation on the hot water heating system. (0.4 LM) |
| 08 | |  | | SB28 | Two encapsulations are required on the exposed ends of aircell pipe insulation on the hot water heating system. (0.2 LM) |
| 09 | |  | | SB03 | One removal is required of the damaged mud joint compound fitting insulation on the hot water heating system. |
| 10 | |  | | SB06 | Two encapsulations are required on the exposed ends of aircell pipe insulation on the domestic cold water system. (0.2 LM) |
| 11 | |  | | SB06 | One encapsulation is required of the exposed end of sweat wrap (with tar paper layer) pipe insulation on the river water system. (0.2 LM) |
| 12 | |  | | SB10 | One removal is required of the damaged aircell pipe insulation on the domestic cold water system. (0.3 LM) |
| 13 | |  | | SB12 | Severely damaged 9"x9" floor tile requires removal. (1 m ²) |








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| 14 |  | SB12 | Clean-up is required of ACM debris (mud joint compound fitting insulation) on the floor from the hot water heating system. (0.3 m ²) |
| 15 |  | SB12 | One removal is required on the severely damaged mud joint compound fitting insulation on the hot water heating system. |
| 16 |  | SB12 | One encapsulation is required on the exposed end of aircell pipe insulation on the domestic hot water system. (0.2 LM) |
| 17 |  | SB12 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 18 |  | SB11 | One encapsulation is required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 19 |  | SB15 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.2 LM) |
| 20 |  | SB15 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |








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| 21 | |  | | SB13 | Severely damaged 9"x9" floor tile requires removal. (3 m ²) |
| 22 | |  | | SB10 | Severely damaged 9"x9" floor tile requires removal. (1 m ²) |
| 23 | |  | | SB10 | Severely damaged 9"x9" floor tile requires removal. (1 m ²) |
| 24 | |  | | SB38 | One encapsulation is required on the damaged aircell pipe insulation on the hot water heating system. (0.1 LM) |
| 25 | |  | | SB38 | One encapsulation is required on the damaged aircell pipe insulation on the hot water heating system. (0.1 LM) |
| 26 | |  | | SB41 | Two encapsulations are required on the damaged fireproofing on the wall. (1 m ²) |
| 27 | |  | | SB41 | Two encapsulations are required on the damaged fireproofing on the wall. (0.3 m ²) |








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|----|--|---|--|------|---|
| 28 | |  | | SB11 | One encapsulation is required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 29 | |  | | SB10 | One removal is required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 30 | |  | | SB10 | One removal is required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 31 | |  | | SB17 | One removal is required on the damaged mag block pipe insulation on the hot water heating system. (0.2 LM) |
| 32 | |  | | SB17 | One removal is required on the mud joint compound fitting insulation residual on the domestic cold water system. |
| 33 | |  | | SB44 | One removal is required on the damaged aircell pipe insulation on the condensate system. (0.3 LM) |
| 34 | |  | | SB44 | One encapsulation is required on the damaged aircell pipe insulation on the steam system. (0.3 LM) Two encapsulations are required on the damaged mud joint compound fitting insulation on the condensate system. |








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| 35 |  | | SB44 | One encapsulation is required on the damaged aircell pipe insulation on the condensate system. (0.5 LM) |
| 36 |  | | SB44 | Clean-up is required of the ACM debris (fireproofing) on the ceiling of room 162E. (1 m ²) |
| 37 |  | | SB28 | Two encapsulations are required on the damaged aircell pipe insulation on the hot water heating system. (0.2 LM) |
| 38 |  | | SB28 | Intact aircell pipe insulation lying on top of the duct system requires clean-up. (0.25 m ²) |
| 39 |  | | SB28 | One encapsulation is required on the damaged mag block pipe insulation on the condensate system. (0.1 LM) |
| 40 |  | | SB28 | Two encapsulations are required on the damaged aircell pipe insulation on the hot water heating system. (0.2 LM) |
| 41 |  | | SB19 | One encapsulation is required on the damaged mud joint compound fitting insulation on the river water system. |








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| 42 |  | SB19 | Two encapsulations are required on the damaged mud joint compound fitting insulation on the river water system. |
| 43 |  | SB19 | One encapsulation is required on the damaged mag block pipe insulation on the steam system. (0.5 LM) |
| 44 |  | SB19 | Removal is required on the damaged disconnected lines of mag block and aircell pipe insulation. (0.2 LM) |
| 45 |  | SB05 | Clean-up is required of ACM debris (mag block pipe insulation) on the floor from the hot water heating system. (0.5 m ²) |
| 46 |  | SB05 | Two removals are required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 47 |  | SB05 | One removal is required on the damaged mag block pipe insulation on the steam system. (0.3 LM) |
| 48 |  | SB05 | One removal is required on the damaged mud joint compound fitting insulation on the hot water heating system. |








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| 49 | |  | | SB05 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.1 LM) |
| 50 | |  | | SB05 | One removal is required on the damaged mag block pipe insulation on the hot water heating system. (0.5 LM) |
| 51 | |  | | SB05 | One removal is required on the damaged mag block pipe insulation on the hot water heating system. (0.3 LM) |
| 52 | |  | | SB05 | One removal is required on the damaged mud joint compound fitting insulation on the steam system. |
| 53 | |  | | SB05 | One encapsulation is required on the damaged aircell pipe insulation on the domestic cold water system. (0.4 LM) |
| 54 | |  | | SB03 | One removal is required on the damaged mag block pipe insulation on the hot water heating system. (0.5 LM) |
| 55 | |  | | SB03 | Clean-up is required of ACM debris (mag block pipe insulation) lying on top of the sprinkler water system. (0.3 m ²) |








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| 56 |  | | SB03 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.1 LM) |
| 57 |  | | SB03 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.5 LM) |
| 58 |  | | SB03 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.1 LM) |
| 59 |  | | SB03 | Clean-up is required of ACM debris (mag block pipe insulation) from the hot water heating system. (0.2 m ²) |
| 60 |  | | SB03 | Two encapsulations are required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 61 |  | | SB03 | One encapsulation is required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 62 |  | | SB03 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.2 LM) |





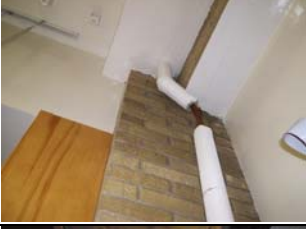


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|----|--|---|--|------|--|
| 63 | |  | | SB14 | One removal is required on the damaged mud joint compound fitting insulation (residual) on the hot water heating system. |
| 64 | |  | | SB14 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system at the wall. (0.2 LM) |
| 65 | |  | | SB14 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system at the wall. (0.2 LM) |
| 66 | |  | | SB02 | Two encapsulations are required on the damaged mag block pipe insulation on the hot water heating system. (0.2 LM) |
| 67 | |  | | SB02 | One removal is required on the damaged mud joint compound fitting insulation (residual) on the steam system. |
| 68 | |  | | SB02 | One encapsulation is required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 69 | |  | | SB02 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.1 LM) |








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|----|--|---|--|------|---|
| 70 | |  | | SB02 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.3 LM) |
| 71 | |  | | SB02 | One encapsulation is required on the damaged duct insulation (fibreglass with tar paper and ACM parging) on the duct system. (0.5 LM) |
| 72 | |  | | SB02 | One encapsulation is required on the damaged duct insulation (fibreglass with tar paper and ACM parging) on the duct system. (0.3 LM) |
| 73 | |  | | SB02 | One removal is required on the damaged duct insulation (fibreglass with tar paper and ACM parging) on the duct system. (0.5 LM) |
| 74 | |  | | SB02 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.1 LM) |
| 75 | |  | | SB02 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.1 LM) |
| 76 | |  | | SB02 | One removal is required on the damaged duct insulation (fibreglass with tar paper and ACM parging) on the duct system. (0.3 LM) |








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| 77 | |  | | SB02 | One encapsulation is required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 78 | |  | | SB02 | One removal is required on the damaged mag block pipe insulation under fibreglass on the steam system. (0.5 LM) |
| 79 | |  | | SB02 | Two encapsulations are required on the damaged mag block pipe insulation on the hot water heating system at the wall. (0.2 LM) |
| 80 | |  | | SB02 | One encapsulation is required on the damaged mud joint compound fitting insulation on the steam system. |
| 81 | |  | | SB02 | One encapsulation is required on the damaged mag block pipe insulation under fibreglass on the steam system. (0.1 LM) |
| 82 | |  | | SB21 | One encapsulation is required on the damaged fireproofing on the ceiling. (0.25 m ²) |
| 83 | |  | | SB21 | One encapsulation is required on the damaged fireproofing on the ceiling. (0.25 m ²) |








| | | | | | |
|----|--|---|--|------|--|
| 84 | |  | | SB21 | One encapsulation is required on the damaged fireproofing on the ceiling. (0.25 m ²) |
| 85 | |  | | SB42 | Six encapsulations are required on the damaged fireproofing on the ceiling column. (0.5 m ²) |
| 86 | |  | | SB46 | One encapsulation and one removal are required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 87 | |  | | SB46 | Clean-up is required of ACM debris (aircell and mag block pipe insulation) on the floor from the hot water heating system. (1 m ²) |
| 88 | |  | | SB46 | Two encapsulations are required on the damaged aircell pipe insulation on the hot water heating system. (0.2 LM) |
| 89 | |  | | SB46 | One removal is required on the damaged aircell pipe insulation on the hot water heating system. (0.3 LM) |
| 90 | |  | | SB46 | One removal is required on the damaged mud joint compound fitting insulation on the hot water heating system. |







