

Date:	May 17, 2018
Client Name:	PEI Department of Transportation, Infrastructure & Energy (DTIE)
Client Contact:	Tyler Richardson
Project No:	PE8097
Project Description	Indoor Air Quality Testing
Site Name:	Three Oaks Senior High School
Site Address:	Summerside, Prince Edward Island
Report No.	03

1. Details to be noted:

On May 15, 2018 ALL-TECH Environmental Services conducted indoor air quality (IAQ) testing in various areas within Three Oaks Senior High School in Summerside, PEI during the on-going renovation project.

The purpose of the IAQ monitoring was to assess any general issues associated with indoor air quality and compare to the industry standards and guidelines during the construction phase.

The test parameters for assessing conditions included the following:

- Carbon Monoxide (CO)
- Total Volatile Organic Compounds (TVOCs)
- Airborne Particulates

Testing was completed within four different locations on May 15, 2018 during occupied times within the school and construction areas.

For the purposes of the project, various target values established by Health Canada and the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 69 have been used as a guide for comparing results and are referenced below in table 1.

Sample results for each test location are presented in section 2.

Table 1 Indoor Air Quality Guidelines	
Parameters	Guidelines
Carbon Dioxide	< 1000 ppm (ASHRAE)
Carbon Monoxide	< 5 ppm (Health Canada)
Airborne Particulates	0.05 mg/m ³ (annual) 0.15 mg/m ³ (24-hr)
Total Volatile Organic Compounds	Target Level 1 mg/m ³ (Health Canada) Action Level 5 mg/m ³ (Health Canada)

ppm – parts per million

mg/m³ – milligrams per cubic metre

2. Indoor Air Quality Monitoring Results

Sample Location (Construction Phase)	Sample Date (m/d/y)	Sample Duration (min)	CO (ppm)	TVOC's (mg/m ³)	Particulates (mg/m ³)
1A2	05/15/18	45	0.2	0.1	*0.555
1B3	05/15/18	46	0.3	0.1	0.076
2A1	05/15/18	45	0.3	0.1	*0.209
2B1	05/15/18	45	0.3	0.1	0.105
Health Canada / ASHRAE Guidelines			5	1	0.05 (annual) 0.15 (24-hr)

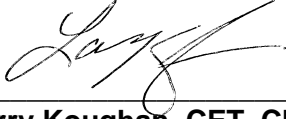
*Bold values note areas exceeding recommended 24 hr short-term guideline

3. Interpretation of Results

Particulate monitoring results within two of the four areas tested were found to be above Health Canada guidelines for airborne particulates for indoor (non-industrial) sites for short-term (24 hr) exposure guidelines. In addition, all four areas exceeded the long term (annual) exposure guidelines. In area 1A2 which was noted with the highest readings, it was noted that this area has the most foot traffic as well and is near the main entrance door which is being used constantly by both construction workers and staff and students. On the day of testing there were moderate winds outside which may also contribute to the higher numbers in this area. Regardless of conditions, it was noted that these areas were reported higher than baseline testing and follow up testing was requested by DTIE in these areas for the following day. In addition, the general contractor was notified to ensure the work area enclosures are being maintained and adequate air ventilation is being supplied for these areas.

All other air quality parameters were acceptable at the time of testing.

Should you have any questions regarding this report, please do not hesitate to contact our office at (902) 569-0172.



Larry Koughan, CET, CRSP
Senior Environmental Consultant
ALL-TECH Environmental Services Limited

Incl. IAQ data summary report
Particulate data summary report
Site Drawing with sample locations



Test 011

TOSH 1A2

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	05/15/2018
Meter S/N	7575X1806005	Start Time	10:08:24
Probe Model	982	Stop Date	05/15/2018
Probe S/N	P18040063	Stop Time	10:53:24
Meter Cal Date	02/07/2018	Total Time	0:00:45:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	459 ppm	20.0 deg C	51.1 %rh	0.2 ppm
Max	518 ppm	20.3 deg C	52.9 %rh	0.4 ppm
Max Date	05/15/2018	05/15/2018	05/15/2018	05/15/2018
Max Time	10:53:24	10:53:24	10:53:24	10:13:24
Min	438 ppm	19.7 deg C	49.8 %rh	0.2 ppm
Min Date	05/15/2018	05/15/2018	05/15/2018	05/15/2018
Min Time	10:43:24	10:18:24	10:13:24	10:33:24
TWA (8 hr)	43			0.0
TWA Start Date	05/15/2018			05/15/2018
TWA Start Time	10:08:24			10:08:24
TWA End Time	10:53:24			10:53:24

