**Project #: 13916**

# ASBESTOS ASSESSMENT
# Baltimore Court
# Memorial University of Newfoundland
# St. John's, NL

**Prepared for:**

**Sheila Miller**
**Director, Department of Health and Safety**
**Memorial University of Newfoundland**
**208 Elizabeth Avenue**
**St. John's, NL**
**A1B 1T5**

**Prepared by:**

ALL-TECH
ENVIRONMENTAL SERVICES LIMITED

**151 Crosbie Rd. St. John's NL, A1B 4B4**
**Tel: (709) 754-4146 Fax: (709) 754-4194**

**SEPTEMBER 2011**

## EXECUTIVE SUMMARY

ALL-TECH Environmental Services Limited conducted an Asbestos Assessment at Baltimore Court, located at Memorial University of Newfoundland (MUN), St. John's, NL. The objective of the assessment was to determine the presence of asbestos containing materials throughout the building. It was determined that:

- Five (5) of the eighteen (18) suspect asbestos samples collected contained asbestos greater than 1%. (*Newfoundland and Labrador Regulation 111/98, Asbestos Abatement Regulations, 1998 under the Occupational Health and Safety Act.)*

- Pipe fitting insulation was sampled and found to contain 10% Chrysotile asbestos.

- Drywall joint compound was sampled and found to contain 2% Chrysotile.

- Two of three samples of vinyl sheet flooring samples were found to contain between 10 and 15% Chrysotile asbestos.

- Two types of light fixture heat shields were sampled and one was found to contain 15% Chrysotile asbestos.

**This summary is not to be used alone. This report must be reviewed in its entirety.**

Thank you,

Carla Noseworthy, C.E.T.
Environmental Consultant
***ALL-TECH Environmental Services Limited***

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**LIST OF APPENDICES:**

## 1.0 INTRODUCTION

ALL-TECH Environmental Services Limited was contracted by Sheila Miller, Director – Department of Health and Safety, Memorial University of Newfoundland (MUN), to complete an Asbestos Assessment at Baltimore Court, located at Memorial University of Newfoundland, St. John's, NL. The purpose of the assessment was to identify the presence of asbestos containing materials located throughout the building. The assessment was conducted in August 2011.

## 2.0 ASBESTOS ASSESSMENT

Asbestos is a general term which is used to describe a group of fibrous mineral silicates. The six major types of asbestos are; chrysotile (white asbestos), crocidolite (blue), amosite (brown), anthophyllite, tremolite and actinolite. Commercially, asbestos has been used widely in such applications as fireproofing, textiles, friction products, reinforcing materials (i.e. cement pipes, sheets) and insulation (both thermal and acoustic).

Asbestos materials can be found in one of two forms; friable or non-friable. Friable asbestos material refers to material that when dry, can be crumbled, pulverized or reduced to a powder by hand pressure thus releasing fibers into the air. This type of asbestos material is hazardous due to its potential to become airborne if damaged or disturbed. Friable asbestos building products used in the past were sprayed acoustic & fire protection insulations, ceiling/wall finishes, drywall joint compounds, mechanical insulations on pipes, tanks, boilers, vessels, etc. Non-friable building products used in the past were vinyl floor tiles, gaskets, transite panels, and transite shingles. Non-friable materials if handled improperly during removal or renovations, such as cutting transite panels with an electrical tool, can cause high fiber release. Also, non-friable asbestos products can become friable if damaged through years of aging (water damage, general deterioration of materials, etc.).

Asbestos containing materials (ACM) can be properly managed and left in place depending on their location, condition, and friability. Non-friable materials receive less attention than friable materials due to the fact that the asbestos fibers in the non-friable material are bound or held tightly together, reducing the chance of fibers becoming airborne. This makes the non-friable products safer and easier to manage.

The mere presence of asbestos in building materials is not necessarily a problem; however, inhaling asbestos fibers can cause associated health problems. The hazards of asbestos exposure are directly related to the degree to which fibers are released (become airborne). Intact and undisturbed asbestos do not pose a health risk.

### 2.1 Scope of Work

Representative suspect asbestos containing materials were sampled from wall finishes, various types of flooring, and exterior finishes located throughout the building.

The asbestos assessment involved a visual investigation of representative building structures, wall & ceiling finishes, and flooring for the presence of asbestos materials. If these materials were suspected to contain asbestos, a bulk sample was collected of the representative material.

It should be noted that asbestos containing materials such as piping straight runs & fittings may be present behind existing drywall walls, ceilings, columns, shafts, etc. Since no destructive testing was performed during this assessment, additional care should be taken during renovations/demolition to ensure that no asbestos containing materials are to be disturbed.