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|----|--|---|--|------|--|
| 91 | |  | | SB32 | One removal is required of the damaged transite panel on the wall. (0.1m ²) |
| 92 | |  | | SB32 | One removal is required of the damaged transite panel on the wall. (0.1m ²) |
| 93 | |  | | SB32 | One encapsulation is required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 94 | |  | | SB03 | Clean-up is required of ACM debris (mag block pipe insulation) lying on top of the sprinkler water system. (0.3 m ²) |
| 95 | |  | | SB03 | One encapsulation is required on the damaged sweat wrap (with tar paper layer) pipe insulation on the river water system. (0.1 LM) |
| 96 | |  | | SB02 | One removal is required of an intact and unconnected section of mag block pipe insulation. (3 LM) |
| 97 | |  | | SB19 | One encapsulation is required on the damaged sweat wrap (with tar paper layer) pipe insulation on the river water system. (0.2 LM) |




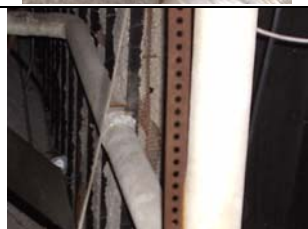



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| 98 |  | SB19 | One encapsulation is required on the damaged sweat wrap (with tar paper layer) pipe insulation on the river water system. (1 LM) |
| 99 |  | SB19 | One encapsulation is required on the damaged sweat wrap (with tar paper layer) pipe insulation on the river water system. (0.1 LM) |
| 100 |  | SB19 | Three encapsulations are required on the damaged sweat wrap (with tar paper layer) pipe insulation on the river water system. (0.3 LM) |
| 101 |  | SB19 | One encapsulation is required on the damaged mud joint compound fitting insulation on the river water system. |
| 102 |  | B004 | One encapsulation is required on the damaged aircell pipe insulation on the hot water heating system. (0.5 LM) |
| 103 |  | B046 | ACM debris and aircell pipe insulation accessed through a hatch in the men's washroom. |
| 104 |  | 1005 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |








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| 105 | |  | | 1013 | One removal is required on the damaged air cell pipe insulation on the domestic hot water system. (0.6 LM) |
| 106 | |  | | 1022 | Two removals are required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 107 | |  | | 1048 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 108 | |  | | 1048 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 109 | |  | | 1048 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 110 | |  | | 1060 | Clean-up is required of ACM debris (mag block pipe insulation and mud joint compound fitting insulation) above the ceiling. (1 m ²) |
| 111 | |  | | 1060 | One encapsulation is required on the damaged mag block pipe insulation on the domestic hot water system. (0.1 LM) |





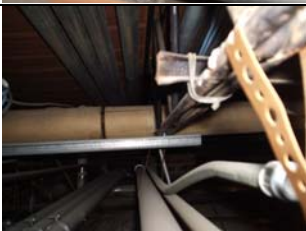


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|-----|--|---|--|------|---|
| 112 | |  | | 1060 | Three encapsulations are required on the damaged mag block pipe insulation on the domestic hot water system. (0.3 LM) |
| 113 | |  | | 1060 | Clean-up is required of ACM debris (mag block pipe insulation and mud joint compound fitting insulation) above the ceiling. (1 m ²) |
| 114 | |  | | 2019 | One removal is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 115 | |  | | 2019 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.2 LM) |
| 116 | |  | | 2023 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.1 LM) |
| 117 | |  | | 2023 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 118 | |  | | 2023 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |



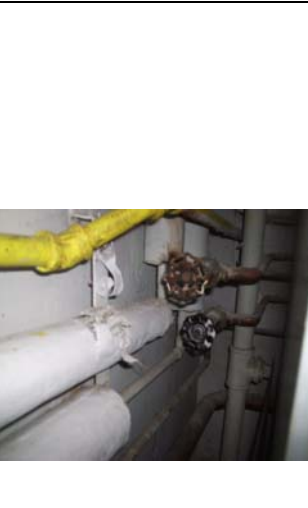



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| 119 |  | 2023 | Two encapsulations are required on the damaged aircell pipe insulation on the steam system. (0.5 LM) |
| 120 |  | 2023 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.2 LM) |
| 121 |  | 2025 | One encapsulation is required on the exposed end of aircell pipe insulation on the steam system. (0.1 LM) |
| 122 |  | 2025 | One encapsulation is required on the exposed end of aircell pipe insulation on the steam system. (0.1 LM) |
| 123 |  | 2026 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 124 |  | 2026 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 125 |  | 2031 | Clean-up is required of ACM debris (mud joint compound fitting insulation) located in a vertical pipe chase accessed through a hatch. (0.25 m ²) |








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| 126 |  | 2064 | Two encapsulations are required on the damaged aircell pipe insulation on the steam system. (0.2 LM) |
| 127 |  | 1058 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 128 |  | 1058 | One removal is required on the damaged mag block pipe insulation on the hot water heating system. (0.4 LM) |
| 129 |  | 1058 | One encapsulation is required on the damaged mag block pipe insulation on the hot water heating system. (0.1 LM) |
| 130 |  | 3022 | One encapsulation is required on the exposed end of aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 131 | Photo did not process properly | 3026 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 132 |  | 3059 | One encapsulation and one removal are required on the damaged mag block pipe insulation on the hot water heating system. (0.1 LM encap & 0.2 LM removal) |








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|-----|--|---|--|------|--|
| 133 | |  | | 3073 | One encapsulation is required on the exposed end of aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 134 | |  | | 3073 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 135 | |  | | 3073 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 136 | |  | | 3073 | Two encapsulations are required on the damaged aircell pipe insulation on the domestic hot water system. (0.3 LM) |
| 137 | |  | | 3073 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 138 | |  | | 3073 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 139 | |  | | 3073 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic hot water system. |



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| 140 | |  | | 3073 | Two encapsulations are required on the exposed ends of aircell pipe insulation on the domestic hot water system. (0.2 LM) |
| 141 | |  | | 3073 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 142 | |  | | 3073 | One removal is required on the damaged aircell pipe insulation on the domestic hot water system. (0.3 LM) |
| 143 | |  | | 3073 | Removal is required on the damaged mag block pipe insulation on the hot water heating system. (26 LM) |
| 144 | |  | | 3073 | Clean-up is required of ACM debris (mag block pipe insulation) above the ceiling. (1 m ²) |
| 145 | |  | | 3073 | Clean-up is required of ACM debris (mud joint compound) above the ceiling. (1 m ²) (Change in FS FORM) |
| 146 | |  | | 3073 | Two encapsulations are required on the damaged mud joint compound fitting insulation on the domestic hot water system. |

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| 147 |  | 3073 | One removal is required on the damaged aircell pipe insulation on the domestic hot water system. (1 LM) |
| 148 |  | 3073 | One encapsulation is required on the mag block pipe insulation on the hot water heating system. (0.1 LM) |
| 149 |  | 3073 | One encapsulation is required on the mag block pipe insulation on the hot water heating system. (0.1 LM) |
| 150 |  | 3073 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic hot water system. |
| 151 |  | 3073 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 152 |  | 3073 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |
| 153 |  | 3073 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.1 LM) |







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|-----|--|---|------|---|
| 154 | |  | 3073 | Clean-up is required of ACM debris (aircell pipe insulation) above the ceiling. (1 m ²) |
| 155 | |  | 1043 | Two encapsulations are required on the mag block pipe insulation on the hot water heating system. (0.2 LM) |
| 156 | |  | 1043 | One encapsulation on the damaged mud joint compound fitting insulation and one encapsulation on the exposed end of aircell pipe insulation are required on the domestic hot water system. (0.2 LM) Two encapsulations are required on the exposed ends of mag block pipe insulation on the hot water heating system. (0.2 LM) |
| 157 | |  | 1043 | Two encapsulations are required on the damaged aircell pipe insulation on the domestic hot water system. (0.2 LM) |
| 158 | |  | 1043 | One encapsulation is required on the damaged mud joint compound fitting insulation on the hot water heating system. |
| 159 | |  | 1023 | One encapsulation is required on the damaged aircell pipe insulation on the domestic hot water system. (0.4 LM) |