Test 012

TOSH 1B3

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	05/15/2018
Meter S/N	7575X1806005	Start Time	09:15:49
Probe Model	982	Stop Date	05/15/2018
Probe S/N	P18040063	Stop Time	10:00:49
Meter Cal Date	02/07/2018	Total Time	0:00:45:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	573 ppm	20.9 deg C	47.6 %rh	0.3 ppm
Max	758 ppm	21.3 deg C	48.9 %rh	0.4 ppm
Max Date	05/15/2018	05/15/2018	05/15/2018	05/15/2018
Max Time	09:35:49	09:40:49	09:35:49	09:20:49
Min	452 ppm	20.4 deg C	45.9 %rh	0.2 ppm
Min Date	05/15/2018	05/15/2018	05/15/2018	05/15/2018
Min Time	09:25:49	09:25:49	09:20:49	09:55:49
TWA (8 hr)	54			0.0
TWA Start Date	05/15/2018			05/15/2018
TWA Start Time	09:15:49			09:15:49
TWA End Time	10:00:49			10:00:49

Test 013

TOSH 2A1

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	05/15/2018
Meter S/N	7575X1806005	Start Time	12:18:31
Probe Model	982	Stop Date	05/15/2018
Probe S/N	P18040063	Stop Time	13:03:31
Meter Cal Date	02/07/2018	Total Time	0:00:45:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	447 ppm	21.2 deg C	51.9 %rh	0.3 ppm
Max	536 ppm	21.8 deg C	52.4 %rh	0.5 ppm
Max Date	05/15/2018	05/15/2018	05/15/2018	05/15/2018
Max Time	13:03:31	13:03:31	12:43:31	12:23:31
Min	424 ppm	21.0 deg C	51.0 %rh	0.2 ppm
Min Date	05/15/2018	05/15/2018	05/15/2018	05/15/2018
Min Time	12:48:31	12:48:31	13:03:31	12:58:31
TWA (8 hr)	42			0.0
TWA Start Date	05/15/2018			05/15/2018
TWA Start Time	12:18:31			12:18:31
TWA End Time	13:03:31			13:03:31

Test 014

TOSH 2B1

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	05/15/2018
Meter S/N	7575X1806005	Start Time	08:19:07
Probe Model	982	Stop Date	05/15/2018
Probe S/N	P18040063	Stop Time	09:04:07
Meter Cal Date	02/07/2018	Total Time	0:00:45:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	439 ppm	21.3 deg C	44.6 %rh	0.3 ppm
Max	479 ppm	21.6 deg C	45.7 %rh	0.8 ppm
Max Date	05/15/2018	05/15/2018	05/15/2018	05/15/2018
Max Time	08:24:07	08:54:07	08:24:07	08:24:07
Min	424 ppm	20.8 deg C	44.1 %rh	0.2 ppm
Min Date	05/15/2018	05/15/2018	05/15/2018	05/15/2018
Min Time	08:34:07	08:24:07	08:49:07	08:54:07
TWA (8 hr)	41			0.0
TWA Start Date	05/15/2018			05/15/2018
TWA Start Time	08:19:07			08:19:07
TWA End Time	09:04:07			09:04:07

Test 012

1A2

Instrument		Data Properties	
Model	DustTrak II	Start Date	05/15/2018
Instrument S/N	8530103608	Start Time	11:10:59
		Stop Date	05/15/2018
		Stop Time	11:55:59
		Total Time	0:00:45:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.555 mg/m ³
Max	0.785 mg/m ³
Max Date	05/15/2018
Max Time	11:28:59
Min	0.119 mg/m ³
Min Date	05/15/2018
Min Time	11:11:59
TWA (8 hr)	0.052
TWA Start Date	05/15/2018
TWA Start Time	11:10:59
TWA End Time	11:55:59

Test 011

IB3

Instrument		Data Properties	
Model	DustTrak II	Start Date	05/15/2018
Instrument S/N	8530103608	Start Time	10:11:45
		Stop Date	05/15/2018
		Stop Time	10:57:45
		Total Time	0:00:46:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.076 mg/m ³
Max	0.153 mg/m ³
Max Date	05/15/2018
Max Time	10:16:45
Min	0.052 mg/m ³
Min Date	05/15/2018
Min Time	10:51:45
TWA (8 hr)	0.007
TWA Start Date	05/15/2018
TWA Start Time	10:11:45
TWA End Time	10:57:45