## 2.2 Methodology

A total of eighteen (18) suspect asbestos bulk samples were collected from the building. Representative suspect asbestos bulk material samples from floors, wall finishes, pipe fitting insulation, suspect transite panels and light fixture heat shields were carefully collected and placed into labeled sealable plastic bags and transported to the EMSL Analytical Inc. in New Jersey, USA, for Polarized Light Microscopy/ Dispersion Staining (PLM/DS) analysis. The EPA test method for bulk analysis (EPA/600/R-93/116) states in paragraph 2.2.2 that *"the detection limit for visual estimation is a function of the quantity of the sample analyzed, the nature of matrix interference, sample preparation, and fiber size and distribution. Asbestos may be detected in concentrations of less than one percent by area if sufficient material is analyzed. Samples may contain fibers too small to be resolved by PLM (< 0.25 µm in diameter) so detection of those fibers by this method may not be possible."*

## 2.3 Applicable Standards

The province defines Asbestos material as "material containing greater than 1% asbestos by dry weight." Materials identified as ACM must be managed, handled and disposed of as per the Newfoundland and Labrador Regulation 111/98*, Asbestos Abatement Regulations, 1998* under the *Occupational Health and Safety Act* (O.C. 98-730).

Also, the Province of Newfoundland and Labrador have set standards for exposure to airborne asbestos fibres to as low as is reasonably achievable (ALARA) but in any case shall not exceed Threshold Limit Values (TLVs) as published by the American Conference of Governmental Industrial Hygienists (ACGIH) and are primarily used for the occupational exposure to employees and workers who from day to day come in contact with asbestos. ACGIH guidelines state the airborne asbestos limit as follows:

- Asbestos (all forms) 0.1 fibres per cubic centimetre (f/cc) as determined by air sampling following the NIOSH 7400 Asbestos and Other Fibres by Phase Contrast Microscopy.

The *Newfoundland Asbestos Abatement Regulations 111/98* requires that all employers, building owners and principal contractors follow this Regulation when handling or using asbestos in their workplace. This Regulation applies to every workplace covered under the Occupational Health and Safety Legislation where asbestos or materials containing asbestos, is likely to be handled, dealt with, disturbed or removed and includes every project, project owner, contractor, employer and employee engaged in or on the project. An owner/contractor to whom this Regulation applies shall take every reasonable precaution to ensure that every worker who is not an employee of the owner/contractor and who works in the workplace of the owner/contractor is protected and every such worker shall comply with the requirements of this Regulation.

## 2.4 Survey Findings

Laboratory analysis confirmed that five (5) of the eighteen (18) bulk samples collected from the building contained asbestos greater than 1%. Table 1.0 below illustrates the results of this sampling. ***See Appendix II - Laboratory Asbestos Results.***

**Table 1.0**
**Summary of Suspect Asbestos Containing Materials Tested**
**Baltimore Court**
**Memorial University of Newfoundland**
**St. John's, NL**

| Sample No. | Sample Description and Location | Asbestos Results |
|---|---|---|
| BM-1 | 1' x 1' Vinyl Floor Tile, grey mix – Room BM301, washroom | None Detected |
| | Mastic | None Detected |
| BM-2 | 1' x 1' Vinyl Floor Tile, white with brown – Room BM301, entrance | None Detected |
| **BM-3** | **Vinyl Sheet Flooring, brown and green square pattern - Room 301, washroom** | **10% Chrysotile** |
| **BM-4** | **Vinyl Sheet Flooring, red and brown square pattern – Room BM302, washroom** | **15% Chrysotile** |
| BM-5 | Drywall Joint Compound, wall – Room 302, living room | None Detected |
| BM-6 | 1' x 1' Vinyl Floor Tile, cream mix – Room 304, Laundry | None Detected |
| | Mastic | None Detected |
| BM-7 | Ceiling Panel – Stairway BM3S01, exterior overhang | None Detected |

