MAPLE ENVIRONMENTAL INC.
ENVIRONMENT, HEALTH & SAFETY CONSULTANTS

INDOOR AIR QUALITY ASSESSMENT

Runnymede Junior and Senior Public School
357 Runnymede Road,
Toronto, Ontario

Presented to:
Toronto District School Board
5050 Yonge Street
North York, Ontario
M2N 5N8

Attention: Babak Farzin

April 1, 2025

Maple Project No. 20748-8

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1. Introduction

Further to your request, Maple Environmental Inc. (Maple) visited the subject site on March 28, 2025 to conduct an Indoor Air Quality ("IAQ") Assessment within Runnymede Junior and Senior Public School located at 357 Runnymede Road, Toronto, Ontario (the "Site"). The assessment was conducted in order to determine if elevated concentrations of Total Volatile Organic Compounds (TVOCs) and Particulate Matter were present in the building.

As you are aware, an ongoing exterior column, windows and roof restoration project has been occurring at the subject site. It is our understanding that concerns have been raised by staff members, students and parents regarding the presence of accumulated dust within the Senior Gym. Additionally, Maple was requested to proactively review site conditions within the adjacent areas of the Senior Gym due to their close proximity to the Construction Work Area.

The purpose of the site visit was to conduct an Indoor Air Quality Assessment (IAQ) within the Senior Gym and the adjacent areas to determine if elevated TVOCs and Particulate Matter were present as a result of the airborne dust particulates generated from the ongoing construction.

This is an assessment of the select areas for the presence of airborne dust particulates. This does not include an assessment of the entire building.

2. Scope of Investigation

The scope of the investigation included a visual assessment of the impacted areas in order to confirm or deny the presence of elevated airborne dust particulates following the emergency remediation services.

Additionally, Maple conducted air monitoring in order to ensure Total Volatile Organic Compounds (TVOCs) and Particulate Matter were within recommended guideline ranges.

3. Sample Collection and Methodology

3.2 Total Volatile Organic Compounds (TVOCs):

TVOC measurements were completed using a portable handheld TVOC monitor ppbRAE 3000 (serial number 594-913875). The ppbRAE 3000 has a 3 second response time and a measurement range of 1 ppb (parts per billion) to 10,000 ppm (parts per million). This instrument uses a photoionization detector (PID) (10.6eV) for measurement of TVOC concentration. The PID was calibrated prior to the survey date with isobutylene gas of known concentration that was used as a reference standard gas. On-site zero calibration was also performed prior to the beginning of the survey period. The ppbRAE does not identify specific VOC's.

Volatile organic compounds (VOCs) refer to a variety of airborne contaminants that are commonly found inside buildings at detectable concentrations. Volatile organic compounds are present as a mixture of many components and currently there is no specific regulation or standard available for Total VOCs (TVOC). VOCs are commonly found to off-gas from a variety of building materials and products such as carpets, furnishings, computers, photocopiers, adhesives, paints and cleaning products.

Typical health effects from exposure to VOCs result in discomfort and irritation to the eyes and mucous membranes. Higher concentrations may result in the onset of headaches and additional effects.

It should be noted that the TVOC air monitoring performed represents the total of all organic compounds present in the air. Further, the testing for the value of the total

volatile organic compounds does not specifically detect residual smoke particulate. The information provided does not provide qualitative measurements with respect to the composition of the ambient air.

Air monitoring for TVOC's should be considered a preliminary approach to determine the level of residual smoke odour with a building. Results should be read and interpreted in conjunction with observations made on-site in addition to any smoke related odours that are detected within the building.

The currently accepted Health Canada TVOC guideline is summarized below.

Summary of Total Volatile Organic Compound Health Canada Guideline

Organization	Concentration	Exposure Range
Health Canada, Indoor Air Quality in Office Buildings: A Technical Guide – (1995)	1,000 µg/m^3 440 ppb	Target Level
	5000 ug/m^3 2,200 ppb	Action Level

3.3 Suspended Particulate Matter

A TSI DustTrak DRX instruments (serial number 8534245101) was used for measuring dust particulate levels. The instrument provides instantaneous dust concentrations in mg/m^3 and has data-logging capabilities. Additionally, this device instantaneously measures average, minimum and maximum particle concentrations for particulates between 0.1 and 10µm in diameter, with a measuring range of 1µg/m^3 to 100 mg/m^3. This instrument utilizes light scattering photometer to provide real time dust concentrations of specific size fractions including PM10 and PM2.5. On-site zero calibration was conducted prior to the beginning of the sampling period.

