



**LEX Project # 01050118**

*Solutions for a Working World*

**HAZARDOUS MATERIALS ASSESSMENT  
CENTENNIAL ARENA  
373 COLLEGE AVENUE WEST  
GUELPH, ONTARIO**

**Prepared for:** The Corporation of the City of Guelph  
59 Carden Street  
Guelph, Ontario  
N1H 3A1

**Attention:** Mr. Murray McCrae  
Manager of Corporate Property

**Date:** March 13, 2006

**Prepared by:**

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March 13, 2006

Mr. Murray McCrae  
Manager of Corporate Property  
The Corporation of the City of Guelph  
59 Carden Street  
Guelph, Ontario  
N1H 3A1

Dear Mr. McCrae,

On November 2, 2005, LEX Scientific conducted an assessment to determine the presence of hazardous material(s) including asbestos, peeling lead-based paint, mercury, mould and PCBs in Centennial Arena located at 373 College Avenue West in Guelph, Ontario.

The assessment has been completed and the results are contained in this report. All work was performed according to the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations (Ontario Regulation 278/05); Designated Substances in the Workplace: A Guide to the Lead Regulation (Ontario Regulation 843) - made under the Occupational Health and Safety Act; Fungal Contamination in Public Buildings: A Guide to Recognition and Management, Health Canada; and Regulation respecting Mercury (Ontario Regulation 844/90) made under the Occupational Health and Safety Act.

On behalf of LEX Scientific, we would like to thank you for the opportunity to serve you. If you have any questions regarding this report, please call us at (519) 824-7082.

Yours sincerely,

---

Dave Wiebenga,  
Occupational Hygiene Technologist

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Michael Hoffbauer,  
Director, Occupational Hygiene & EHS Services

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## 1.0 INTRODUCTION

LEX Scientific Inc. (LEX) conducted a survey on November 2, 2005, to assess the presence of hazardous material(s) including asbestos, peeling lead-based paint, polychlorinated biphenyls (PCBs), mercury and mould in Centennial Arena located at 373 College Avenue West, in Guelph, Ontario.

The assessment has been completed and the results are contained in this report. All work was performed according to the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations (Ontario Regulation 278/05); Designated Substances in the Workplace: A Guide to the Lead Regulation (Ontario Regulation 843) - made under the Occupational Health and Safety Act; Fungal Contamination in Public Buildings: A Guide to Recognition and Management, Health Canada; and Regulation respecting Mercury (Ontario Regulation 844/90) made under the Occupational Health and Safety Act.

The results of the hazardous materials assessment presented in this report should be used as part of the hazardous material management program for this building.

## 2.0 SURVEY METHODOLOGY

### 2.1 Buildings Surveyed

**Table 1: Information Regarding Building Inspected for Hazardous Materials**

Building Name	Building Address	Area Inspected	Inaccessible Areas
Centennial Arena	373 College Avenue West Guelph, Ontario	Interior and Exterior of Building	- Rooftop - Fixed Ceilings - Room 117

### 2.2 Method

A walk through visual inspection was performed to determine the condition of asbestos containing materials (ACM) and the presence of other hazardous materials such as lead, mould, PCB's and mercury. Materials of interest included, but were not limited to:

- Thermal System Insulation (TSI) including pipe insulation, pipefittings, boiler insulation, and duct insulation.
- Surfacing materials including spray-on fireproofing, trowled-on material and decorative coatings.
- Miscellaneous materials including vibration cloth, transite board or pipes, asbestos cement composite, ceiling tiles, and floor tiles.
- Lead paint on walls, ceilings, pipes etc.
- Mould growth on surfaces such as ceiling tiles, drywall, plaster and other building materials.



- PCB containing Light Ballasts.
- Mercury containing Electrical switches, lights and thermostats.

When an ACM was identified, its current condition was noted as good, fair, or poor. The overall potential for disturbance of the ACM was evaluated based on the friability, potential for disturbance (physical, mechanical), and potential for asbestos fibres to become airborne. Representative bulk samples were collected for suspect materials present in the building.

Materials not sampled or inspected as part of this assessment, which may contain asbestos, include: fire doors, chalk boards, countertops and desk tops and other materials as identified in Section 3.1 (if applicable). Cinderblock walls were not inspected for vermiculite due to the non-invasive nature of this inspection.

Representative paint samples were taken from surfaces with peeling paint in the areas inspected and were analyzed for lead content.

If suspect mould-contaminated building materials were observed, the location and approximate quantity was noted. Surface sampling for mould was not conducted.

An inventory of all the makes and models of light ballasts inspected was compiled. Based on Environment Canada's publication, "Identification of PCB Light Ballasts," a determination was made whether or not the ballast contained PCBs.

## 2.3 Laboratory Analysis

Each ACM sample was analyzed as per EPA method 600/R-93/116 by LEX and was performed in compliance with the Code for the Determination of Asbestos from Bulk Samples found in the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations (Ontario Regulation 278/05). Please refer to Appendix A for the laboratory report.

LEX is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) and by the National Institute of Standards and Technology. The National Voluntary Laboratory Accreditation Program is a United States based laboratory accreditation for analyzing bulk materials for asbestos content. Our NVLAP Lab Code number is 101949.

Suspect lead-containing paint coatings were not observed in this building. Paint chip samples were not collected.

Surface samples of suspected mould contaminated materials were not collected as part of this assessment.

## 2.4 Definition of Hazardous Materials and Guidelines

### 2.4.1 Asbestos Containing Material (ACM)

Ontario Regulation 278/05 Section 3 (4) defines an ACM as being a material that contains 0.5 percent or more asbestos by dry weight.

Ontario Regulation 837 limits asbestos workplace occupational exposures to 0.1 fibres/cc time weighted average exposure value (TWAEV 8-hour).

Ontario Regulation 278/05 requires that final clearance air monitoring be conducted following all Type III Asbestos Removal Operations to ensure the work enclosure is clean and is suitable for worker/tenant re-occupancy. The Type III work enclosure “passes the clearance test only if every air sample collected has a concentration of fibres that does not exceed 0.01 fibres per cubic centimetre of air<sup>1</sup>”.

### 2.4.2 Lead

Lead is used in the manufacture of storage batteries, ammunition, nuclear and X-ray shielding devices, cable coverings in the power and communication industries, lead sheet for roofing, restoration of old buildings and chemically resistant linings, noise control materials, electrical and electronic equipment, motor vehicles and other transportation equipment, and as a bearing metal. It is used in brass and bronze alloys, casting metals, glass making, ceramic glazes, plastic stabilizers and paints, in some solders, pipes, traps and bends, and other extruded products for building construction, fuel and storage tanks, and process vessels.