| | | |
|---|---|---|
| **BM-8** | **Drywall Joint Compound – Room 204, wall** | **2% Chrysotile** |
| **BM-9** | **Light Fixture Heat Shield – Room BM202, living room** | **15% Chrysotile** |
| BM-10 | 1' x 1' Vinyl Floor Tile, white with black – Room BM201, living room | None Detected |
| BM-11 | Vinyl Sheet Flooring, grey mix – Room BM201, entrance | None Detected |
| BM-12 | 1' x 1' Vinyl Floor Tile, blue mix – Room BM201, living room | None Detected |
| BM-13 | Light Fixture Heat Shield – Room BM201, bedroom | None Detected |
| BM-14 | 1' x 1' Vinyl Floor Tile, cream with brown stripes – Room BM205, entrance | None Detected |
| BM-15 | Drywall Joint Compound – Room BM 105, living room | None Detected |
| **BM-16** | **Pipe Fitting Insulation, grey insulation, Room BM106** | **10% Chrysotile** |
| BM-17 | 1' x 1' Vinyl Floor Tile, white with black – Room BM102, living room | None Detected |
| | Mastic | None Detected |
| BM-18 | 1' x 1' Vinyl Floor Tile, beige with white, black – Room BM101, entrance | None Detected |

## Mechanical and Pipe Material

Pipe fitting insulation which could potentially contain asbestos was observed in Room BM106 during this assessment. Samples were collected and analyzed for asbestos content using the PLM method of detection and found to contain 10% Chrysotile asbestos (See sample BM-16 in Appendix II, Photographs 1, Appendix I)

*However, it should be noted that asbestos containing pipe insulation may be located behind fixed wall cavities and ceiling plenums that were inaccessible at the time of assessment. During demolition precautionary measures must be taken to avoid disturbing any potential ACM in these areas.*

## Acoustic and Thermal Insulating Products

No acoustic or thermal insulating products were observed in the building during the assessment.

## Friable Acoustic Texture Coats and Plaster Finishes

Drywall joint compound (DJC) finishes were observed throughout the building during the assessment. Three (3) samples were collected and analyzed for asbestos content using the PLM method of detection. One (1) of the three (3) samples was found to contain 2% Chrysotile asbestos. (See samples BM-5, BM-8 and BM-15 in Appendix II).

*It should be noted that due to the uncertainty of when and where a specific type of drywall joint compound was used, it is to be assumed that all such material present in the building contains asbestos.*

## Friable Acoustic and Thermal Fireproofing Products

Sprayed acoustic or sprayed fireproofing was not observed in the building during the assessment.

## Friable Ceiling Tiles / Ceiling Tile Adhesives

Ceiling tiles or ceiling tile adhesives were not observed in the building during the assessment.

## Vinyl Sheet/Linoleum Flooring

Vinyl sheet/linoleum flooring was identified during the assessment of the building. Three (3) samples were collected and analyzed for asbestos content using the PLM method of detection. Two (2) of the three (3) samples were identified as containing between 10 – 15% Chrysotile asbestos. (See samples BM-3, BM-4, BM-11 in Appendix II, Photographs 3, 4 in Appendix 1).

## Non-Friable Vinyl Floor Tiles/ Floor Tile Adhesives

Vinyl floor tiles which could potentially contain asbestos were identified during the assessment. Eight (8) samples of 1’ x 1’ vinyl floor tiles were sampled and analyzed for asbestos content using the PLM method of detection. The samples were identified as non-asbestos containing. The associated mastics, where sampled, were also identified as non-asbestos containing. (See samples BM-1, BM-2, BM-6, BM-10, BM-12, BM-14, BM-17, BM-18 in Appendix II.)

## Non-Friable Transite Panels, Sheeting and Shingles

Suspect asbestos containing transite paneling was observed as exterior ceiling overhangs on overhangs of stairway entrances during the assessment. One (1) sample of this material was collected and analyzed for asbestos content using the PLM method of detection. The sample was identified as non-asbestos containing. (See samples BM-7 in Appendix II)

## Non-Friable Transite Piping

Transite piping was not observed during the assessment.

## Electrical Wiring/ Lighting

Two types of light fixture heat shields were observed throughout the building. Two (2) samples were collected and analyzed for asbestos content using the PLM method of detection. One (1) sample was found to contain 15% Chrysotile asbestos (See samples BM-9, BM-13 in Appendix II, photographs 4, 5 in Appendix I).

## Roofing Materials

Access to the roof was not available at the time of the assessment.

## Other Materials

Window caulking, interior or exterior, was not sampled during this assessment.

No other materials suspected of containing asbestos were observed during the assessment.

## 2.5 Recommendations

The assessment identified that numerous materials contained a concentration of asbestos equal to or greater than 1% by dry weight. According to regulations, the owner of any building/ residence is required to implement and maintain specific health and safety measures, therefore the following recommendations are provided:

- All materials listed in fair and/or poor condition are to be repaired or removed immediately. See APPENDIX III – Asbestos Building Survey Information for materials condition and locations.