Particulates that range in size between 0.1-10um are of concern when considering human health. These sizes of particulates have the ability to penetrate into the lower thoracic and respiratory regions of the respiratory tract. Particulates larger than 10um are typically too large and are filtered out by the mucus membranes. Further, particulates smaller than 0.1um are removed through exhalation and do not reach the lower respiratory tract.

Current Ontario occupational exposure limits for particulates would not apply to the site as they are established for industrial or manufacturing settings and are based on the worker being young and healthy. They do not account for vulnerable populations or people with known or underlying health conditions. Environmental limits for exposure to particulates in the general population are typically set much lower than occupational limits.

Particulate matter of 2.5um or less (PM2.5) is referred to as fine particulate matter. The Canadian Ambient Air Quality Standards (CAAQS), agreed to by the Canadian Council of Ministers of the Environment (CCME), established new targets for outdoor PM2.5 with the federal government under the Canadian Environmental Protection Act, 1999 for 30ug/m^3 (0.03mg/m^3) over a 24-hour period within the ambient air.

Particulate matter of 10um or less (PM10) is referred to as coarse particulate matter. The Standards Branch of the Ontario Ministry of Environment, set an Ambient Air Quality Criteria (AAQCs) for 50ug/m^3 (0.05mg/m^3) over a 24 hour period within the ambient air.

4. Visual Assessment

General findings obtained within the construction area during Maple's site visit on March 28, 2025 are outlined below:

- General building materials within the assessed areas include wood floors, masonry block walls, terrazzo, ceramic tiles, plaster ceiling and acoustic ceiling tiles.
- Scaffolding was observed to be present on the east side within the Gym. Plywood hoarding was observed to be present around the scaffolding. A debris netting was observed to be present around the scaffolding for dust/debris control.
- Plywood hoarding was observed to be present around openings on the west windows where windows were previously removed.
- Evidence of accumulated dust/debris was observed to be present on horizontal surfaces within the accessed areas.
- Large opening was observed to be present in plaster ceiling within Girl's Changeroom.
- Plaster ceiling was observed to be damaged within the Boy's Changeroom.
- Peeling paint and efflorescence was observed on various locations of the plaster ceilings within the assessed areas.
- Acoustic ceiling tiles were observed to have collapsed and water stained within the assessed areas.

Photographs of the building were taken and representative photos are included as Attachment A.

5. Spot Testing for Total Volatile Organic Compounds (TVOCs) & Particulates

Spot testing was conducted on March 18, 2025 in representative areas throughout the Site for all of the indoor air quality parameters specified. The sampling results provided in Table 1 are compared to the applicable IAQ Guidelines as stated in Sections 3.2 and 3.3 of this report.

Table #1
Summary of Testing for Indoor Air Quality Parameters

Location/ Parameter	$PM_{2.5}$ (ug/m^3)	PM_{10} (ug/m^3)	TVOCs (ppb)
IAQ Guideline Level	30	50	440
Outdoors	9	34	0
Gym North Side	9	17	15
Gym South Side	8	16	20

Table #1 Summary of Testing for Indoor Air Quality Parameters			
Location/ Parameter	**$PM_{2.5}$ (ug/m^3)**	**PM_{10} (ug/m^3)**	**TVOCs (ppb)**
IAQ Guideline Level	30	50	440
Gym East Side	8	14	35
Gym West Side	8	15	42
Girl's Change Room	5	8	45
Girl's Instructor Office	6	11	52
Boy's Change Room	5	9	63
Boy's Instructor Office	6	11	63
South Corridor	10	16	68
North Corridor	7	13	110
Fan Room	16	41	145
Staircase 6	6	12	110

Bolded values are outside the recommended range.

Discussion of TVOC Results:

Spot testing measurements for total volatile organic compound concentrations within the building were found to range from 15 ppb to 145 ppb. The average TVOC concentrations within the building were found to be 64 ppb which is well below the Health Canada Target Level of 440 ppb.