Acute exposure to lead by inhalation or ingestion may cause headache, fatigue, nausea, abdominal cramps, and joint pain. Other health effects such as a metallic taste in the mouth, vomiting and constipation or bloody diarrhea might also be expected to occur.

Chronic (long term) exposure to lead by inhalation or ingestion can cause reduced hemoglobin production and reduced life span and function of red blood cells and increase in blood pressure particularly in men, electrocardiograph (ECG) abnormalities and disturbances to vision. Central nervous system (CNS) or brain function and peripheral nerve function (nerves of the arms and legs) has been harmed in workers. Lead can cause peripheral neuropathy, affect the gastrointestinal tract and result in irreversible kidney damage. Lead exposure may cause harmful effects on pregnancy and reproduction, is mutagenic and possibly carcinogenic to humans.

Ontario Regulation 843 limits occupational exposure to lead to 0.05 mg/m<sup>3</sup> TWAEV for workers, but excludes construction projects. However, the Draft Guideline: Lead on Construction Projects requires an equivalent level of protection to be implemented. Adopting the exposure limit value for workers on construction projects would be prudent practice.

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<sup>1</sup> Occupational Health and Safety Act, O.Reg 278/05 Section 18 (6) 5

The Corporation of the City of Guelph considers paint coatings as lead-containing if the total lead concentration is equal to or greater than 0.5%. For the purposes of this report, the Corporation of the City of Guelph's definition for lead-containing paint coatings will be applied.

### **2.4.3 Polychlorinated biphenyls (PCBs)**

Polychlorinated biphenyls are mixtures of up to 209 individual chlorinated compounds (known as congeners). There are no known natural sources of PCBs. PCBs are either oily liquids or solids that are colourless to light yellow. Some PCBs can exist as a vapour in air. PCBs have no known smell or taste. Many commercial PCB mixtures are known in the U.S. by the trade name Aroclor.

PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they do not burn easily and are good insulators. The manufacture of PCBs was stopped in 1978 because of evidence they build up in the environment and can cause harmful health effects. Products made before 1978 that may contain PCBs include old fluorescent lighting fixtures and electrical devices containing PCB capacitors, and old microscope and hydraulic oils.

The disposal of PCBs and other hazardous waste is controlled by Regulation, R.R.O. 1990/347, General –Waste Management Regulation as amended by O.Reg. 558/00, made under the Environmental Protection Act.

Ontario Regulation 833 limits occupational exposures to PCB's to 0.05 mg/m<sup>3</sup> TWAEV (8 hour).

### **2.4.4 Mercury**

Mercury is prescribed as a designated substance according to Regulation, R.R.O. 1990/844. Mercury has adverse effects on the central nervous system, kidneys and reproductive system. The disposal of mercury and other hazardous waste is controlled by Regulation, R.R.O. 1990/347, General –Waste Management Regulation as amended by O.Reg. 558/00, made under the Environmental Protection Act.

Ontario Regulation 844 limits occupational exposures to mercury to 0.025 mg/m<sup>3</sup> TWAEV (8 hour).

## 2.4.5 Mould

Mould is a subset of fungi, which also includes yeasts, mildews, as well as large mushrooms and is classified as neither plant nor animal. Mould is a simple microscopic organism found in every ecological niche, indoors and outdoors. Fungal colonies may appear cottony, velvety, granular and leathery. Their colour may be white, grey, brown, black, yellow and green. Mould grows within the temperature range of 18° C and 24° C, but some can survive below 10° C while others above 50° C. Many fungi require some exposure to light to stimulate spore production.

The industry standard guides in this field are:

- Fungal Contamination in Public Buildings: Health Effects and Investigation Methods, Health Canada 2004,
- Ontario Ministry of Labour: Alert: Mould in Workplace Buildings, December 2000,
- Assessment, Remediation and Post-Remediation Verification of Mold in Buildings, AIHA Guideline 3, 2004,
- Adverse Human Health Effects Associated with Molds in the Indoor Environment: American College of Occupational and Environmental Medicine (ACOEM), October 2002,
- Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health, 2000,
- Report on Microbial Growth Task Force, AIHA May 2001, and
- Bioaerosols: Assessment and Control, ACGIH, 1999.

According to the ACOEM, mould can affect human health through three processes: allergy and other hypersensitivity reactions, infection, and toxicity. Allergic responses are most commonly experienced as allergic asthma or hay fever, and affect approximately 5% of the human population. More severe cases of allergic responses such as hypersensitivity pneumonitis is typically a result from occupational exposure to high levels of fungal proteins, while uncommon allergic syndromes require predisposing factors such as bronchial disease for fungal colonization of the patient's airways to occur.

Superficial infections of the feet, nails, dry body skin and others due to fungal growth are common and are easily treatable. In contrast, a very limited number of fungi can infect normal individuals and cause fatal illness (e.g. *Blastomyces*, *Coccidioides*, *Cryptococcus*, and *Histoplasma*). Immunocompromised subjects (e.g. patients undergoing cancer and AIDS treatment, and uncontrolled diabetics) are also susceptible to fungal infection.

The majority of human poisonings from mould are due to ingestion of mouldy foods. Cases of acute human intoxications have been reported as a result of occupational inhalation exposure to high levels of spoiled grain products containing high concentrations of fungi and bacteria. Concentrations of this magnitude are not typically found in home or office settings.



According to the NYC Department of Health, “building materials supporting fungal growth must be remediated as rapidly as possible in order to ensure a healthy environment.” To avoid mould problems indoors, the relative humidity should be kept below 50%.

Under section 25(2)(h) of the Occupational Health and Safety Act, the Ontario Ministry of Labour requires that employers “take every precaution reasonable in the circumstances for the protection of workers.” This includes protecting workers from mould in the workplace buildings.

#### **2.4.6 Silica**

Silica, or silicon dioxide ( $\text{SiO}_2$ ) is a mineral constituting about 60% of the earth’s crust. The most common form of crystalline silica is quartz, while other forms include cristobalite, tridymite, and tripoli. At very high temperatures, the crystal structure of silica is lost: converting to amorphous silica.