- Ensure that prior to and during any major renovations/demolition extreme caution is implemented to make certain that asbestos containing materials are not disturbed. It should be noted that asbestos containing materials may be concealed behind fixed walls/ceiling plenums and under existing sub-floors.

- Ensure that when disturbing asbestos materials, the asbestos removal contractor follows all federal and provincial regulations in accordance to the Newfoundland and Labrador Regulation 111/98.

- Retain a copy of this report on-site for future reference of friable and non-friable asbestos products.

- Provide asbestos air monitoring and inspection during the removal of asbestos to ensure that all government guidelines and regulations are followed throughout the removal process.

## 3.0 DISCLAIMER

This report was prepared by ALL-TECH Environmental Services Limited for the sole benefit of our client Ms. Sheila Miller. The information in the report is based on information provided or obtained by ALL-TECH. The report is based on ALL-TECH's best judgment with the information provided at the time of the assessment. Any use and/or conclusions used by any third party, is the responsibility of that third party. ALL-TECH accepts no liability and/or damages occurred by any third party that uses information obtained in this report.

If you have any questions regarding this report, please do not hesitate to call me at (709) 754-4146.

Thank You,

Carla Noseworthy, CET
Environmental Consultant
***ALL-TECH Environmental Services Limited***

**Reviewed by:**

Orven Newhook, B.Sc.
Project Manager
***ALL-TECH Environmental Services Limited***

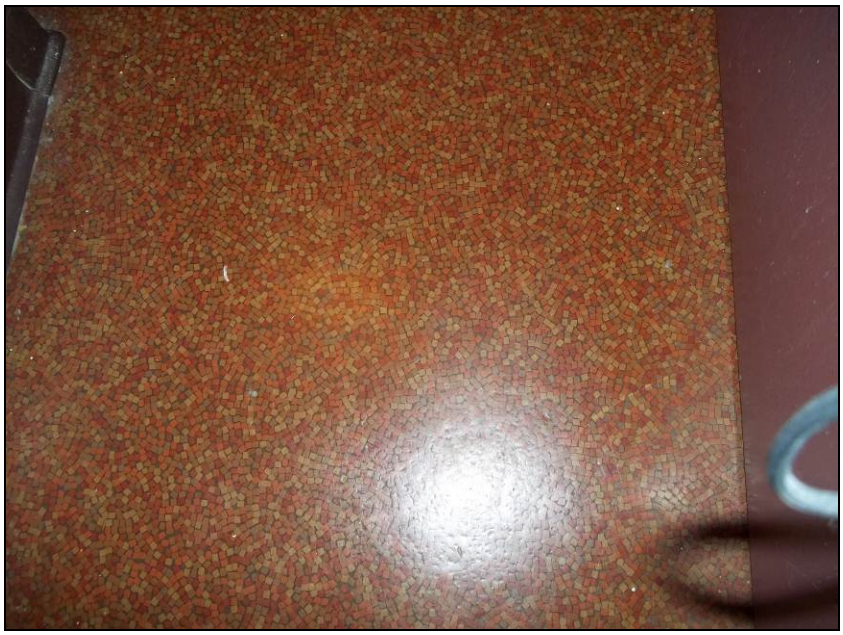
# APPENDIX I

PHOTOGRAPHS OF ASBESTOS CONTAINING MATERIALS

**Photographs 1: Room BM106. Pipe fitting insulation in poor condition**

**Photographs 2: Vinyl Sheet Flooring, containing 10% Chrysotile asbestos. Sample BM-3**

| **Consultant:** | **Building:** | **Date**: |
|---|---|---|
| Carla Noseworthy, CET<br>ALL-TECH Environmental | Baltimore Court<br>Memorial University of Newfoundland<br>St. John's, NL | August 24, 2011 |



**Photograph 3: Vinyl Sheet Flooring, containing 15% Chrysotile asbestos. Sample BM-4**

**Photograph 4: Light fixture heat shield, containing 15% Chrysotile asbestos. Sample BM-9**

| **Consultant:** | **Building:** | **Date**: |
|---|---|---|
| Carla Noseworthy, CET<br>ALL-TECH Environmental | Baltimore Court<br>Memorial University of Newfoundland<br>St. John's, NL | August 24, 2011 |

**Photograph 5: Light fixture heat shield, containing 15% Chrysotile asbestos. Sample BM-9**

| **Consultant:** | **Building:** | **Date**: |
|---|---|---|
| Carla Noseworthy, CET<br>ALL-TECH Environmental | Baltimore Court<br>Memorial University of Newfoundland<br>St. John's, NL | August 24, 2011 |