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| 160 |  | B048 | One encapsulation is required on the damaged mud joint compound fitting insulation on the domestic cold water system. |
| 161 |  | B048 | One encapsulation is required on the damaged aircell pipe insulation above the ceiling on the hot water heating system. (0.1 LM) |
| 162 |  | PH10 | Two encapsulations are required on the damaged mud joint compound fitting insulation. One on the steam system and one on the domestic cold water system. |
| 163 |  | PH10 | Two encapsulations are required on the damaged mud joint compound fitting insulation on the steam system. |
| 164 |  | PH10 | One encapsulation is required on the damaged mud joint compound fitting insulation on the steam system. |
| 165 |  | PH10 | One encapsulation is required on the damaged mud joint compound fitting insulation on the steam system. |
| 166 |  | PH10 | One encapsulation is required on the damaged mud joint compound fitting insulation on the steam system. |




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|-----|--|---|--|------|--|
| 167 | |  | | PH10 | One encapsulation is required on the damaged mud joint compound fitting insulation on the steam system. |
| 168 | |  | | PH10 | One encapsulation is required on the damaged mud joint compound fitting insulation on the steam system. |
| 169 | |  | | PH10 | One encapsulation is required on the damaged mud joint compound fitting insulation on the steam system. |
| 170 | |  | | PH10 | Two encapsulations are required on the damaged mag block pipe insulation on the steam system. (0.2 LM) |
| 171 | |  | | PH10 | One encapsulation is required on the damaged mag block pipe insulation on the steam system. (0.1 LM) |
| 172 | |  | | PH10 | One encapsulation is required on the damaged mag block pipe insulation on the steam system. (0.1 LM) |
| 173 | |  | | PH10 | One removal is required on the mud joint compound fitting insulation (residual) on the hot water heating system. |

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| 174 | |  | | 4001 | One encapsulation is required on the damaged air cell pipe insulation on the domestic hot water system. (0.2 LM) |
| 175 | |  | | SB32 | One removal is required of the damaged transite panel on the wall (0.1m ²) |







S-77 LEAD PHOTOGRAPH LOG







| Photo # | Photograph | Funct. Space # | Comments |
|---------|---|----------------|---|
| L1 |  | SB01 | Red paint located on the floor. (6540 ppm) |
| L2 |  | SB01 | Yellow paint located on the floor. (38000 ppm) |
| L3 |  | SB03 | Medium grey paint located on the floor. (<5000ppm) |
| L4 |  | SB05 | Bright red paint located on the floor, piping and panels. (<5000ppm) |
| L5 |  | SB05 | Pale green paint located on the wall. (<5000ppm) |
| L6 |  | SB17 | Pale blue paint located on the wall. (<5000ppm) |








| | | | |
|-----|---|------|---|
| L7 |  | SB17 | Peach paint located on the wall. (<5000ppm) |
| L8 |  | SB17 | Green paint located on the wall, door & frame. (<5000ppm) |
| L9 |  | SB17 | Silver paint located on the metal ceiling and the I-beams. (<5000ppm) |
| L10 |  | SB17 | Light grey paint over red paint located on the floor. (6270 ppm) |
| L11 |  | SB19 | Gloss black paint located on a panel on the wall. (<5000ppm) |
| L12 |  | SB32 | Dark green paint located on the wall. (11100 ppm) |
| L13 |  | SB03 | Cream paint located on the piping. (<5000ppm) |

| | | | | | |
|-----|--|---|--|------|---|
| L14 | |  | | SB11 | Flat-black paint located on the dark room walls. (159000 ppm) |
| L15 | |  | | SB11 | Medium green paint located on the oxygen pipes. (<5000ppm) |
| L16 | |  | | NA | Black paint located on the window frames. (22500 ppm) |






S-77 MOULD PHOTOGRAPH LOG








| Photo # | Photograph | Funct. Space # | Comments |
|---------|---|----------------|-----------------------------------|
| M01 |  | SB07 | Mould on metal duct system. |
| M02 |  | SB01 | Mould on chiller pipe insulation. |
| M03 |  | SB34 | Mould on chiller pipe insulation. |
| M04 |  | SB34 | Mould on chiller pipe insulation. |
| M05 |  | SB01 | Mould on chiller pipe insulation. |
| M06 |  | SB01 | Mould on chiller pipe insulation. |








| | | | | |
|-----|---|--|------|---|
| M07 |  | | SB01 | Mould on chiller pipe insulation. |
| M08 |  | | SB08 | Mould on chiller pipe insulation. |
| M09 |  | | SB08 | Mould on chiller pipe insulation. |
| M10 |  | | SB08 | Mould on chiller pipe insulation. |
| M11 |  | | SB44 | Mould on chiller pipe insulation. |
| M12 |  | | SB31 | Mould on chiller & steam pipe insulation. |
| M13 |  | | SB46 | Mould on chiller pipe insulation. |








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|-----|---|------|-----------------------------------|
| M14 |  | B005 | Mould on chiller pipe insulation. |
| M15 |  | B015 | Mould on chiller pipe insulation. |
| M16 |  | B015 | Mould on 2'x4' ceiling tile. |
| M17 |  | B024 | Mould on chiller pipe insulation. |
| M18 |  | B024 | Mould on 2' x 4' ceiling tile. |
| M19 |  | B027 | Mould on duct system. |
| M20 |  | B031 | Mould on 2' x 4' ceiling tile. |





| | | | | |
|-----|---|--|------|-----------------------------------|
| M21 |  | | B031 | Mould on 2' x 4' ceiling tile. |
| M22 |  | | B032 | Mould on chiller pipe insulation. |
| M23 |  | | B032 | Mould on chiller pipe insulation. |
| M24 |  | | B033 | Mould on chiller pipe insulation. |
| M25 |  | | B033 | Mould on chiller pipe insulation. |
| M26 |  | | B033 | Mould on 2' x 4' ceiling tile. |
| M27 |  | | B033 | Mould on 2' x 4' ceiling tile. |








| | | | |
|-----|---|------|--|
| M28 |  | B033 | Potential mould issue inside wall cavity. No mould observed. |
| M29 |  | B033 | Mould on wood panel attached to wall cavity. |
| M30 |  | B041 | Mould on chiller pipe insulation. |
| M31 |  | B045 | Mould on chiller pipe insulation. |
| M32 |  | B045 | Mould on chiller pipe insulation. |
| M33 |  | B054 | Mould on 2' x 4' ceiling tile. |
| M34 |  | B054 | Mould on 2' x 4' ceiling tile. |








| | | | | |
|-----|---|--|------|-----------------------------------|
| M35 |  | | B063 | Mould on 2' x 4' ceiling tile. |
| M36 |  | | B063 | Mould on 2' x 4' ceiling tile. |
| M37 |  | | B063 | Mould on 2' x 4' ceiling tile. |
| M38 |  | | B066 | Mould on chiller pipe insulation. |
| M39 |  | | B066 | Mould on chiller pipe insulation. |
| M40 |  | | 1009 | Mould on 2' x 4' ceiling tile. |
| M41 |  | | 1009 | Mould on 2' x 4' ceiling tile. |








| | | | |
|-----|---|------|-----------------------------------|
| M42 |  | 1045 | Mould on 2' x 4' ceiling tile. |
| M43 |  | 1045 | Mould on 2' x 4' ceiling tile. |
| M44 |  | 1054 | Mould on chiller pipe insulation. |
| M45 |  | 1054 | Mould on 2' x 4' ceiling tile. |
| M46 |  | 2001 | Mould on 2' x 4' ceiling tile. |
| M47 |  | 2001 | Mould on 2' x 4' ceiling tile. |
| M48 |  | 2001 | Mould on 2' x 4' ceiling tile. |








| | | | | |
|-----|---|--|------|-----------------------------------|
| M49 |  | | 2003 | Mould on 2' x 4' ceiling tile. |
| M50 |  | | 2004 | Mould on 2' x 4' ceiling tile. |
| M51 |  | | 2004 | Mould on chiller pipe insulation. |
| M52 |  | | 2006 | Mould on 2' x 4' ceiling tile. |
| M53 |  | | 2010 | Mould on chiller pipe insulation. |
| M54 |  | | 2013 | Mould on 2' x 4' ceiling tile. |
| M55 |  | | 2015 | Mould on 2' x 4' ceiling tile. |







| | | | |
|-----|---|------|-----------------------------------|
| M56 |  | 2016 | Mould on 2' x 4' ceiling tile. |
| M57 |  | 2016 | Mould on 2' x 4' ceiling tile. |
| M58 |  | 2017 | Mould on chiller pipe insulation. |
| M59 |  | 2018 | Mould on 2' x 4' ceiling tile. |
| M60 |  | 2021 | Mould on 2' x 4' ceiling tile. |
| M61 |  | 2021 | Mould on chiller pipe insulation. |
| M62 |  | 2021 | Mould on chiller pipe insulation. |