Silica sand and gravel are commonly used in road construction, buildings (concrete), ceramic and refractory materials. Respiratory impairment and disease among workers exposed to mineral dusts have been documented throughout history. Silicosis (or silica-induced pneumoconiosis) is the result of deposition of crystalline silica particles in the lung tissue. Early symptoms of silicosis are usually coughing and shortness of breath upon exertion. Prolonged and continued exposure to silica dust may cause progressive silicosis resulting in respiratory failure.

The Ontario occupational exposure limit for Quartz Silica is  $0.1 \text{ mg/m}^3$  TWAEV (8-hour) and  $0.05 \text{ mg/m}^3$  TWAEV (12-hour).

### **3.0 RESULTS AND DISCUSSION**

All room names/numbers mentioned in this report correspond to the floor plans of Centennial Arena as provided by LEX Scientific Inc. Refer to Appendix D for the floor plans.

#### **3.1 Asbestos Containing Materials**

*Please refer to Appendix B for a listing and approximate quantification of all ACM observed in Centennial Arena.*

##### **3.1.1 Bulk Sampling Results**

Table 2 summarizes the analytical laboratory results for all homogenous materials collected inside Centennial Arena. Please refer to Appendix B for a complete listing and quantification of asbestos observed in Centennial Arena.

**Table 2\*: Summary of Homogenous Materials Collected November 2, 2005,  
at Centennial Arena, Guelph, Ontario.**

Sample No.	Sample Location	Homogenous Material Description	Friable ?	Figure <sup>\$</sup>	Fibrous Asbestos Content
CA A01	Room 115	Parging Around Pipe Against Wall	Yes	3	<b>50% Chrysotile</b>
CA A02 <sup>^</sup>	Room 109	Plaster Ceiling Over Drywall	Yes		Not Detected
CA A03	Room 110	1' x 1' VFT (Beige)	No		<b>2% Chrysotile</b>
CA A03 <sup>^</sup>		Mastic for VFT	No		Not Detected
Not Sampled	Room 130	Transite Rainwater Leader Piping	No		<b>Contains Chrysotile May contain Amosite or Crocidolite</b>

\*Refer to Appendix A for the Analytical Laboratory Report

\$ Refer to Appendix C for Photographs

Definition of Terms: VFT – Vinyl Floor Tile

% Sample was analyzed one time as per O.Reg. 278/05

# Sample was analyzed five times as per O.Reg. 278/05.

<sup>^</sup> Sample was analyzed three times as per O.Reg. 278/05.

+ Sample was analyzed seven times as per O.Reg. 278/05.

The roofing material for this building was not sampled due to the non-invasive nature of the assessment. Until the roofing material/membrane can be sampled and analyzed, it is assumed to contain asbestos.

### 3.1.2 Quantity of Asbestos Containing Materials

#### Appendix B contains a listing and quantification of all ACM observed in Centennial Arena.

Appendix C contains the photographs of locations referred to in Table 2 as well as in Appendix B (if applicable). Appendix D identifies the locations of friable and non-friable asbestos containing materials on the floor plans of Centennial Arena - as supplied by LEX Scientific Inc.

LEX has been notified that since the date of inspection, asbestos fittings in poor condition in various areas of the building have been removed by an asbestos abatement contractor. While this removal has not been confirmed by LEX, these materials have been excluded from Appendix B.

#### Key Observations:

- Asbestos parging filling in the gap between the heating/cooling/service water piping and the block walls was observed throughout the building. While Appendix B contains an approximate quantification of this material, it may be present in areas not already identified. This condition of this material ranged from good to poor.
- Fixed ceiling and bulkheads in bathrooms, showers, the front foyer, cafeteria, and other areas most likely contain asbestos pipe fittings. Due to the non invasive nature of this inspection, quantification of asbestos in these areas was not possible.

## 3.2 Lead Containing Materials

### 3.2.1 Lead Based Paint

Suspect lead containing, deteriorating paint coatings were not observed in this building.

### 3.2.2 Other Lead-Containing Materials

**Lead Solder** – plumbing is assumed to contain lead solder between joints and valves.

## 3.3 PCB Containing Fluorescent Light Ballasts

Table 3 contains a summary of the types of fluorescent light ballasts found in Centennial Arena. Table 3 is considered representative of the types of light ballasts inside the building as approximately 15% of the light ballasts were inspected.

Please note that most light ballasts have a stamping on the back of the housing, and therefore could not be checked during the site inspection. Stamping should be checked upon removal of the ballast to determine if PCBs are present.

**Table 3: Summary of Fluorescent Light Ballasts Observed  
in Centennial Arena, Guelph, Ontario.**

Manufacturer	Catalogue #	Stamping	PCBs?	Location of Ballast*	Comments
<b>Advance Transformer</b> (Incl. Advance & Fuse Link)	REL 2P32 - SC	On Back of Housing	<b>Possible</b>	Snack Stand	All Ballasts prior to 1979 contain PCBs (Stamping: 11-78 ≡ November 1978)

\*Information partially based on Environment Canada's Publication: "Identification of Lamp Ballasts containing PCBs."

\*Note: this is not a comprehensive list of all ballasts in the building. This table is a representation of the types of ballasts found during the inspection. All ballasts and their corresponding stamping should be examined and compared to Table 3 to determine if PCBs are present.

## 3.4 Mercury Containing Materials

All fluorescent light tubes are assumed to contain Mercury Vapour. Fluorescent lights were observed in various areas of Centennial Arena. Mercury containing thermostats were not observed in this building.

### 3.5 Mould

#### *Exterior of Building:*

- On West side of building, approximately 5 cement columns north of the front entrance, a significant amount of water was observed leaking through the transite soffit. The soffit is in fair to poor condition due to water damage. The source of the water leak is not known, nor is it known whether mould is present in the ceiling space (above the soffit).

### 3.6 Silica

Concrete and/or cinderblocks used for the footings, flooring and walls inside the building contains silica, a designated substance.

### 3.7 Other Hazardous Materials

The following designated substances were not observed inside Centennial Arena during the inspection: Acrylonitrile, Arsenic, Benzene, Coke Oven Emissions, Ethylene Oxide, Isocyanates, and Vinyl Chloride.