Discussion of Particulates Results (PM2.5 and PM10):

The results of the spot testing within the building found that the average fine particulate (PM2.5) concentration ranged from $5ug/m^3$ to $16ug/m^3$. All of the measurements were found to be below the $30ug/m^3$ recommended maximum value.

The results of the spot testing within the building found that the average coarse particulate (PM10) concentration ranged from $8ug/m^3$ to $41ug/m^3$. All measurements were found to be below the $50ug/m^3$ recommended maximum value.

6. Conclusions and Recommendations

Particulates (PM2.5 and PM10)

- All of the suspended particulate values for the 2.5um and 10um size fractions were found to be below the maximum recommended concentration.

Total Volatile Organic Compounds (TVOCs)

- All total volatile organic compound values were found to be well below the Health Canada recommended target guideline level of 440ppb.

Based on our visual review of the current site conditions on March 28, 2025, the following general recommendations are concluded:

- Remove and replace all HVAC air filters.
- Surface clean all horizontal surfaces within the Gym and the adjacent areas with visible evidence of accumulated settled dust/debris where present.
- Consider installing HEPA filtered air scrubbers within the Gym during the construction work hours to clean air in an attempt to reduce dust/debris generated from the ongoing construction.
- Consideration should be given to have the ductwork serving the Gym be cleaned by a qualified contractor.
- Consider installing a debris netting on the west windows around the plywood hoarding to control dust/debris generated from the construction.
- The plywood hoarding and debris netting appears to not capture the fine particulates within the construction work area, the general contractor may consider using a different methodology to control fine particulates generated from the Work Area.

7. Limitations

Due to the nature of building construction some limitations exist as to the possible thoroughness of the subject investigation. The field observations are considered sufficient in detail and scope to form a reasonable basis for the findings presented in this report. Maple warrants that the findings and conclusions contained herein have been made in accordance with generally accepted evaluation methods in the industry and applicable regulations at the time of the performance of the assessment.

It is possible that conditions may exist which could not be reasonably identified within the scope of the investigation or which were not apparent during the site investigation. Maple believes that the information collected during the investigation period concerning the property is reliable. No other warranties are implied or expressed.

Information provided by Maple is intended for Client use only. Any use by a third party, of reports or documents authored by Maple, or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Maple accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted.

The liability of Maple or its staff will be limited to the lesser of the fees paid or actual damages incurred by the Client. Maple will not be responsible for any consequential or indirect damages. Maple will only be liable for damages resulting from negligence of Maple; all claims by the Client shall be deemed relinquished if not made within two years after last date of services provided.

Please contact Maple Environmental Inc. at (905) 257-4408 for inquiries regarding this project.

Sincerely,

MAPLE ENVIRONMENTAL INC.
Environment, Health and Safety Consultants

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Attachment A
Representative Site Photographs

Figure 1: View within the Gym with plywood hoarding and debris netting on east side.

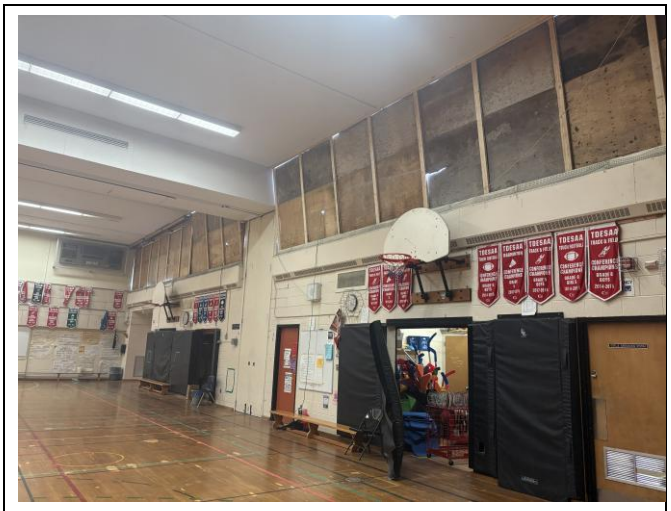

Figure 2: View of plywood hoarding on west windows where previously removed.

Figure 3: General view of horizontal surfaces with settled dust/debris in the Gym (typical).

Figure 4: General view opening present on plaster ceiling within Girl's Changeroom.

Figure 5: General view plaster ceiling within Boy's Changeroom.