Test 013

2A1

Instrument		Data Properties	
Model	DustTrak II	Start Date	05/15/2018
Instrument S/N	8530103608	Start Time	13:13:32
		Stop Date	05/15/2018
		Stop Time	13:58:32
		Total Time	0:00:45:00
		Logging Interval	60 seconds

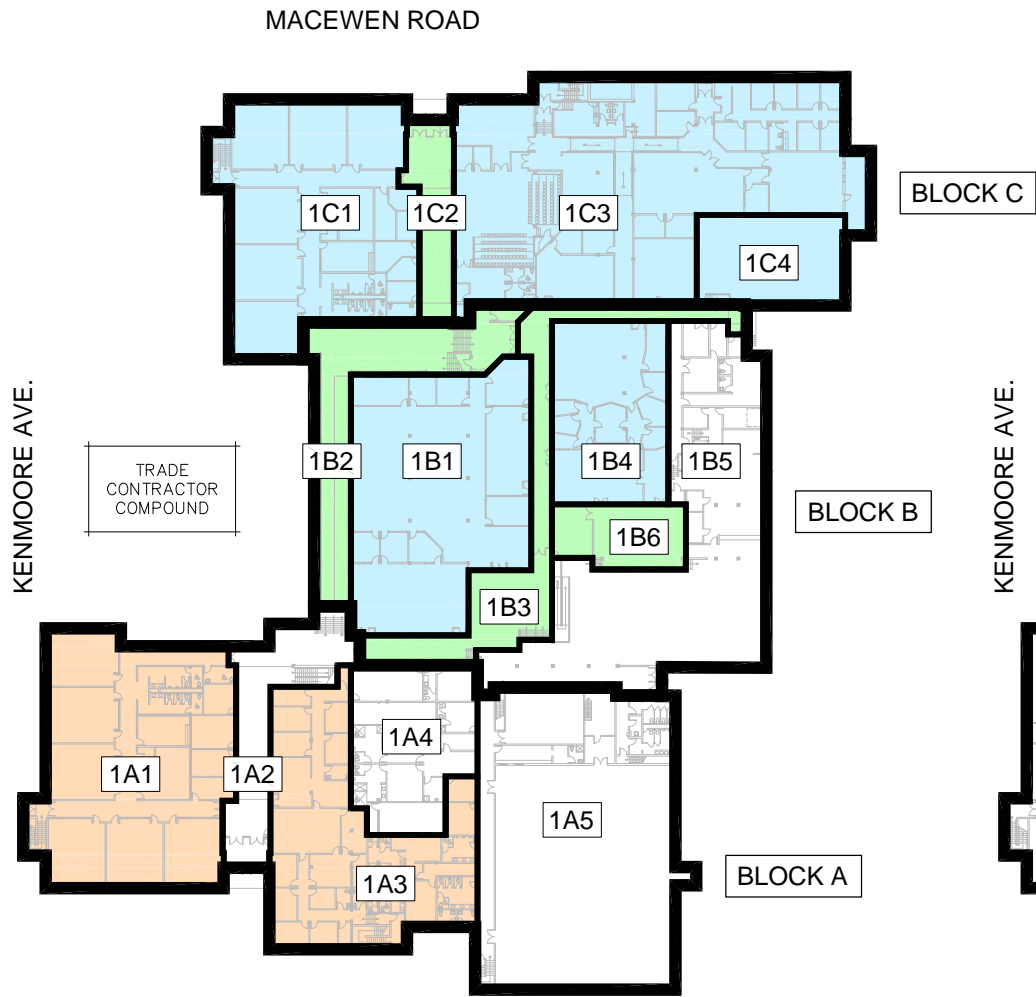
Statistics	
	AEROSOL
Avg	0.209 mg/m ³
Max	0.317 mg/m ³
Max Date	05/15/2018
Max Time	13:53:32
Min	0.100 mg/m ³
Min Date	05/15/2018
Min Time	13:16:32
TWA (8 hr)	0.020
TWA Start Date	05/15/2018
TWA Start Time	13:13:32
TWA End Time	13:58:32