| | | | | |
|-----|---|--|------|-----------------------------------|
| M63 |  | | 2025 | Mould on 2' x 4' ceiling tile. |
| M64 |  | | 2025 | Mould on chiller pipe insulation. |
| M65 |  | | 2025 | Mould on chiller pipe insulation. |
| M66 |  | | 2026 | Mould on chiller pipe insulation. |
| M67 |  | | 2028 | Mould on 2' x 4' ceiling tile. |
| M68 |  | | 2028 | Mould on 2' x 4' ceiling tile. |
| M69 |  | | 2029 | Mould on 2' x 4' ceiling tile. |





| | | | | |
|-----|---|--|------|-----------------------------------|
| M70 |  | | 2029 | Mould on 2' x 4' ceiling tile. |
| M71 |  | | 2032 | Mould on 2' x 4' ceiling tile. |
| M72 |  | | 2042 | Mould on 2' x 4' ceiling tile. |
| M73 |  | | 2042 | Mould on 2' x 4' ceiling tile. |
| M74 |  | | 2048 | Mould on 2' x 4' ceiling tile. |
| M75 |  | | 2052 | Mould on 2' x 4' ceiling tile. |
| M76 |  | | 2064 | Mould on chiller pipe insulation. |

| | | | |
|-----|---|------|-----------------------------------|
| M77 |  | 1058 | Mould on chiller pipe insulation. |
| M78 |  | 1061 | Mould on chiller pipe insulation. |
| M79 |  | 3016 | Mould on 2' x 4' ceiling tile. |
| M80 |  | 3019 | Mould on 2' x 4' ceiling tile. |
| M81 |  | 3020 | Mould on 2' x 4' ceiling tile. |
| M82 |  | 3024 | Mould on chiller pipe insulation. |
| M83 |  | 3024 | Mould on 2' x 4' ceiling tile. |

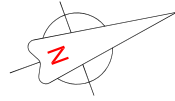
| | | | |
|-----|---|------|-----------------------------------|
| M84 |  | 3024 | Mould on 2' x 4' ceiling tile. |
| M85 |  | 3024 | Mould on 2' x 4' ceiling tile. |
| M86 |  | 3028 | Mould on 2' x 4' ceiling tile. |
| M87 |  | 3033 | Mould on 2' x 4' ceiling tile. |
| M88 |  | 3034 | Mould on chiller pipe insulation. |
| M89 |  | 3045 | Mould on chiller pipe insulation. |
| M90 |  | 3045 | Mould on chiller pipe insulation. |

| | | | | |
|-----|---|--|------|-----------------------------------|
| M91 |  | | 3045 | Mould on 2' x 4' ceiling tile. |
| M92 |  | | 3059 | Mould on 2' x 4' ceiling tile. |
| M93 |  | | 3073 | Mould on chiller pipe insulation. |
| M94 | Photo did not process properly. | | 3073 | Mould on chiller pipe insulation. |
| M95 | Photo did not process properly. | | 3073 | Mould on chiller pipe insulation. |
| M96 | Photo did not process properly. | | 3073 | Mould on chiller pipe insulation. |
| M97 |  | | 4018 | Mould on chiller pipe insulation. |
| M98 |  | | 4006 | Mould on 2' x 4' ceiling tile. |
| M99 |  | | 4023 | Mould on chiller pipe insulation. |

| | | | |
|------|---|------|-----------------------------------|
| M100 |  | 4023 | Mould on chiller pipe insulation. |
| M101 |  | 2034 | Mould on 2' x 4' ceiling tile. |
| M02 |  | 2049 | Mould on 2' x 4' ceiling tile. |
| M103 |  | 1039 | Mould on chiller pipe insulation. |
| M104 |  | 1057 | Mould on chiller pipe insulation. |
| M105 |  | 1057 | Mould on 2' x 4' ceiling tile. |
| M106 |  | 1056 | Mould on 2'x4' ceiling tile. |

| | | | |
|------|--|------|-----------------------------------|
| M107 |  | 1062 | Mould on chiller pipe insulation. |
| M108 |  | 1062 | Mould on 2' x 4' ceiling tile. |
| M109 |  | B021 | Mould on 2' x 4' ceiling tile. |
| M110 |  | PH02 | Mould on chiller pipe insulation. |

APPENDIX E
FLOOR PLANS



OAKHILL
ENVIRONMENTAL

LEGEND

- 1001 FUNCTIONAL SPACE #
- INACCESSIBLE AREA
- LIMITED ACCESS AREA
- ACM FLOOR TILE
- ACM DEBRIS
- ACM PIPE INSULATION: STEAM
- ACM PIPE INSULATION: CONDENSATE
- ACM PIPE INSULATION: HW HEATING
- ACM PIPE INSULATION: DOMESTIC CW
- ACM PIPE INSULATION: DOMESTIC HW
- ACM PIPE INSULATION: RIVER WATER
- ACM DUCT INSULATION
- ACM FITTING INSULATION: STEAM
- ACM FITTING INSULATION: CONDENSATE
- ACM FITTING INSULATION: HW HEATING
- ACM FITTING INSULATION: DOMESTIC CW
- ACM FITTING INSULATION: DOMESTIC HW
- ACM FITTING INSULATION: CHILLER
- ACM TRANSITE WALL PANEL
- ACM TRANSITE CEILING TILE

NOTE:
ACM fitting insulation locations are shown only on systems where NON-ACM pipe insulation was found. ONLY ACM ELBOWS are shown. These systems may also have ACM on: t's, valves, ends, hangers, etc.

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PROJECT

DESIGNATED SUBSTANCES SURVEY
BUILDING S-77

PROJECT NO.

PR-06-39

DATE

AUGUST 2007

SCALE

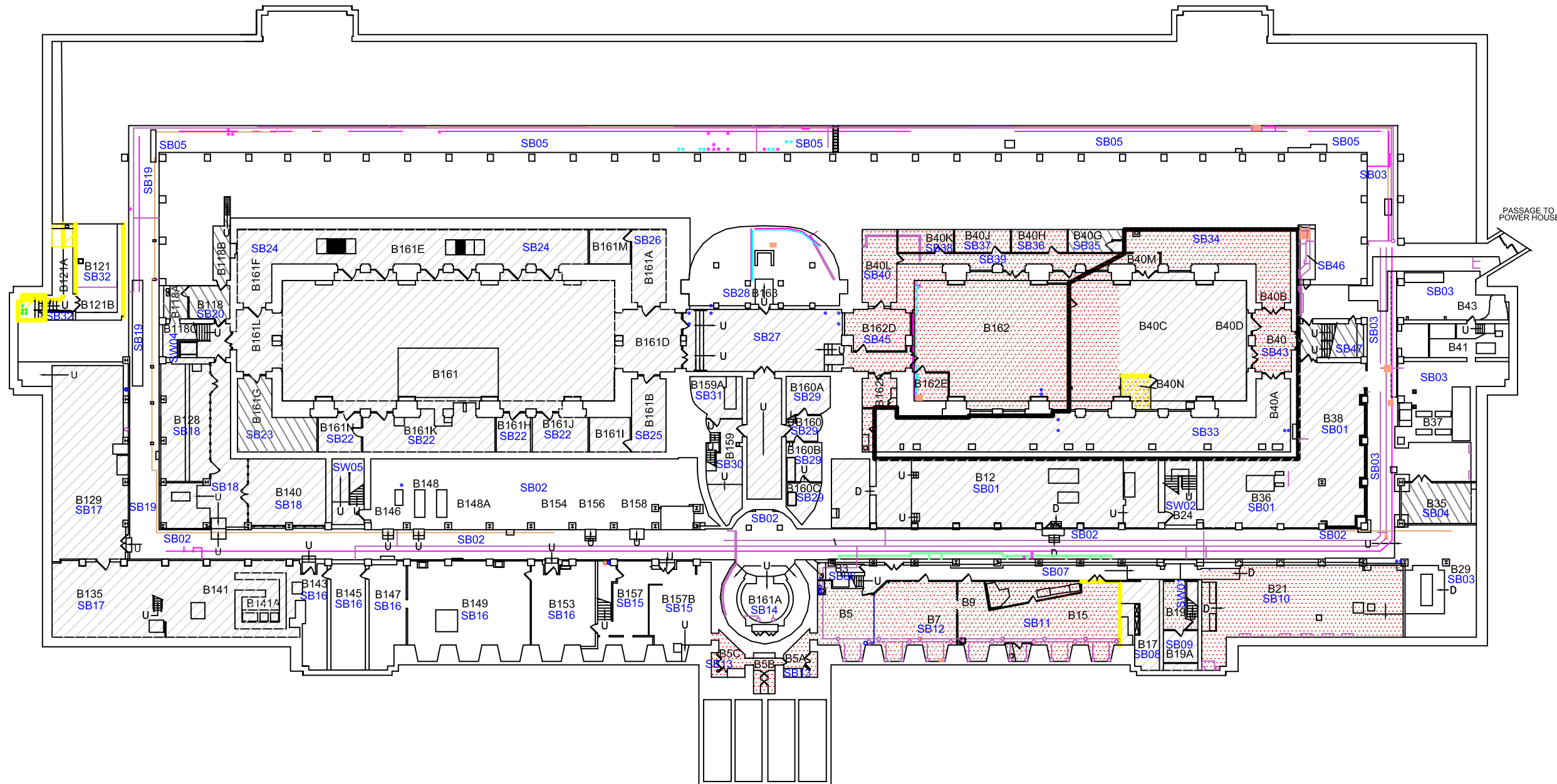
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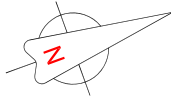
TITLE