## 4.0 CONCLUSIONS

- 1) Centennial Arena contains friable ACM in poor condition, which may be damaged in the future by external disturbances (water, vibration, and physical).
- 2) Centennial Arena contains friable ACM in fair to good condition, which may be damaged in the future by external disturbances (water, vibration, and physical).
- 3) Centennial Arena contains non-friable ACM in fair to good condition, which may be damaged in the future by external disturbances (water, wind, vibration, and physical). The potential for airborne asbestos fibre release due to this material is low.
- 4) Centennial Arena may contain asbestos within inaccessible areas and/or in the roofing membrane.
- 5) Centennial Arena does not contain lead-based paint.
- 6) Centennial Arena contains plumbing, which is assumed to contain lead solder between joints and valves.
- 7) Centennial Arena may contain PCB light ballasts.
- 8) Centennial Arena contains fluorescent tube lights in which mercury vapour is present.

- 9) Centennial Arena contains water damaged building materials, which may be contaminated with mould.
- 10) Centennial Arena contains silica as a constituent of concrete and cinderblock.

## 5.0 RECOMMENDATIONS

1. It is recommended that all friable ACM in poor condition be repaired or removed. The removal should occur as soon as possible to ensure that the facility maintenance workers, subcontractors and/or the general public are not exposed to airborne asbestos fibre (as per O.Reg. 837 4(1))
2. It is recommended that prior to demolition or renovation activities, invasive sampling for asbestos be conducted on building materials not collected during this non-invasive asbestos inspection.
3. It is recommended that all ACM (regardless of the condition) that may potentially be disturbed by future renovation/demolition activities be removed (as per O.Reg. 278/05 6(1)).
4. It is recommended that prior to demolition or renovation activities, invasive sampling be conducted for asbestos on building materials not collected during this non-invasive asbestos inspection (e.g. roofing membrane(s), materials inside inaccessible wall/ceiling spaces etc.)
5. It is recommended that if ACM is still present following renovations, an asbestos re-assessment of the building be conducted to determine the presence and condition of all remaining ACM.
6. It is recommended that an asbestos re-assessment be conducted in the building at least once in each 12-month period as per O. Reg. 278/05 Section 7 (5) (a)).
7. It is recommended that all PCB ballasts be disposed of as per provincial/federal requirements when no longer functional. Ballasts that cannot be identified as either PCB-Containing or Non-PCB should be disposed of as PCB-Containing Ballast. *ALL* ballasts and their date stamps should be examined and compared with the manufacturer and stamping to determine if PCBs are present.
8. It is recommended that fluorescent light tubes be packaged in rigid containers with packing material to prevent accidental breakage and worker exposure or an environmental release of mercury.
9. It is recommended that the source of the water causing damage to the exterior transite soffit be investigated, and repaired if possible.

10. It is recommended that the results of the hazardous materials assessment presented in this report be used as part of the hazardous material management program for this building.
11. It is recommended that a copy of this report be provided to the Joint Health and Safety Committee or to the Health and Safety Representative for this building.

## 6.0 DISCLAIMER

This report is prepared exclusively for the purposes, project and site location outlined in the report. The report is based on information provided to, or collected and/or obtained by LEX as indicated in the report, and applies solely to site conditions existing at the time of sampling. LEX's report represents a reasonable analysis and interpretation of available information within an agreed scope of work, schedule and budget.

LEX prepared this report for the sole benefit of the Corporation of the City of Guelph; it reflects LEX's best judgement in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. LEX accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

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LEX Scientific Inc. can be of assistance in providing air monitoring and inspection services during the course of an abatement project. On behalf of LEX Scientific, we would like to thank you for the opportunity to serve you. If you have any questions regarding this report, please call us at (519) 824-7082.

Sincerely,

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David Wiebenga,  
Occupational Hygiene Technologist

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Michael Hoffbauer,  
Director, Occupational Hygiene & EHS Services



## APPENDICES

## **APPENDIX A: Laboratory Report - Asbestos in Bulk Samples**





Solutions for a Working World

Company: LEX Scientific Inc. Report Date: 23-Feb-06
Contact: Mr. Dave Wiebenga Analysis Date: 21-Feb-06
Client Address: 204 - 2 Quebec Street, Guelph, ON Received Date: 15-Feb-06
Client Reference: 01050118 - Centennial Arena LEX Project Number: 09060261
Sampling Date: 02-Nov-05 Number of Analyses: 4

Analysis Requested Bulk Asbestos by PLM

Page 1 of 2

Analysis was performed in accordance with the method EPA/600/R-93/116, Method for the Determination of Asbestos in Bulk Building Materials adopted in Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act Ontario Regulation 278/05. LEX Scientific Inc. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP 101949) by the National Institute of Standards and Technology for analysis of bulk materials for asbestos.

German Leal, B.Sc. Laboratory Manager

Jason Cooper, B.Sc. Analyst

Table with columns: Fibrous Asbestos Content %, Other Materials Content %, Client Sample, Asbestos Detected?, and various material analysis results like Chrysotile, Amosite, Crocidolite, etc.

Other Amphiboles: ac=actinolite, a=anthophyllite, t-tremolite, u=unidentified
MMVF: Man Made Vitreous Fibers: Fiberglass, Min. Wool, Rockwool, Glasswool
PLM - method detection limit is 0.1%

Analyst [Signature]

This test report relates only to the items tested and must not be used to claim product endorsement by NVLAP or any agency of the United States government. This test report must not be reproduced except in full without the written consent of the laboratory.

		Fibrous Asbestos Content %	Other Materials Content %
<hr/>			
<b>Client Sample:</b> CA A02-C	<b>Asbestos Detected?</b>	No	
<b>LEX Sample:</b> 01B	<b>Chrysotile:</b>	None Detected	<b>Cellulose:</b> None Detected
<b>Layers Analyzed:</b> Sample homogenized	<b>Amosite:</b>	None Detected	<b>MMVF:</b> None Detected
<b>Colour:</b> Cream/Grey	<b>Crocidolite:</b>	None Detected	<b>OtherFibers:</b> None Detected
<b>Description:</b> Plaster Ceiling over Drywall	<b>Other Amphiboles:</b>	None Detected	<b>Non Fibers:</b> 100
	<b>Comments:</b>		
<hr/>			
<b>Client Sample:</b> CA A03-B	<b>Asbestos Detected?</b>	No	
<b>LEX Sample:</b> 02A	<b>Chrysotile:</b>	None Detected	<b>Cellulose:</b> None Detected
<b>Layers Analyzed:</b> Mastic	<b>Amosite:</b>	None Detected	<b>MMVF:</b> None Detected
<b>Colour:</b> Grey	<b>Crocidolite:</b>	None Detected	<b>OtherFibers:</b> None Detected
<b>Description:</b> 1x1 VFT (Beige)	<b>Other Amphiboles:</b>	None Detected	<b>Non Fibers:</b> 100
	<b>Comments:</b>		
<hr/>			
<b>Client Sample:</b> CA A03-C	<b>Asbestos Detected?</b>	No	
<b>LEX Sample:</b> 02B	<b>Chrysotile:</b>	None Detected	<b>Cellulose:</b> None Detected
<b>Layers Analyzed:</b> Mastic	<b>Amosite:</b>	None Detected	<b>MMVF:</b> None Detected
<b>Colour:</b> Black	<b>Crocidolite:</b>	None Detected	<b>OtherFibers:</b> None Detected
<b>Description:</b> 1x1 VFT (Beige)	<b>Other Amphiboles:</b>	None Detected	<b>Non Fibers:</b> 100
	<b>Comments:</b>		