Figure 6: General view of horizontal surfaces with accumulated dust/debris present within Fan Room around ductwork (typical).

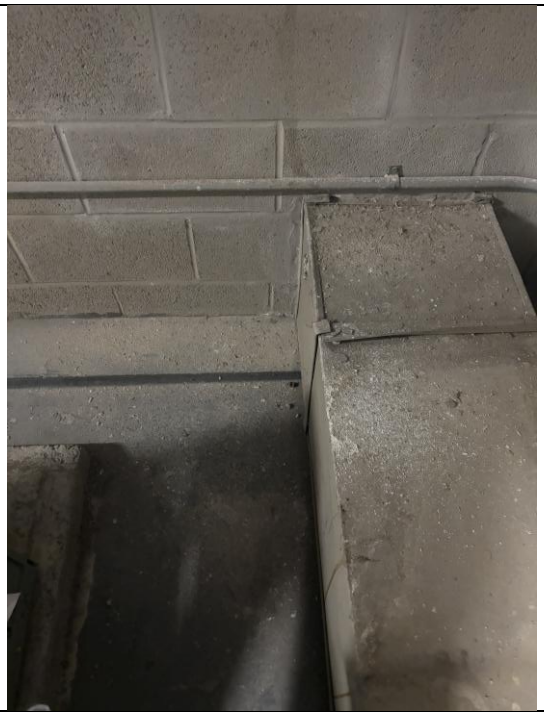

Figure 7: General view of horizontal surfaces with accumulated dust/debris present within Fan Room around ductwork (typical).

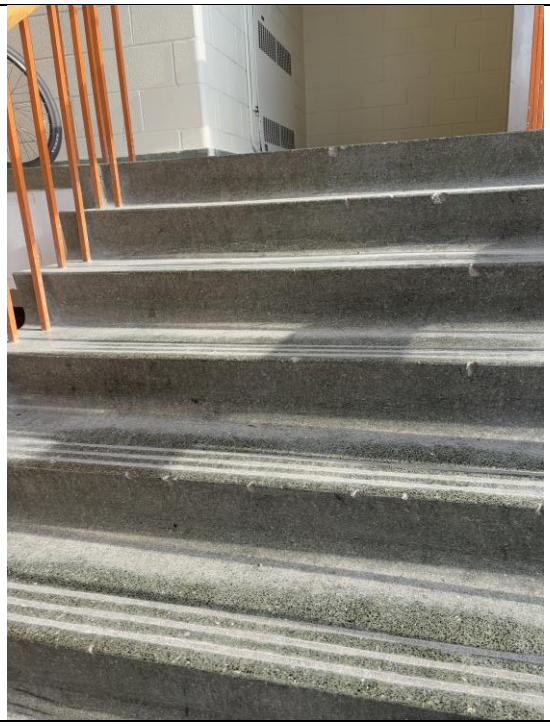

Figure 8: General view of horizontal surfaces with accumulated dust/debris present within Staircase 6 (typical).

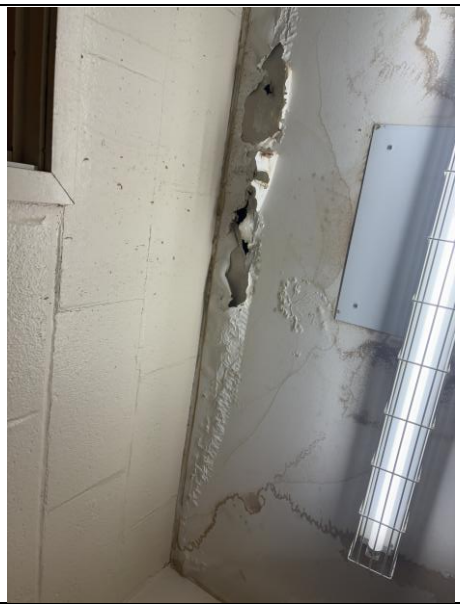

Figure 9: General view of peeling paint and efflorescence on plaster ceiling within assessed areas.

Figure 10: General view of horizontal surfaces with accumulated dust/debris present within Gym (typical).

Figure 11: General view of horizontal surfaces with accumulated dust/debris present within Fan Room around ductwork (typical).

Figure 12: General view of horizontal surfaces with accumulated dust/debris present within Fan Room.