SUB-BASEMENT
ASBESTOS
LOCATIONS

SHEET

SB-1





OAKHILL ENVIRONMENTAL

LEGEND

- 1001 FUNCTIONAL SPACE #
- ▲ DAMAGED ACM LOCATION
- P# PHOTOGRAPH #
- ▨ INACCESSIBLE AREA
- ▧ LIMITED ACCESS AREA
- ACM PIPE INSULATION: STEAM
- ACM PIPE INSULATION: CONDENSATE
- ACM PIPE INSULATION: HW HEATING
- ACM PIPE INSULATION: DOMESTIC CW
- ACM PIPE INSULATION: DOMESTIC HW
- ACM PIPE INSULATION: RIVER WATER
- ACM DUCT INSULATION
- ACM FITTING INSULATION: STEAM
- ACM FITTING INSULATION: CONDENSATE
- ACM FITTING INSULATION: HW HEATING
- ACM FITTING INSULATION: DOMESTIC CW
- ACM FITTING INSULATION: DOMESTIC HW
- ACM FITTING INSULATION: CHILLER
- ACM TRANSITE WALL PANEL
- ACM TRANSITE CEILING TILE
- ACM FLOOR TILE
- ACM DEBRIS

NOTE:
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PROJECT

DESIGNATED SUBSTANCES SURVEY
BUILDING S-77

PROJECT NO.

PR-06-39

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SCALE

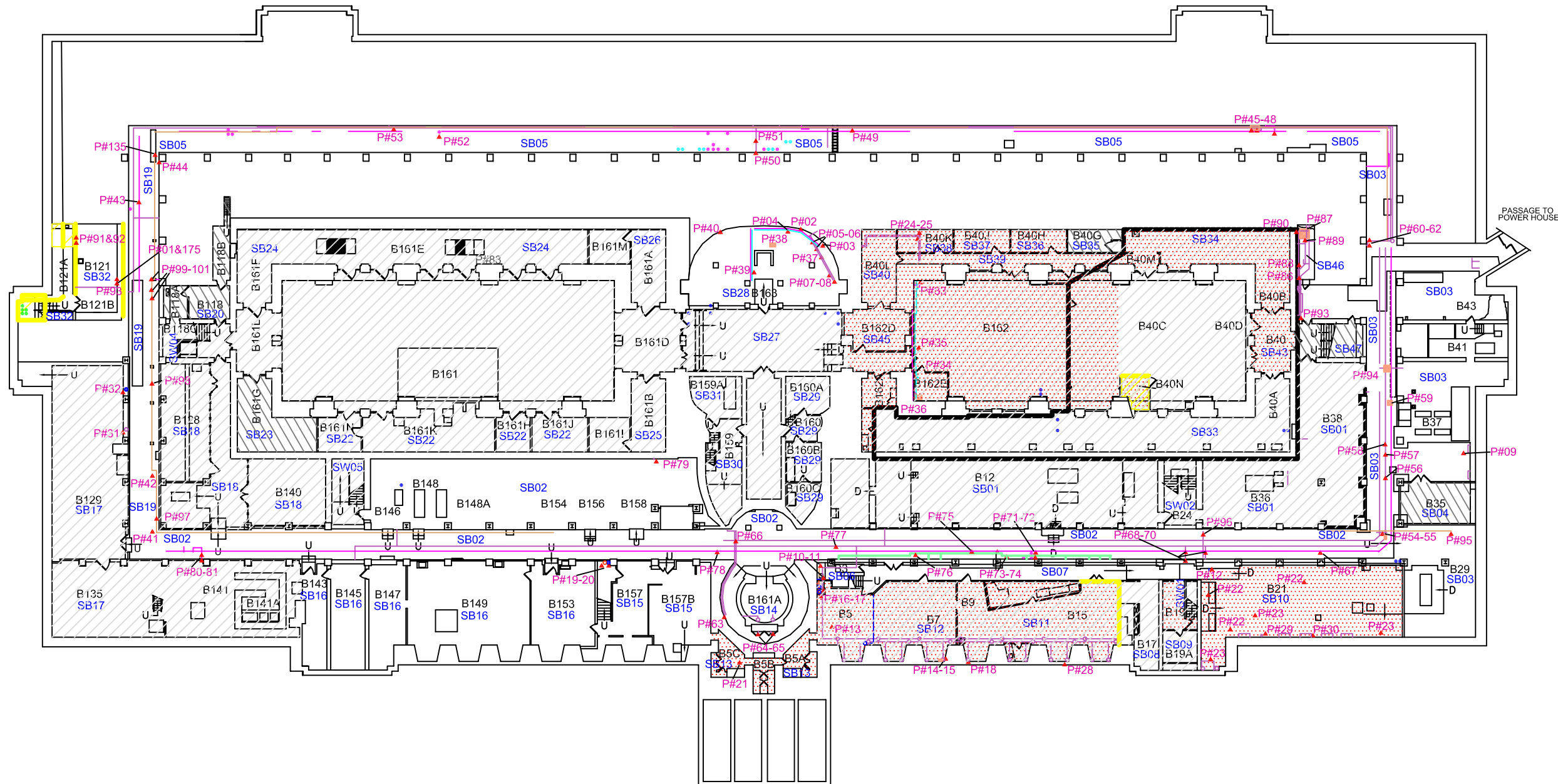
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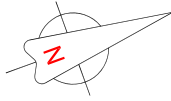
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SUB-BASEMENT
ASBESTOS
SURVEY