Other Amphiboles: ac=actinolite, a=anthophyllite, t-tremolite, u=unidentified  
 MMVF: Man Made Vitreous Fibers: Fiberglass, Min. Wool, Rockwool, Glasswool  
 PLM - method detection limit is 0.1%

Analyst \_\_\_\_\_



This test report relates only to the items tested and must not be used to claim product endorsement by NVLAP or any agency of the United States government. This test report must not be reproduced except in full without the written consent of the laboratory.





*Solutions for a Working World*

Client: LEX Scientific Inc.

Contact: Mr. Dave Wiebenga

Client Address: 204-2 Quebec Street, Guelph, ON

Friday, November 11, 2005

Project Number: 09051633

Sampling Date: 10/11/2005

Client Reference: 01050118

Total Number of Samples: 1

Analysis was performed in accordance with the method outlined in the Regulation Respecting Asbestos on Construction Projects and in Building and Repair Operations - made under the Occupational Health and Safety Act Ontario Regulation 838/90 as amended by Ontario Regulation 510/92, Quebec Regulation 2.1, r.15, IRSST Method 224-1 and the EPA/600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. LEX Scientific Inc. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP 101949) by the National Institute of Standards and Technology for analysis of bulk materials for asbestos.

German Leal, B.Sc.  
Laboratory Manager

Michael Hoffbauer, B.Sc.  
Director

Client: LEX Scientific Inc.

Page: 1 of 1

Project Number: 09051633

Project Number: 09051633		Fibrous Asbestos Content%	Other Materials Content %
LEX Sample #:	01	Chrysotile: None Detected	Fibreglass: None Detected
Sample #:	CA-01	Amosite: None Detected	Glasswool: None Detected
Sample Colour:	Black/Brown	Crocidolite: None Detected	Rockwool: None Detected
Analyst:	GL	Other Amphiboles: None Detected	Cellulose: 80%
Sample Condition	Sealed Bag		Other: None Detected
Comments:	Women's Changeroom - Rainwater Leader PI		Non-Fibrous: 20%

Other Amphiboles: ac=actinolite, a=anthophyllite, t-tremolite, u=unidentified  
This test report relates only to the items tested  
PLM - method detection limit is 0.1%

Analyst

This test report must not be used to claim product endorsement by NVLAP or any agency of the United States government. This test report must not be reproduced except in full without the written consent of the laboratory.



Solutions for a Working World

Client: LEX Scientific Inc.

Contact: Mr. Dave Wiebenga

Client Address: 2 Quebec Street, Suite 204, Guelph, ON

Tuesday, December 20, 2005

Project Number: 09051780

Sampling Date: 11/02/2005

Client Reference: 01050118

Total Number of Samples: 4

Analysis was performed in accordance with the method EPA/600/R-93/116, Method for the Determination of Asbestos in Bulk Building Materials adopted in Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act Ontario Regulation 278/05. LEX Scientific Inc. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP 101949) by the National Institute of Standards and Technology for analysis of bulk materials for asbestos.

German Leal, B.Sc.  
Laboratory Manager

Michael Hoffbauer, B.Sc.  
Director

Client: LEX Scientific Inc.

Page: 1 of 2

Project Number: 09051780

		Fibrous Asbestos Content%	Other Materials Content %
LEX Sample #:	01	Chrysotile: 50%	Fibreglass: None Detected
Sample #:	CA A01-A	Amosite: None Detected	Glasswool: None Detected
Sample Colour:	Cream/Grey	Crocidolite: None Detected	Rockwool: None Detected
Analyst:	GL	Other Amphiboles: None Detected	Cellulose: None Detected
Sample Condition	Sealed Bag		Other: None Detected
Comments:	Parging around Pipe against Wall		Non-Fibrous: 50%

Other Amphiboles: ac=actinolite, a=anthophyllite, t-tremolite, u=unidentified  
This test report relates only to the items tested  
PLM - method detection limit is 0.1%

Analyst

This test report must not be used to claim product endorsement by NVLAP or any agency of the United States government. This test report must not be reproduced except in full without the written consent of the laboratory.

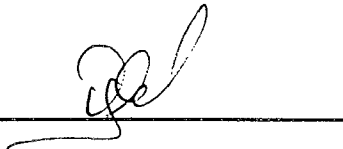
2 Quebec Street, Suite 204 Guelph, Ontario N1H 2T3  
Phone: 519.824.7082 Fax: 519.824.5784 Toll Free: 1.800.824.7082  
e-mail: admin@lexscientific.com Website: www.lexscientific.com

Project Number: 09051780

		Fibrous Asbestos Content%	Other Materials Content %
LEX Sample #:	02	Chrysotile: None Detected	Fibreglass: None Detected
Sample #:	CA A02-A	Amosite: None Detected	Glasswool: None Detected
Sample Colour:	Cream/Grey	Crocidolite: None Detected	Rockwool: None Detected
Analyst:	GL	Other Amphiboles: None Detected	Cellulose: None Detected
Sample Condition	Sealed Bag		Other: None Detected
Comments:	Plaster Ceiling over Drywall		Non-Fibrous: 100%
LEX Sample #:	05.1	Chrysotile: 2%	Fibreglass: None Detected
Sample #:	CA A03-A	Amosite: None Detected	Glasswool: None Detected
Sample Colour:	Beige	Crocidolite: None Detected	Rockwool: None Detected
Analyst:	GL	Other Amphiboles: None Detected	Cellulose: None Detected
Sample Condition	Sealed Bag		Other: None Detected
Comments:	1x1 VFT (Beige); VFT layer; Analysis of ash residue only		Non-Fibrous: 98%
LEX Sample #:	05.2	Chrysotile: None Detected	Fibreglass: None Detected
Sample #:	CA A03-A	Amosite: None Detected	Glasswool: None Detected
Sample Colour:	Black/Grey	Crocidolite: None Detected	Rockwool: None Detected
Analyst:	GL	Other Amphiboles: None Detected	Cellulose: None Detected
Sample Condition	Sealed Bag		Other: 2%
Comments:	1x1 VFT (Beige); Mastic		Non-Fibrous: 98%

Other Amphiboles: ac=actinolite, a=anthophyllite, t-tremolite, u=unidentified  
 This test report relates only to the items tested  
 PLM - method detection limit is 0.1%

Analyst



This test report must not be used to claim product endorsement by NVLAP or any agency of the United States government. This test report must not be reproduced except in full without the written consent of the laboratory.