# APPENDIX II

LABORATORY ASBESTOS RESULTS

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone: (800) 220-3675 Fax: (856) 786-5974 Email: cinnaslab@EMSL.com

Attn: **Carla Noseworthy**
**All-Tech Environmental Services Limited**
**151 Crosbie Road**
**Suite 402**
**St. John's, NL A1B 4B4**

Fax: Phone: (709) 754-4146
Project: **13916 BALTIMORE**

Customer ID: ATES44D
Customer PO:
Received: 06/29/11 10:50 AM
EMSL Order: 041123388

EMSL Proj:
Analysis Date: 6/30/2011

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos % Fibrous | Non-Asbestos % Non-Fibrous | Asbestos % Type |
|---|---|---|---|---|---|
| BM1-Floor Tile<br>*041123388-0001* | BM301-L.R - 1X1 VT GREY MIX | Gray<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | **None Detected** |
| BM1-Mastic<br>*041123388-0001A* | BM301-L.R - 1X1 VT GREY MIX | Black<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | **None Detected** |
| BM2<br>*041123388-0002* | BM301-ENTRANCE - 1X1 WHITE W/BROWN | White<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | **None Detected** |
| BM3<br>*041123388-0003* | BM301-W.R - VSF BROWN W/GREEN SQIARE | Brown/White<br>Non-Fibrous<br>Heterogeneous | | 90% Non-fibrous (other) | **10% Chrysotile** |
| BM4<br>*041123388-0004* | BM 302-W.R - VSF BROWN/RED SQUARE | Brown/Red<br>Non-Fibrous<br>Heterogeneous | | 85% Non-fibrous (other) | **15% Chrysotile** |
| BM5<br>*041123388-0005* | BM302 LR - DJC WALL | White<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | **None Detected** |

Initial report from 06/30/2011 13:25:05

Analyst(s)
*Alexis Turner (21)*

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone: (800) 220-3675 Fax: (856) 786-5974 Email: cinnaslab@EMSL.com

Attn: **Carla Noseworthy**
**All-Tech Environmental Services Limited**
**151 Crosbie Road**
**Suite 402**
**St. John's, NL A1B 4B4**

Fax: Phone: (709) 754-4146
Project: **13916 BALTIMORE**

Customer ID: ATES44D
Customer PO:
Received: 06/29/11 10:50 AM
EMSL Order: 041123388

EMSL Proj:
Analysis Date: 6/30/2011

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos % Fibrous | Non-Asbestos % Non-Fibrous | Asbestos % Type |
|---|---|---|---|---|---|
| BM6-Floor Tile<br>041123388-0006 | BM 304<br>LAUNDRY - 1X1<br>VT CREAM MIX | White<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | None Detected |
| BM6-Mastic<br>041123388-0006A | BM 304<br>LAUNDRY - 1X1<br>VT CREAM MIX | Black<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | None Detected |
| BM7<br>041123388-0007 | BM 3501<br>EXTERIOR -<br>CEILING PANEL | Gray<br>Fibrous<br>Heterogeneous | 90% Cellulose | 10% Non-fibrous (other) | None Detected |
| BM8<br>041123388-0008 | BM 204 - DJC<br>WALL | Cream<br>Non-Fibrous<br>Heterogeneous | | 98% Non-fibrous (other) | 2% Chrysotile |
| BM9<br>041123388-0009 | BM 202 LR -<br>LIGHT FIXTURE<br>HEAT SHIELD | Brown/Silver<br>Fibrous<br>Heterogeneous | | 85% Non-fibrous (other) | 15% Chrysotile |
| BM10<br>041123388-0010 | BM 201 LR - 1X1<br>WHITE W/BLACK | White<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | None Detected |

Initial report from 06/30/2011 13:25:05

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EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone: (800) 220-3675 Fax: (856) 786-5974 Email: cinnaslab@EMSL.com

Attn: **Carla Noseworthy**
**All-Tech Environmental Services Limited**
**151 Crosbie Road**
**Suite 402**
**St. John's, NL A1B 4B4**

Fax: Phone: (709) 754-4146
Project: **13916 BALTIMORE**

Customer ID: ATES44D
Customer PO:
Received: 06/29/11 10:50 AM
EMSL Order: 041123366