SHEET

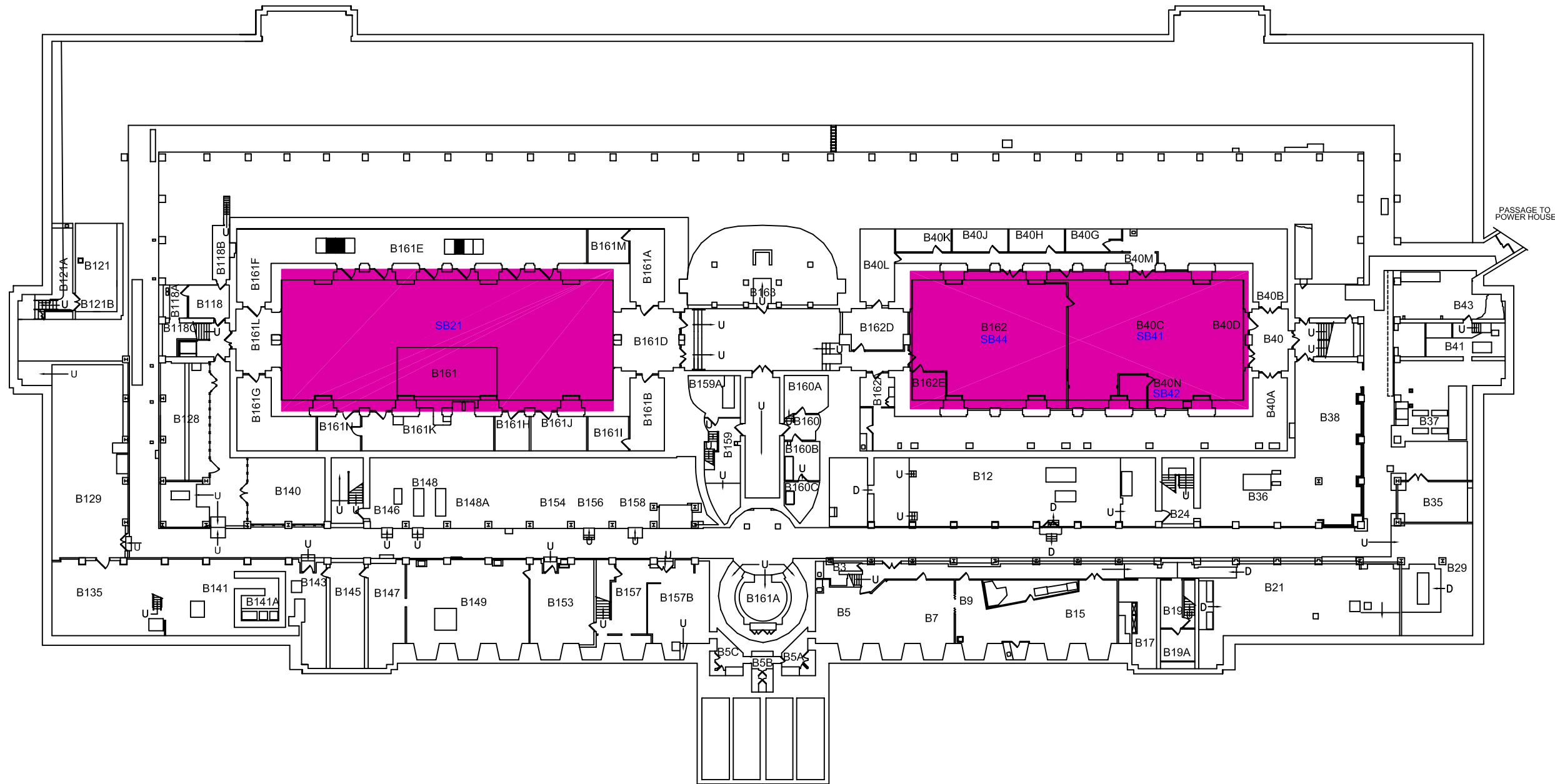
SB-2





LEGEND

- 1001 FUNCTIONAL SPACE #
- ACM FIREPROOFING



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DESIGNATED SUBSTANCES SURVEY
BUILDING S-77

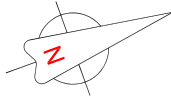
PROJECT NO.
PR-06-39

DATE
AUGUST 2007

SCALE
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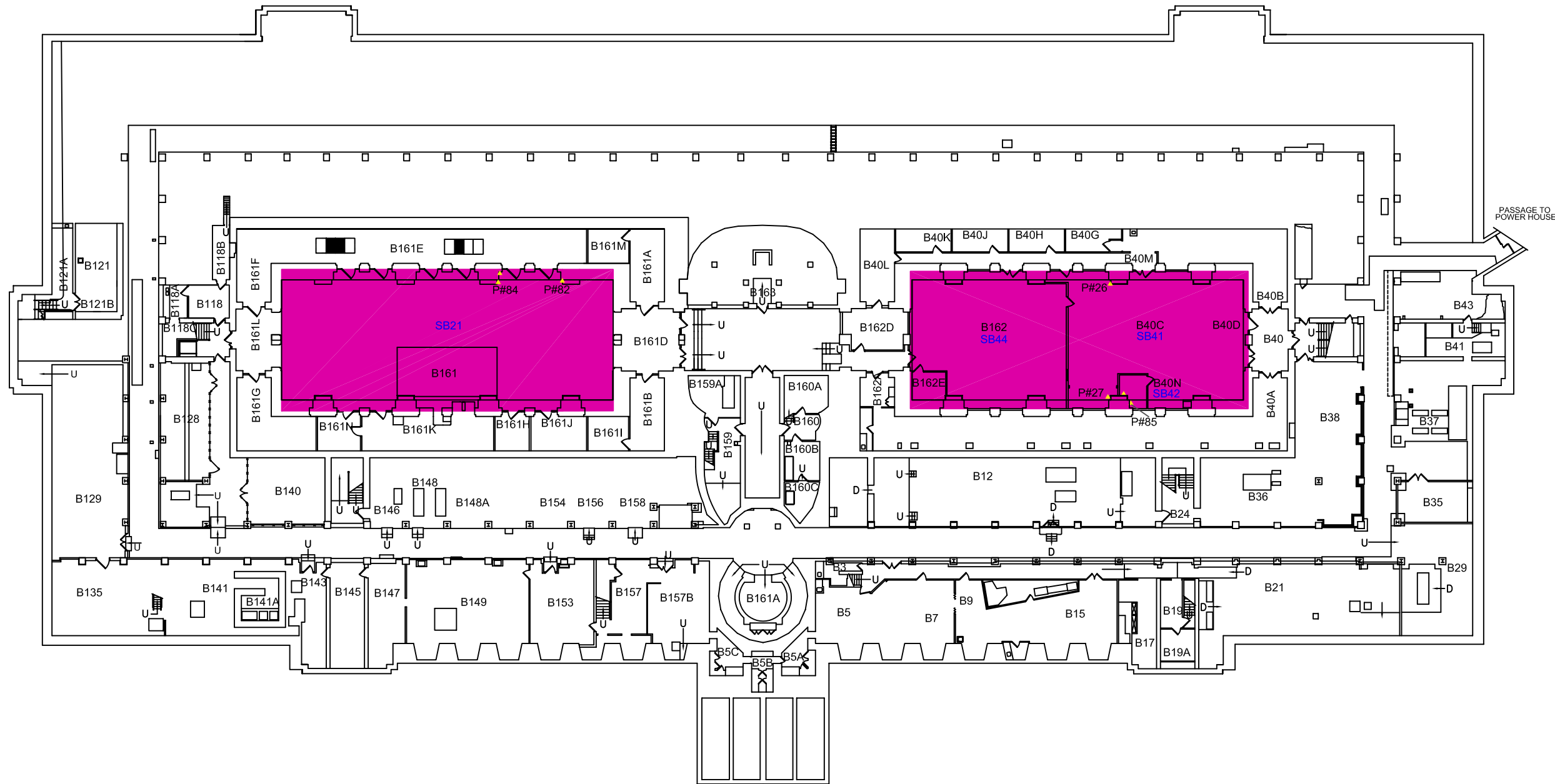
TITLE
SUB-BASEMENT
ASBESTOS
FIREPROOFING

SHEET
SB-1A



LEGEND

- 1001 FUNCTIONAL SPACE #
- ACM FIREPROOFING
- DAMAGED ACM LOCATION
- P# PHOTOGRAPH #



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PROJECT

DESIGNATED SUBSTANCES SURVEY
BUILDING S-77

PROJECT NO.

PR-06-39

DATE

AUGUST 2007

SCALE

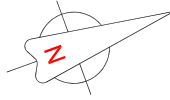
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TITLE