Test 010

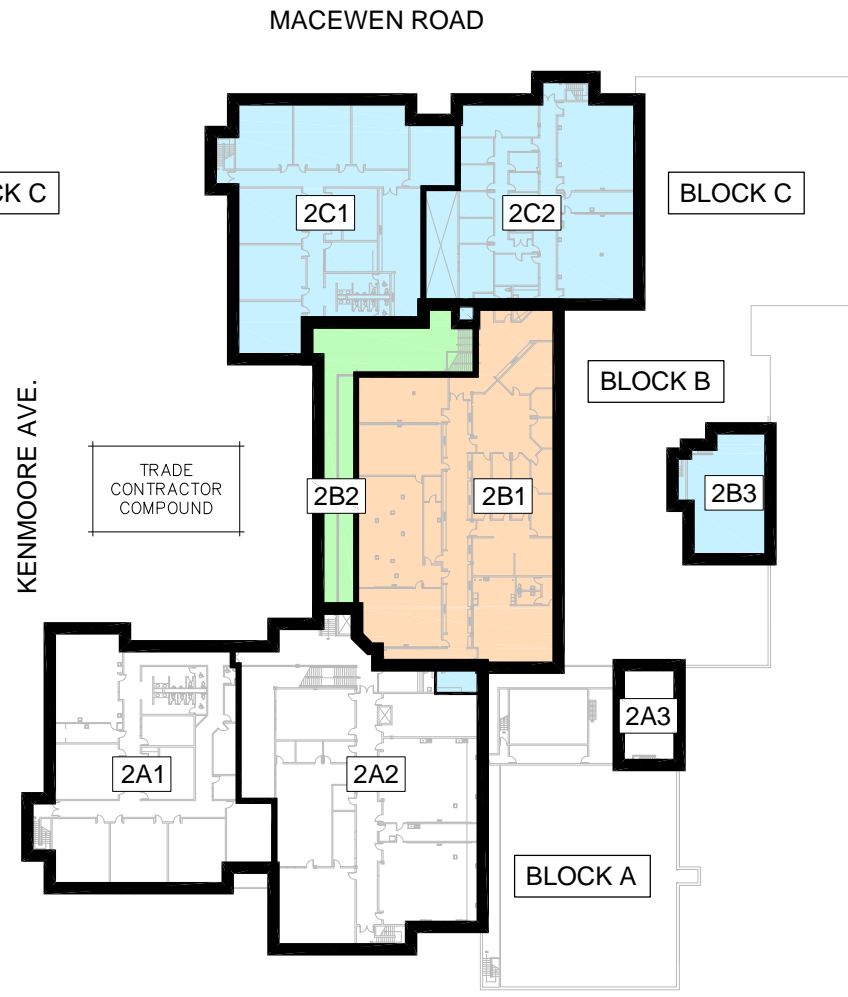
2B1

Instrument		Data Properties	
Model	DustTrak II	Start Date	05/15/2018
Instrument S/N	8530103608	Start Time	09:18:57
		Stop Date	05/15/2018
		Stop Time	10:03:57
		Total Time	0:00:45:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.105 mg/m ³
Max	0.132 mg/m ³
Max Date	05/15/2018
Max Time	09:19:57
Min	0.081 mg/m ³
Min Date	05/15/2018
Min Time	10:03:57
TWA (8 hr)	0.010
TWA Start Date	05/15/2018
TWA Start Time	09:18:57
TWA End Time	10:03:57

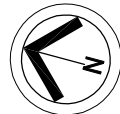


MAIN FLOOR



SECOND FLOOR

- Under Construction
- Under Construction Walls & Ceilings
- Under Construction Floors & Final Paint
- Completed less Flooring & Final Paint
- Completed
- Existing Untouched



Date: May 18, 2018
Client Name: PEI Department of Transportation, Infrastructure & Energy
Client Contact: Tyler Richardson
Project No: PE8097
Project Description Indoor Air Quality Testing
Site Name: Three Oaks Senior High School
Site Address: Summerside, Prince Edward Island

Report No. 04

1. Details to be noted:

On May 18, 2018 ALL-TECH Environmental Services conducted follow-up indoor air quality monitoring within construction zones 1A2 & 2A1 at Three Oaks Senior High School in Summerside, PEI.

Additional monitoring was completed after higher airborne particulate levels were reported in these areas on May 15, 2018.

For the purposes of the project, various target values established by Health Canada and the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 69 have been used as a guide for comparing results and are referenced below in table 1. Sample results for each test location are presented in section 2.