**APPENDIX B: Asbestos Quantification and Management/Abatement Option  
Summary**

**APPENDIX B: Centennial Arena – 373 College Avenue West, Guelph, Ontario: ACM Quantification and Management/Abatement Option Summary**

ASSESS. NO.	LOCATION	ASBESTOS CONTAINING MATERIAL TYPE	FRIABLE ?	APPROX. QUANTITY	MATERIAL CONDITION	ACCESSIBILITY / DISTURBANCE POTENTIAL	PRIORITY SCORE**	MANAGEMENT / ABATEMENT OPTIONS
1	Room 102 (Custodians Office)	1” – 3” TSI Pipe Fittings	Yes	5	Good	2	4	Manage
2			Yes	1	Poor	2	2	<b>Remove</b>
3		Parging Between Wall and Pipe	Yes	6	Fair	2	4	Manage
4	Room 103 (Men’s Bathroom)	1” - 3” TSI Pipe Fittings	Yes	16	Good	1	4	Manage
5		Parging Between Wall and Pipe	Yes	11	Fair	1	4	Manage
6	Room 104 (Snack Stand)	1” TSI Pipe Fittings	Yes	6	Good	2	4	Manage
7		Parging between Wall and Pipe	Yes	10	Fair	2	4	Manage
8	Room 105 (Women’s Bathroom)	1” – 3” TSI Pipe Fittings	Yes	14	Good	1	4	Manage
9		Parging between Wall and Pipe	Yes	16	Fair	1	4	Manage
10	Room 106 (Electrical Room)	1” - 3” TSI Pipe Fittings	Yes	16	Fair	2	4	Manage
11		Parging between Wall and Pipe	Yes	7	Fair	2	4	Manage
12	Room 108 (Refrigeration Room)	1” - 6” TSI Pipe Fittings	Yes	25	Good	2	4	Manage
13	Room 109	1” - 4” TSI Pipe Fittings	Yes	20	Fair	2	4	Manage

Asbestos Containing Material Types  
TSI - Thermal System Insulation  
VFT – Vinyl Floor Tile  
LFBP – Light Fixture Backing Plate

Accessibility / Disturbance Potential  
1. High – General Office/Plant Worker and/or Public  
2. Moderate – Custodial Staff  
3. Low – Building Renovation/Demolition Activities

\*\* Priority Score Code:  
1 - High Priority  
2 - Moderate Priority

3 - Low Priority  
4 - O&M measures to prevent damage

**APPENDIX B: Centennial Arena – 373 College Avenue West, Guelph, Ontario: ACM Quantification and Management/Abatement Option Summary**

ASSESS. NO.	LOCATION	ASBESTOS CONTAINING MATERIAL TYPE	FRIABLE ?	APPROX. QUANTITY	MATERIAL CONDITION	ACCESSIBILITY / DISTURBANCE POTENTIAL	PRIORITY SCORE**	MANAGEMENT / ABATEMENT OPTIONS
14	Room 110 (Workshop)	1' x 1' VFT (Beige)	No	210 ft <sup>2</sup>	Fair	3	4	Manage
15		1"-2" TSI Fittings	Yes	6	Fair	2	4	Manage
16		Parging between Wall and Pipe	Yes	10	Poor	2	4	Manage
17	Room 111 (Chemical Storage)	1" TSI Fittings	Yes	2	Poor	2	2	<b>Remove</b>
18			Yes	1	Fair	2	4	Manage
19		Parging between Wall and Pipe	Yes	10	Fair	2	4	Manage
20		1' x 1' VFT (Beige)	No	100 ft <sup>2</sup>	Fair	3	4	Manage
21	Room 112 (L1 Bathroom)	1" TSI Fittings	Yes	2	Good	1	4	Manage
22		Parging between Wall and Pipe	Yes	4	Fair	1	4	Manage
23	Room 113 (L1)	1"-2" TSI Fittings	Yes	10	Fair	1	4	Manage
24		Parging between Wall and Pipe	Yes	10	Fair	1	4	Manage
25	Room 114 (Locker 2)	1"-2" TSI Fittings	Yes	11	Fair	1	4	Manage
26		Parging between Wall and Pipe	Yes	10	Fair	1	4	Manage
27	Room 115 (Storage by L2)	1" TSI Fittings	Yes	2	Fair	2	4	Manage
28		Parging between Wall and Pipe on Block wall	Yes	10	Fair	2	4	Manage

Asbestos Containing Material Types  
TSI - Thermal System Insulation  
VFT – Vinyl Floor Tile  
LFBP – Light Fixture Backing Plate

Accessibility / Disturbance Potential  
1. High – General Office/Plant Worker and/or Public  
2. Moderate – Custodial Staff  
3. Low – Building Renovation/Demolition Activities

\*\* Priority Score Code:  
1 - High Priority  
2 - Moderate Priority  
3 - Low Priority  
4 - O&M measures to prevent damage



**APPENDIX B: Centennial Arena – 373 College Avenue West, Guelph, Ontario: ACM Quantification and Management/Abatement Option Summary**