EMSL Proj:
Analysis Date: 6/30/2011

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos % Fibrous | Non-Asbestos % Non-Fibrous | Asbestos % Type |
|---|---|---|---|---|---|
| BM11<br>041123366-0011 | BM 201 ENTRANCE - VSF GREY MIX | Gray<br>Non-Fibrous Heterogeneous | | 100% Non-fibrous (other) | None Detected |
| BM12<br>041123366-0012 | BM 201 LR - 1X1 VT BLUE MIX | Blue<br>Non-Fibrous Heterogeneous | | 100% Non-fibrous (other) | None Detected |
| BM13<br>041123366-0013 | BM 201 BR - LIGHT FIXTURE HEAT SHIELD | Brown/Silver<br>Fibrous Heterogeneous | 30% Cellulose<br>8% Glass | 62% Non-fibrous (other) | None Detected |
| BM14<br>041123366-0014 | BM 205 ENTRANCE - 1X1 VT CREAM BROWN STRIPES | White<br>Non-Fibrous Heterogeneous | | 100% Non-fibrous (other) | None Detected |
| BM15<br>041123366-0015 | BM 105 LR - DJC WALL | White<br>Non-Fibrous Heterogeneous | | 100% Non-fibrous (other) | None Detected |
| BM16<br>041123366-0016 | BM 106 - PIPE FITTING INSULATION | Gray<br>Fibrous Heterogeneous | | 90% Non-fibrous (other) | 10% Chrysotile |

Initial report from 06/30/2011 13:25:05

Analyst(s)
*Alexis Turner (21)*

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone: (800) 220-3675 Fax: (856) 786-5974 Email: cinnaslab@EMSL.com

Attn: **Carla Noseworthy**
**All-Tech Environmental Services Limited**
**151 Crosbie Road**
**Suite 402**
**St. John's, NL A1B 4B4**

Fax: Phone: (709) 754-4146
Project: **13916 BALTIMORE**

Customer ID: ATES44D
Customer PO:
Received: 06/29/11 10:50 AM
EMSL Order: 041123388

EMSL Proj:
Analysis Date: 6/30/2011

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos % Fibrous | Non-Asbestos % Non-Fibrous | Asbestos % Type |
|---|---|---|---|---|---|
| BM17-Floor Tile<br>*041123388-0017* | BM 102 LR - 1X1<br>VT WHITE<br>W/BLACK | White<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | None Detected |
| BM17-Mastic<br>*041123388-0017A* | BM 102 LR - 1X1<br>VT WHITE<br>W/BLACK | Black<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | None Detected |
| BM18<br>*041123388-0018* | BM 101<br>ENTRANCE - 1X1<br>VT BEIGE<br>W/WHITE BLACK | Cream<br>Non-Fibrous<br>Heterogeneous | | 100% Non-fibrous (other) | None Detected |

Initial report from 06/30/2011 13:25:05

Analyst(s)
*Alexis Turner (21)*

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory





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# APPENDIX III

ASBESTOS BUILDING SURVEY INFORMATION

## Asbestos Bldg Survey Information -- Baltimore Court

| Room # | Bldg. System | Component | Material Type | Access | Conditions | | | | Quantity | Sample No. | Sample Location | Sample Description | Result |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Good | Fair | Poor | Sprayed | | | | | |
| Throughout Building | | | Drywall Joint Compound | A | X | X | | | | BM8 | Wall, Room BM204 | Drywall Joint Compound | 2% Chrysotile |
| BM101 | | | Light Fixture Heat Shield | A | X | | | | 1 | BM9 | | Grey Insulation with Foil Backing | 15% Chrysotile |
| BM102 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM3 | | Brown and Green Square Pattern | 10% Chrysotile |
| BM103 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM3 | | Brown and Green Square Pattern | 10% Chrysotile |
| BM104 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM4 | | Brown and Red Square Pattern | 15% Chrysotile |
| BM104 | | | Light Fixture Heat Shield | A | X | | | | 1 | BM9 | | Grey Insulation with Foil Backing | 15% Chrysotile |
| BM105 | | | Light Fixture Heat Shield | A | X | | | | 1 | BM9 | | Grey Insulation with Foil Backing | 15% Chrysotile |
| BM106 | | | Pipe Fitting Insulation | A | X | | | | 13 | BM16 | Room BM106 | | |
| BM106 | | | Pipe Fitting Insulation | A | | | X | | 2 | BM16 | | | |
| BM201 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM4 | | Brown and Red Square Pattern | 15% Chrysotile |
| BM202 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM4 | | Brown and Red Square Pattern | 15% Chrysotile |
| BM202 | | | Light Fixture Heat Shield | A | X | | | | 1 | BM9 | Ceiling, Room BM202 | Grey Insulation with Foil Backing | 15% Chrysotile |
| BM203 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM3 | | Brown and Green Square Pattern | 10% Chrysotile |
| BM204 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM3 | | Brown and Green Square Pattern | 10% Chrysotile |
| BM205 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM4 | | Brown and Red Square Pattern | 15% Chrysotile |
| BM205 | | | Light Fixture Heat Shield | A | X | | | | 1 | BM9 | | Grey Insulation with Foil Backing | 15% Chrysotile |
| BM301 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM3 | Floor, Room BM301 | Brown and Green Square Pattern | 10% Chrysotile |
| BM302 | | | Vinyl Sheet Flooring | A | X | | | | ~ 50 $ft^2$ | BM4 | Floor, Room BM302 | Brown and Red Square Pattern | 15% Chrysotile |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