Table 1 Indoor Air Quality Guidelines	
Parameters	Guidelines
Carbon Dioxide	< 1000 ppm (ASHRAE)
Carbon Monoxide	< 5 ppm (Health Canada)
Airborne Particulates	0.05 mg/m ³ (annual) 0.15 mg/m ³ (24-hr)
Total Volatile Organic Compounds	Target Level 1 mg/m ³ (Health Canada) Action Level 5 mg/m ³ (Health Canada)

ppm – parts per million
mg/m³ – milligrams per cubic metre

2. Indoor Air Quality Monitoring Results


Sample Location (Construction Phase)	Sample Date (m/d/y)	Sample Duration (min)	CO (ppm)	TVOC's (mg/m ³)	Particulates (mg/m ³)
Exterior	05/18/18	50	0.3	0.0	0.022
1A2	05/18/18	45	0.8	0.0	0.039
2A1	05/18/18	45	1.0	0.1	0.010
Health Canada / ASHRAE Guidelines			5	1	0.05 (annual) 0.15 (24-hr)

*Bold values note areas exceeding recommended 24 hr short-term guideline

3. Interpretation of Results

Follow up testing in construction zone 1A2 & 2A1 on May 18, 2018 indicated that all air quality parameters were acceptable at the time of testing including the previously elevated airborne particulate levels.

Should you have any questions regarding this report, please do not hesitate to contact our office at (902) 569-0172.



Larry Koughan, CET, CRSP
Senior Environmental Consultant

ALL-TECH Environmental Services Limited

*Incl. IAQ data summary report
Particulate data summary report
Site Drawing with sample locations*



Test 015

EXTERIOR

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	2018-05-18
Meter S/N	7575X1806005	Start Time	06:45:29
Probe Model	982	Stop Date	2018-05-18
Probe S/N	P18040063	Stop Time	07:35:29
Meter Cal Date	2018-02-07	Total Time	0:00:50:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	361 ppm	16.8 deg C	32.3 %rh	0.3 ppm
Max	367 ppm	18.3 deg C	37.8 %rh	0.6 ppm
Max Date	2018-05-18	2018-05-18	2018-05-18	2018-05-18
Max Time	07:05:29	07:05:29	07:25:29	06:50:29
Min	334 ppm	14.3 deg C	28.9 %rh	0.2 ppm
Min Date	2018-05-18	2018-05-18	2018-05-18	2018-05-18
Min Time	06:50:29	07:25:29	07:05:29	07:30:29
TWA (8 hr)	38			0.0
TWA Start Date	2018-05-18			2018-05-18
TWA Start Time	06:45:29			06:45:29
TWA End Time	07:35:29			07:35:29

Test 016

TOSH 1A2

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	2018-05-18
Meter S/N	7575X1806005	Start Time	07:49:24
Probe Model	982	Stop Date	2018-05-18
Probe S/N	P18040063	Stop Time	08:34:24
Meter Cal Date	2018-02-07	Total Time	0:00:45:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	388 ppm	16.8 deg C	34.5 %rh	0.8 ppm
Max	412 ppm	17.6 deg C	38.1 %rh	1.6 ppm
Max Date	2018-05-18	2018-05-18	2018-05-18	2018-05-18
Max Time	07:59:24	08:19:24	08:19:24	07:59:24
Min	372 ppm	15.7 deg C	32.8 %rh	0.3 ppm
Min Date	2018-05-18	2018-05-18	2018-05-18	2018-05-18
Min Time	08:24:24	07:59:24	08:34:24	08:34:24
TWA (8 hr)	36			0.1
TWA Start Date	2018-05-18			2018-05-18
TWA Start Time	07:49:24			07:49:24
TWA End Time	08:34:24			08:34:24

Test 017

TOSH 2A1

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	2018-05-18
Meter S/N	7575X1806005	Start Time	08:43:09
Probe Model	982	Stop Date	2018-05-18
Probe S/N	P18040063	Stop Time	09:28:09
Meter Cal Date	2018-02-07	Total Time	0:00:45:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	518 ppm	21.3 deg C	26.3 %rh	1.0 ppm
Max	552 ppm	21.5 deg C	28.4 %rh	1.5 ppm
Max Date	2018-05-18	2018-05-18	2018-05-18	2018-05-18
Max Time	09:28:09	09:28:09	08:48:09	08:48:09
Min	500 ppm	20.7 deg C	25.4 %rh	0.8 ppm
Min Date	2018-05-18	2018-05-18	2018-05-18	2018-05-18
Min Time	08:58:09	08:48:09	09:23:09	09:28:09
TWA (8 hr)	49			0.1
TWA Start Date	2018-05-18			2018-05-18
TWA Start Time	08:43:09			08:43:09
TWA End Time	09:28:09			09:28:09