SUB-BASEMENT
ASBESTOS
FIREPROOFING
SURVEY

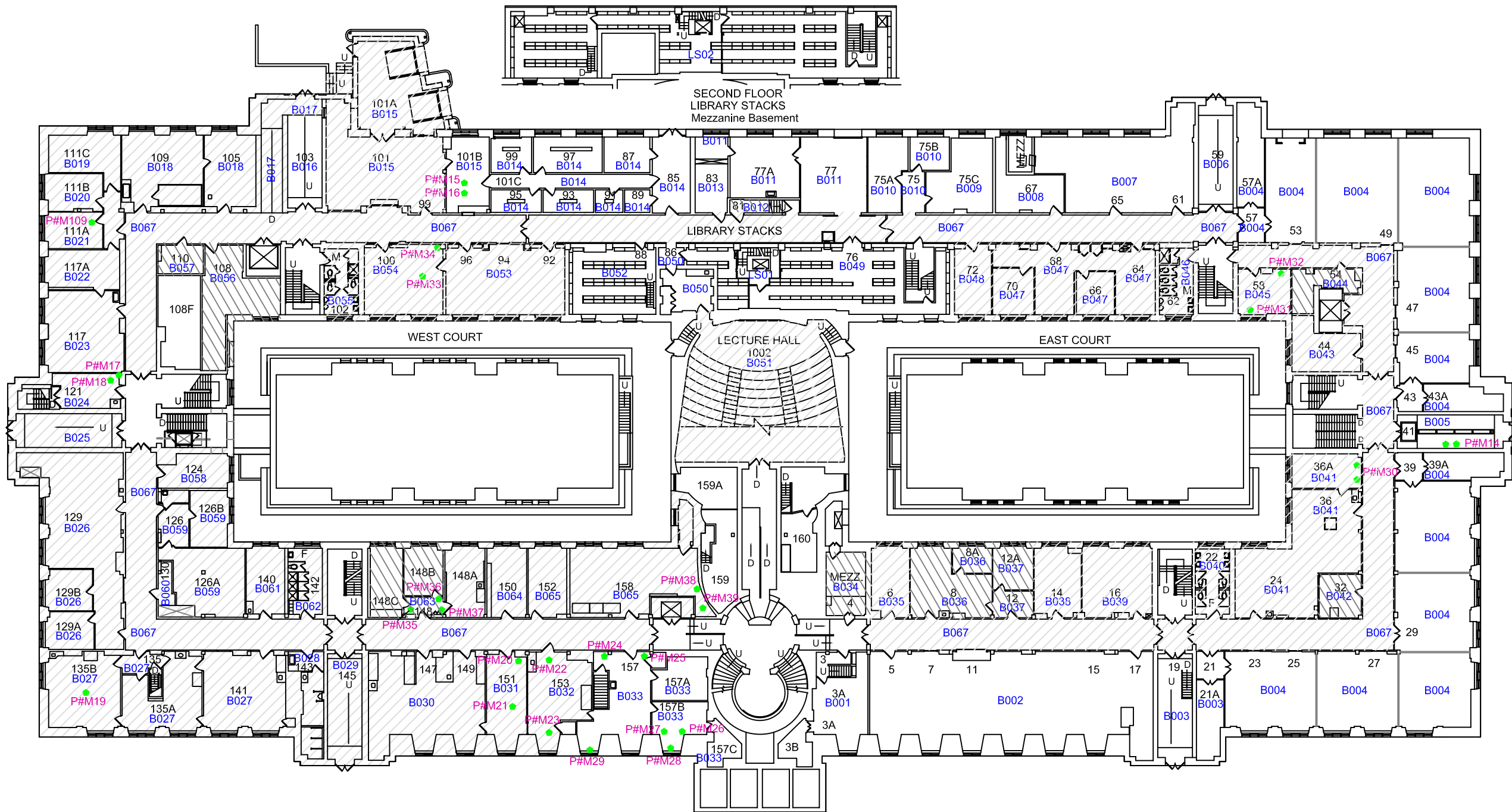
SHEET

SB-2A



LEGEND

- 1001 FUNCTIONAL SPACE #
- LEAD SAMPLE LOCATION (>5000 ppm)
- MOULD LOCATION
- PHOTOGRAPH #
- LIMITED ACCESS AREA
- INACCESSIBLE AREA



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 DESIGNATED SUBSTANCES SURVEY
 BUILDING S-77

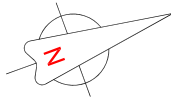
PROJECT NO.
 PR-06-39

DATE
 AUGUST 2007

SCALE
 NTS

TITLE
**-BASEMENT-
 LEAD SAMPLES
 &
 MOULD
 LOCATIONS**

SHEET
B-3



OAKHILL
ENVIRONMENTAL

LEGEND

- 1001 FUNCTIONAL SPACE #
- INACCESSIBLE AREA
- LIMITED ACCESS AREA
- ACM PIPE INSULATION: HW HEATING
- ACM PIPE INSULATION: DOMESTIC HW
- ACM FITTING INSULATION: STEAM
- ACM FITTING INSULATION: HW HEATING
- ACM FITTING INSULATION: DOMESTIC CW
- ACM FITTING INSULATION: DOMESTIC HW
- ACM DEBRIS

NOTE:
ACM fitting insulation locations are shown only on systems where NON-ACM pipe insulation was found. ONLY ACM ELBOWS are shown. These systems may also have ACM on: f's, valves, ends, hangers, etc.

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BUILDING S-77

PROJECT NO.

PR-06-39

DATE

AUGUST 2007

SCALE

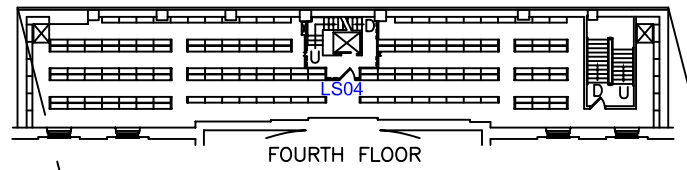
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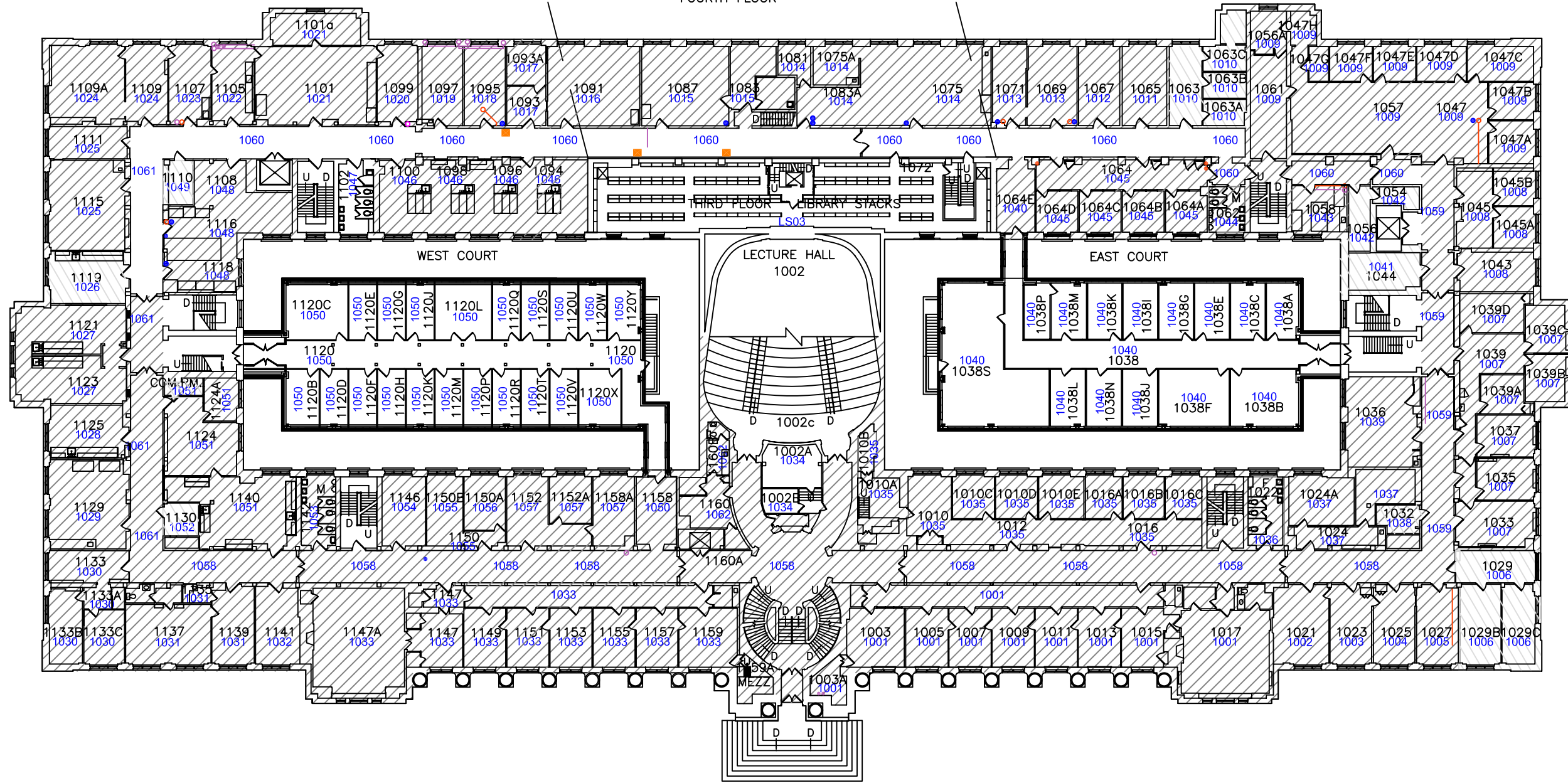
FIRST FLOOR
ASBESTOS
LOCATIONS

SHEET

1-1



FOURTH FLOOR



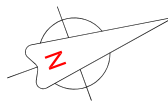
THIRD FLOOR LIBRARY STACKS

WEST COURT

LECTURE HALL 1002

EAST COURT

MEZZ



OAKHILL
ENVIRONMENTAL

LEGEND

- 1001 FUNCTIONAL SPACE #
- SAMPLE LOCATION: NON-ACM
- ▲ DAMAGED ACM LOCATION
- P# PHOTOGRAPH #
- ▨ INACCESSIBLE AREA
- ▨ LIMITED ACCESS AREA
- ACM PIPE INSULATION: HW HEATING
- ACM PIPE INSULATION: DOMESTIC HW
- ACM FITTING INSULATION: STEAM
- ACM FITTING INSULATION: HW HEATING
- ACM FITTING INSULATION: DOMESTIC CW
- ACM FITTING INSULATION: DOMESTIC HW
- ACM DEBRIS

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PROJECT

DESIGNATED SUBSTANCES SURVEY
BUILDING S-77

PROJECT NO.