No Access was available to the following rooms: BM-306

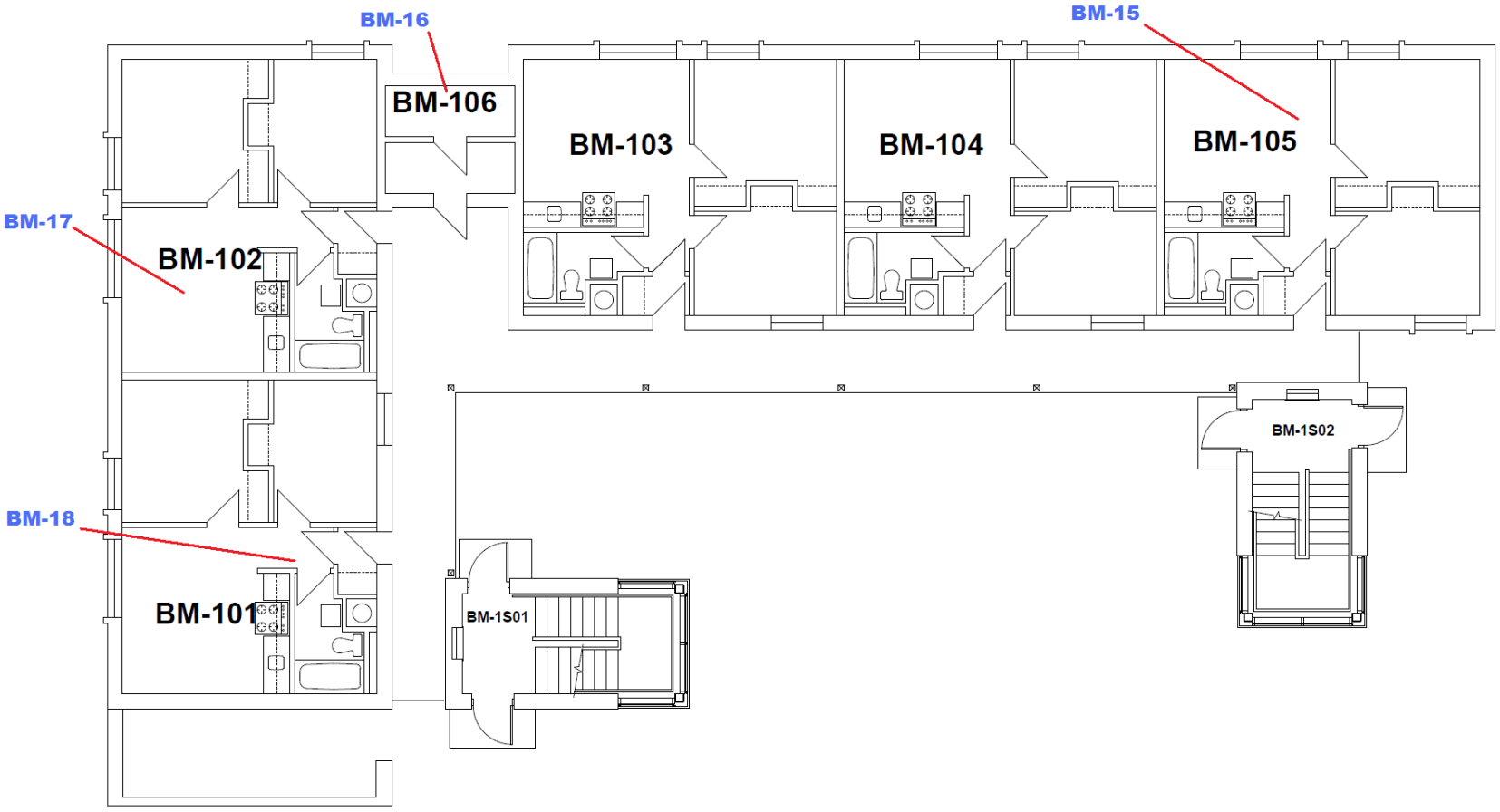
Access: *A* - Areas within reach from the floor. *B* - Frequently entered maintenance areas floor level. *C* - exposed / concealed above 8 ft, crawl space, etc. *D* - Inaccessible