ASSESS. NO.	LOCATION	ASBESTOS CONTAINING MATERIAL TYPE	FRIABLE ?	APPROX. QUANTITY	MATERIAL CONDITION	ACCESSIBILITY / DISTURBANCE POTENTIAL	PRIORITY SCORE**	MANAGEMENT / ABATEMENT OPTIONS
29	Room 116 (L2 Bathroom)	1” TSI Fittings	Yes	2	Good	1	4	Manage
30		Parging between Wall and Pipe	Yes	4	Fair	1	4	Manage
31	Room 118 (L3)	1” TSI Fittings	Yes	6	Good	1	4	Manage
32		Parging between Wall and Pipe	Yes	10	Fair	1	4	Manage
33	Room 118 Bathroom (L3 Bathroom)	Parging between Wall and Pipe	Yes	5	Fair	1	4	Manage
34	Room 119 (Official Room)	1” TSI Fittings	Yes	10	Good	1	4	Manage
35		Parging between Wall and Pipe	Yes	10	Fair	1	4	Manage
37	Room 120 (L4)	1” TSI Fittings	Yes	9	Good	1	4	Mange
38		Parging between Wall and Pipe	Yes	2	Fair	1	4	Manage
39		Transite Pipe through Block Wall	No	1 ft	Good	3	4	Manage
40		4” TSI Pipe Fittings	Yes	1	Good	1	4	Manage
41	Room 122 (Lobby)	1” TSI Fittings	Yes	16	Good	2	4	Manage
42		Parging between Wall and Pipe	Yes	8	Fair	2	4	Manage

Asbestos Containing Material Types  
TSI - Thermal System Insulation  
VFT – Vinyl Floor Tile  
LFBP – Light Fixture Backing Plate

Accessibility / Disturbance Potential  
1. High – General Office/Plant Worker and/or Public  
2. Moderate – Custodial Staff  
3. Low – Building Renovation/Demolition Activities

\*\* Priority Score Code:  
1 - High Priority  
2 - Moderate Priority

3 - Low Priority  
4 - O&M measures to prevent damage

**APPENDIX B: Centennial Arena – 373 College Avenue West, Guelph, Ontario: ACM Quantification and Management/Abatement Option Summary**

ASSESS. NO.	LOCATION	ASBESTOS CONTAINING MATERIAL TYPE	FRIABLE ?	APPROX. QUANTITY	MATERIAL CONDITION	ACCESSIBILITY / DISTURBANCE POTENTIAL	PRIORITY SCORE**	MANAGEMENT / ABATEMENT OPTIONS
43	Room 130 (B1 Locker)	4” Transite Pipe	No	20 ft	Good	3	4	Manage
44		4” Transite Pipe Fittings by Ceiling (Fittings are assumed to be Asbestos due to inaccessibility)	Yes	1	Fair	3	4	Manage
45			Yes	1	Good	3	4	Manage
46	Room 137	1”-3” TSI Fittings	Yes	6	Fair	2	4	Manage
47	Exterior of Building	Transite Paneling on Soffits	No	1000 ft <sup>2</sup>	Fair	3	4	Manage
48	General Building	TSI Pipe Fittings inside Bulkheads and above Fixed Ceilings	Yes	Not Known	Not Known	3	4	Manage

Asbestos Containing Material Types  
TSI - Thermal System Insulation  
VFT – Vinyl Floor Tile  
LFBP – Light Fixture Backing Plate

Accessibility / Disturbance Potential  
1. High – General Office/Plant Worker and/or Public  
2. Moderate – Custodial Staff  
3. Low – Building Renovation/Demolition Activities

\*\* Priority Score Code:  
1 - High Priority  
2 - Moderate Priority

3 - Low Priority  
4 - O&M measures to prevent damage

## **APPENDIX C: Photographs**

## APPENDIX C: Photographs

Figure 1: Centennial Arena. Guelph, ON.

Parging between pipes and wall. Material contains 50% Chrysotile. This material was observed throughout the facility where piping extends through the block wall.



Figure 2: Centennial Arena. Guelph, ON.

4" - 8" inch transite pipe in Room 130. Parged fitting on ceiling in was inaccessible and therefore is assumed to contain asbestos.