Test 011

TOSH Exterior

Instrument		Data Properties	
Model	Dust Trak	Start Date	2018-05-18
Meter S/N	85200519	Start Time	06:58:23
		Stop Date	2018-05-18
		Stop Time	07:43:23
		Total Time	0:00:45:00
		Logging Interval	300 seconds

Statistics	
	Aerosol
Avg	0.022 mg/m ³
Max	0.032 mg/m ³
Max Date	2018-05-18
Max Time	07:23:23
Min	0.003 mg/m ³
Min Date	2018-05-18
Min Time	07:03:23
TWA (8 hr)	0.002
TWA Start Date	2018-05-18
TWA Start Time	06:58:23
TWA End Time	07:43:23

Test 012

TOSH 1A2

Instrument		Data Properties	
Model	Dust Trak	Start Date	2018-05-18
Meter S/N	85200519	Start Time	07:58:49
		Stop Date	2018-05-18
		Stop Time	08:43:49
		Total Time	0:00:45:00
		Logging Interval	300 seconds

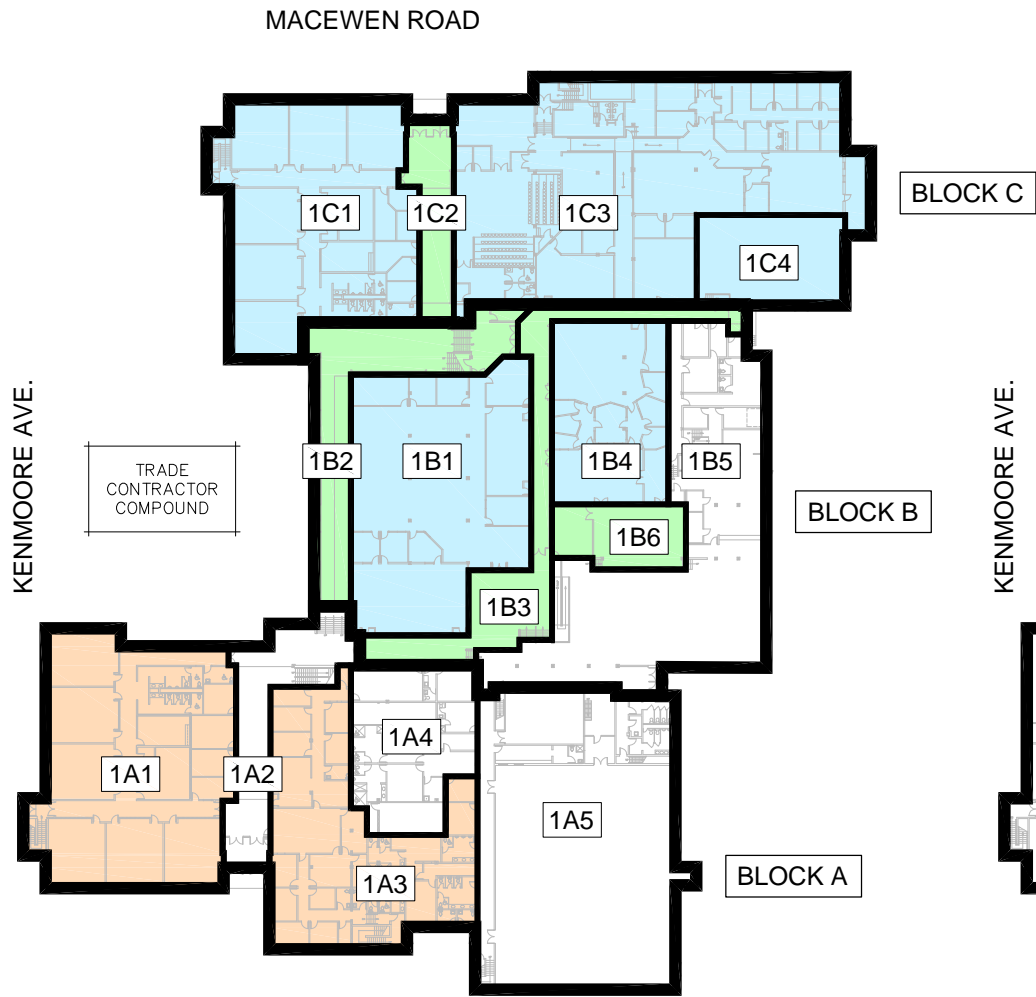
Statistics	
	Aerosol
Avg	0.039 mg/m ³
Max	0.063 mg/m ³
Max Date	2018-05-18
Max Time	08:43:49
Min	0.018 mg/m ³
Min Date	2018-05-18
Min Time	08:18:49
TWA (8 hr)	0.004
TWA Start Date	2018-05-18
TWA Start Time	07:58:49
TWA End Time	08:43:49