# APPENDIX IV

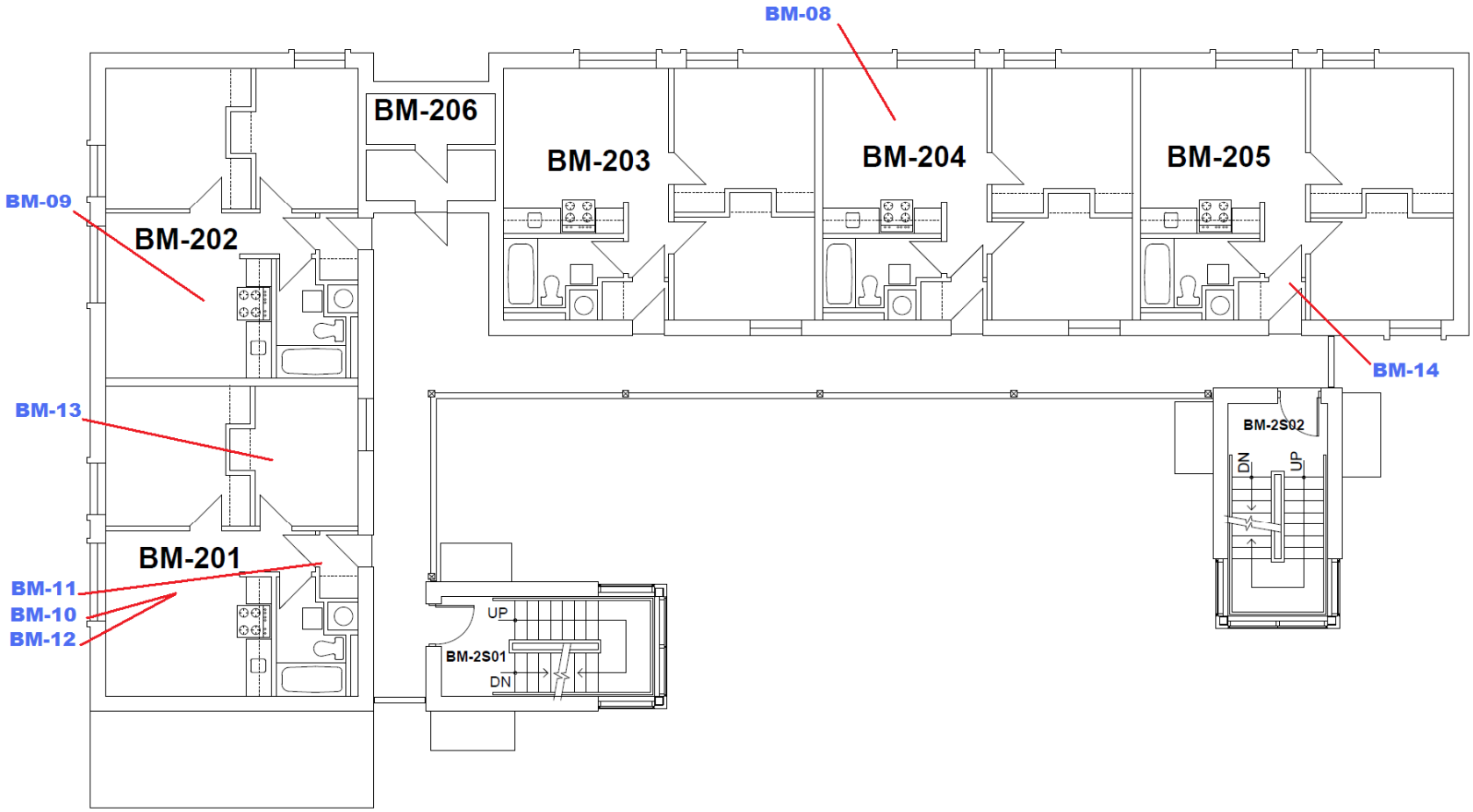
Floor Plans Showing Sampling Locations

# BALTIMORE BUILDING

## LEVLE - 1



# BALTIMORE BUILDING
## LEVEL - 2



# BALTIMORE BUILDING
## LEVEL - 3