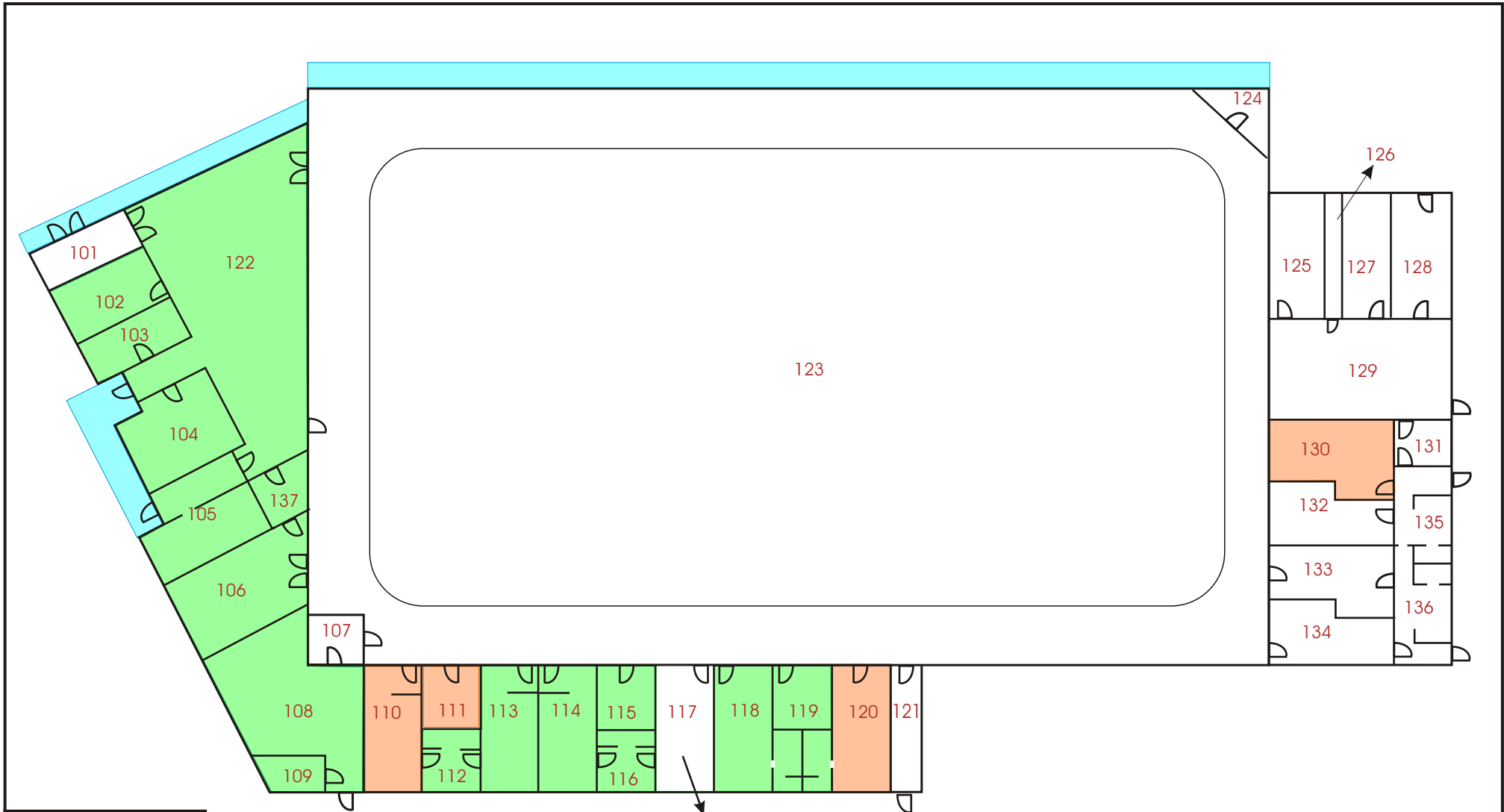


Figure 3: Centennial Arena. Guelph, ON.

Building soffits contain transite board.

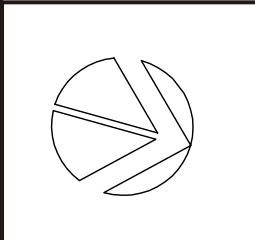


## **APPENDIX D: Locations of Friable and Non-Friable ACM**



No Access

2 Quebec Street Suite 204  
Guelph, Ontario, N1H 2T3  
ph: (519) 824-7082  
fx: (519) 824-5784  
www.lexscientific.com



Floor Plans Supplied by  
LEX Scientific Inc.  
Not to Scale  
February 2006

Appendix D: Locations of Friable and Non-Friable ACM  
Centennial Arena  
373 College Avenue West, Guelph, Ontario  
MAIN FLOOR

**Legend**

- Friable ACM Present
- Non-Friable ACM Present
- Friable and Non-Friable ACM Present

## **Appendix F: Field Survey Update Forms**

APPENDIX F  
FIELD SURVEY UPDATE FORMS

FIELD SURVEY UPDATE FORM  
REASSESSMENT OF ASBESTOS-CONTAINING MATERIALS

Location of asbestos-containing material(s) (address, building, room(s), or general description):

CENTENIAL ARENA  
373 COLLEGE AVENUE WEST  
GUELPH, ONTARIO  
ROOM 102, 109, 119. (CHANGE ROOM #3)

Type of asbestos-containing material(s):

- 1. Sprayed- or trowelled-on ceilings or walls.
- 2. Sprayed- or trowelled-on structural members.
- ③ Insulation on pipes, tanks, or boilers.
- 4. Other (describe): \_\_\_\_\_

Abatement Status:

- 1. The material has been encapsulated \_\_\_\_\_ enclosed \_\_\_\_\_, neither X

Assessment:

- 1. Evidence of physical damage: YES
- 2. Evidence of water damage: NO
- 3. Evidence of delamination or other deterioration: YES
- 4. Degree of accessibility of the material: MODERATE TO HIGH
- 5. Degree of activity near the material: MODERATE TO HIGH
- 6. Location in an air plenum, air shaft, or air stream: YES; NEAR UNIT HEATERS
- 7. Other observations (including the condition of the encapsulant or enclosure, if any): DAMAGED ACMs - REMOVE

Signed: \_\_\_\_\_

*[Signature]*  
Evaluator

Date: \_\_\_\_\_

July 19, 2010



APPENDIX F  
FIELD SURVEY UPDATE FORMS

FIELD SURVEY UPDATE FORM  
REASSESSMENT OF ASBESTOS-CONTAINING MATERIALS

Location of asbestos-containing material(s) (address, building, room(s), or general description):

CENTENNIAL ARENA  
373 COLLEGE AVENUE WEST  
GUELPH, ONTARIO  
ROOM 105, 137, 106, 108, 110, 111, 112, 113, 114, 115, 116, 118, 120, 130

Type of asbestos-containing material(s):

- ① Sprayed- or trowelled-on ceilings or walls.
- 2. Sprayed- or trowelled-on structural members.
- ③ Insulation on pipes, tanks, or boilers.
- 4. Other (describe): PARGING, TRANSITE PANELING, TRANSITE PIPE, VFT

Abatement Status:

- 1. The material has been encapsulated \_\_\_\_\_ enclosed \_\_\_\_\_, neither X

Assessment:

- 1. Evidence of physical damage: NO
- 2. Evidence of water damage: NO
- 3. Evidence of delamination or other deterioration: NO
- 4. Degree of accessibility of the material: LOW TO HIGH
- 5. Degree of activity near the material: LOW TO HIGH
- 6. Location in an air plenum, air shaft, or air stream: NO
- 7. Other observations (including the condition of the encapsulant or enclosure, if any): GOOD CONDITION - CONTINUE MANAGEMENT

Signed: [Signature] Date: July 19, 2010  
Evaluator

APPENDIX F  
FIELD SURVEY UPDATE FORMS

FIELD SURVEY UPDATE FORM  
REASSESSMENT OF ASBESTOS-CONTAINING MATERIALS

Location of asbestos-containing material(s) (address, building, room(s), or general description):

CENTENNIAL ARENA  
373 COLLEGE AVENUE WEST  
GUELPH, ONTARIO  
ROOM 122, 103, 104, WEST EXTERIOR

Type of asbestos-containing material(s):

- 1. Sprayed- or trowelled-on ceilings or walls.
- 2. Sprayed- or trowelled-on structural members.
- 3. Insulation on pipes, tanks, or boilers.
- 4. Other (describe): PARGING, TRANSITE PANELING

Abatement Status:

- 1. The material has been encapsulated \_\_\_\_\_ enclosed \_\_\_\_\_, neither X ACMS HAVE BEEN REMOVED

Assessment:

- 1. Evidence of physical damage: \_\_\_\_\_
- 2. Evidence of water damage: \_\_\_\_\_
- 3. Evidence of delamination or other deterioration: \_\_\_\_\_
- 4. Degree of accessibility of the material: \_\_\_\_\_
- 5. Degree of activity near the material: \_\_\_\_\_
- 6. Location in an air plenum, air shaft, or air stream: \_\_\_\_\_
- 7. Other observations (including the condition of the encapsulant or enclosure, if any): \_\_\_\_\_

Signed: J. Harty Date: July 19, 2010  
Evaluator