Test 014

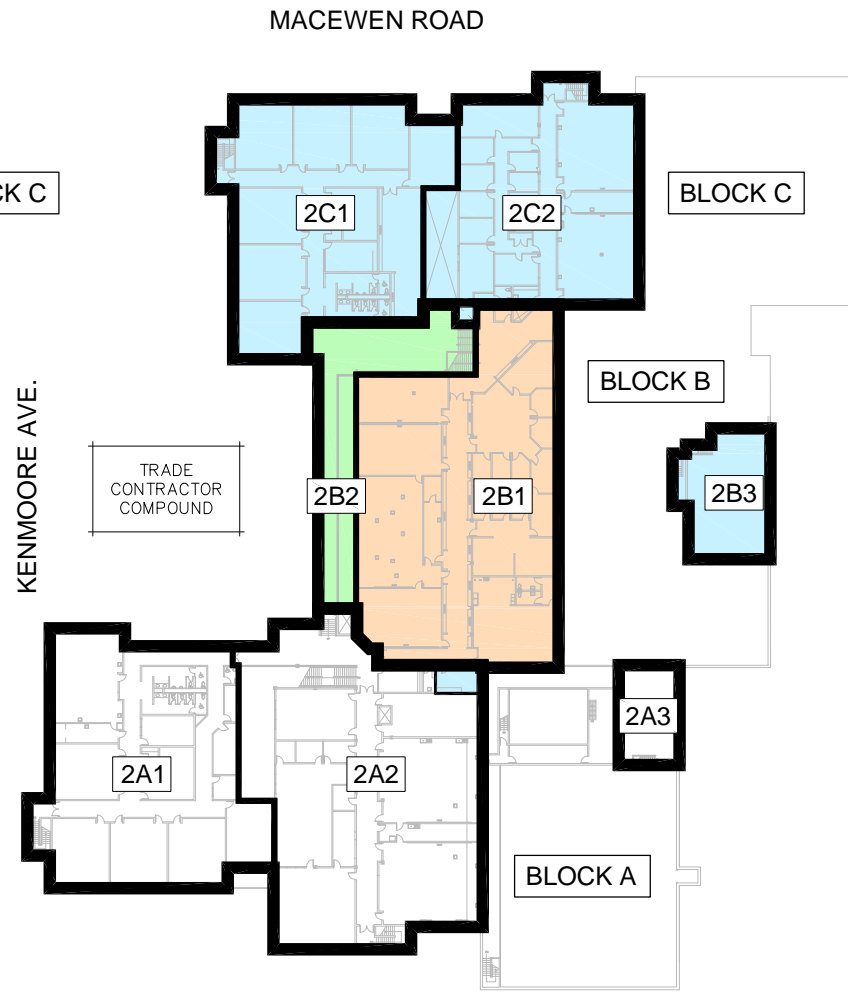
TOSH 2A1

Instrument		Data Properties	
Model	Dust Trak	Start Date	2018-05-18
Meter S/N	85200519	Start Time	09:08:56
		Stop Date	2018-05-18
		Stop Time	09:38:56
		Total Time	0:00:30:00
		Logging Interval	300 seconds

Statistics	
	Aerosol
Avg	0.010 mg/m ³
Max	0.016 mg/m ³
Max Date	2018-05-18
Max Time	09:38:56
Min	0.007 mg/m ³
Min Date	2018-05-18
Min Time	09:28:56
TWA (8 hr)	0.001
TWA Start Date	2018-05-18
TWA Start Time	09:08:56
TWA End Time	09:38:56



MAIN FLOOR



SECOND FLOOR

- Under Construction
- Under Construction Walls & Ceilings
- Under Construction Floors & Final Paint
- Completed less Flooring & Final Paint
- Completed
- Existing Untouched