PR-06-39

DATE

AUGUST 2007

SCALE

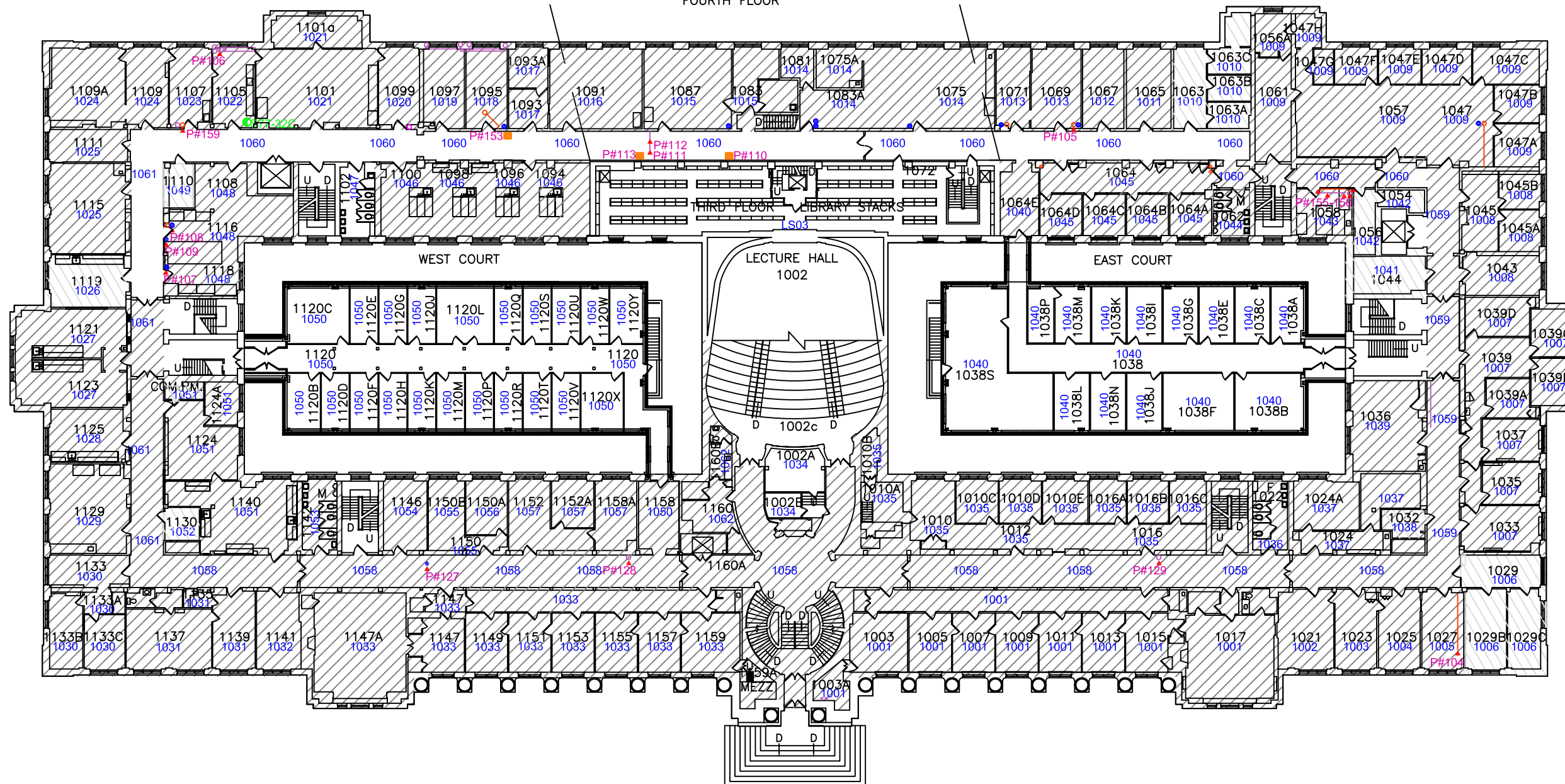
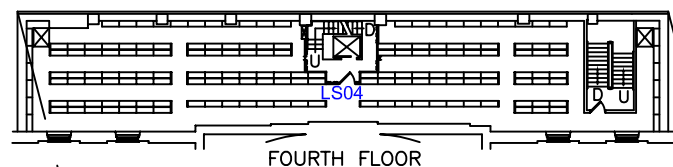
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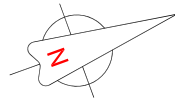
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FIRST FLOOR
ASBESTOS
SURVEY

SHEET

1-2

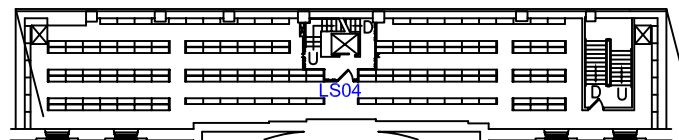




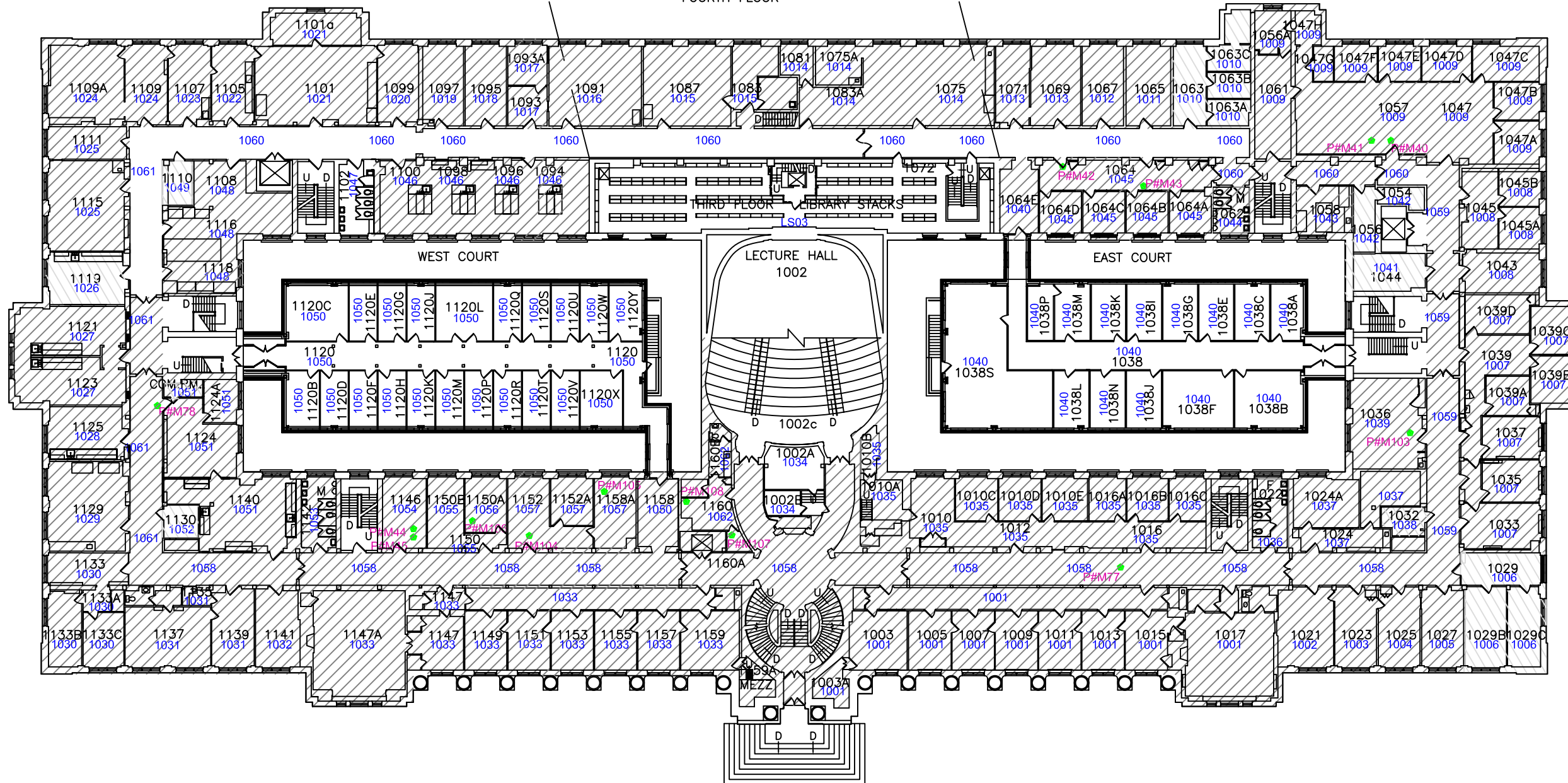
OAKHILL
ENVIRONMENTAL

LEGEND

- MOULD LOCATION
- P# PHOTOGRAPH #
- INACCESSIBLE AREA
- LIMITED ACCESS AREA
- 1001 FUNCTIONAL SPACE #



FOURTH FLOOR



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BUILDING S-77

PROJECT NO.

PR-06-39

DATE

AUGUST 2007

SCALE

NTS

TITLE

FIRST FLOOR
MOULD
LOCATIONS

SHEET

1-3