

<b>Report Date:</b>	<b>December 11, 2018</b>
<b>Client Name:</b>	<b>PEI Department of Transportation, Infrastructure &amp; Energy</b>
<b>Client Contact:</b>	<b>Tyler Richardson</b>
<b>Project No:</b>	<b>PE8097</b>
<b>Project Description</b>	<b>Indoor Air Quality Testing</b>
<b>Site Name:</b>	<b>Three Oaks Senior High School</b>
<b>Site Address:</b>	<b>Summerside, Prince Edward Island</b>
<b>Report No.</b>	<b>06</b>

## 1. Details to be noted:

On December 6<sup>th</sup>, 2018 ALL-TECH Environmental Services conducted additional indoor air quality (IAQ) testing in various areas within Three Oaks Senior High School in Summerside, PEI. Test locations were predetermined by ALL-TECH in consultation the school boards safety consultant, the school safety committee and with the construction superintendent. Four locations were tested to evaluate the effectiveness of the construction barriers within the school. One location was adjacent to the construction enclosure while the other three locations were in newly renovated classrooms which have had air balancing completed on the system.

The air quality parameters tested for assessing conditions included the following:

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

Areas tested are noted as the following construction phase areas and are noted on the included site drawing at the end of this report. In addition, an exterior comparison sample was also collected.

- Sample 01 - 1C1 (new classroom)
- Sample 02 – 2C2 (new classroom)
- Sample 03 – 2B1 Corridor (Location #3)
- Sample 04 – 2B1 Room 607 (Location #4)
- Exterior (comparison)

For the purposes of the project, various target values established by Health Canada 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. Downloaded data summary reports are added as an inclusion at the end of this report.

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

ppm – parts per million

mg/m<sup>3</sup> – milligrams per cubic metre

## 2. Indoor Air Quality Monitoring Results

Sample Location (Construction Phase)	Sample Date (m/d/y)	Sample Time / Duration (min)	CO (ppm)	TVOC's (mg/m <sup>3</sup> )	Particulates (mg/m <sup>3</sup> )
SA-01 completed classroom air balanced 1C1	12/06/18	10:34 am 60 min.	0.6	0.0	0.008
SA-02 completed classroom air balanced 2C2	12/06/18	11:43 am 50 min.	0.2	0.0	0.008
SA-03 Construction perimeter 2B1 corridor	12/06/18	12:41 pm 65 min.	0.1	0.0	0.023
SA-04 completed classroom 601 air balanced 2B1	12/06/18	13:48 pm 50 min.	0.0	0.0	0.007
SA-05 Exterior	12/06/18	14:55 pm 15 min.	0.9	0.0	0.005
<b>Health Canada Guidelines</b>			5	1	0.05 (annual)
					0.15 (24-hr)

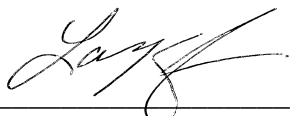
## 3. Interpretation of Results

Follow up testing outside of the active construction zones 2A2 on December 6<sup>th</sup>, 2018 indicated that all air quality parameters tested were acceptable at the time of monitoring.

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In addition, monitoring conducted in the new classroom areas indicate that the parameters measured were acceptable and no impacts are associated from the construction activity in these areas.

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



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**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*



## SA-01

TOSH ICI

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	2018-12-06
Meter S/N	7575X1806005	Start Time	10:34:54
Probe Model	982	Stop Date	2018-12-06
Probe S/N	P18040063	Stop Time	11:34:54
Meter Cal Date	2018-02-07	Total Time	0:01:00:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	545 ppm	19.1 deg C	21.4 %rh	0.6 ppm
Max	596 ppm	20.3 deg C	33.5 %rh	1.0 ppm
Max Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Max Time	11:34:54	11:34:54	10:39:54	10:39:54
Min	468 ppm	14.3 deg C	18.7 %rh	0.2 ppm
Min Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Min Time	10:49:54	10:39:54	11:34:54	11:29:54
TWA (8 hr)	68			0.1
TWA Start Date	2018-12-06			2018-12-06
TWA Start Time	10:34:54			10:34:54
TWA End Time	11:34:54			11:34:54

## SA-02

TOSH 2C2

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	2018-12-06
Meter S/N	7575X1806005	Start Time	11:43:37
Probe Model	982	Stop Date	2018-12-06
Probe S/N	P18040063	Stop Time	12:33:37
Meter Cal Date	2018-02-07	Total Time	0:00:50:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	757 ppm	22.4 deg C	17.1 %rh	0.2 ppm
Max	863 ppm	22.6 deg C	19.0 %rh	0.2 ppm
Max Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Max Time	11:48:37	12:33:37	11:48:37	11:53:37
Min	718 ppm	22.0 deg C	16.6 %rh	0.1 ppm
Min Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Min Time	12:23:37	11:48:37	12:13:37	12:33:37
TWA (8 hr)	79			0.0
TWA Start Date	2018-12-06			2018-12-06
TWA Start Time	11:43:37			11:43:37
TWA End Time	12:33:37			12:33:37

## SA-03

2B1 COR

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	2018-12-06
Meter S/N	7575X1806005	Start Time	12:41:54
Probe Model	982	Stop Date	2018-12-06
Probe S/N	P18040063	Stop Time	13:46:54
Meter Cal Date	2018-02-07	Total Time	0:01:05:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	663 ppm	21.2 deg C	17.3 %rh	0.1 ppm
Max	738 ppm	21.8 deg C	19.2 %rh	0.1 ppm
Max Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Max Time	13:16:54	12:56:54	13:46:54	12:46:54
Min	578 ppm	20.9 deg C	15.6 %rh	0.0 ppm
Min Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Min Time	12:51:54	13:31:54	12:46:54	13:31:54
TWA (8 hr)	90			0.0
TWA Start Date	2018-12-06			2018-12-06
TWA Start Time	12:41:54			12:41:54
TWA End Time	13:46:54			13:46:54

## SA-04

R 607

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	2018-12-06
Meter S/N	7575X1806005	Start Time	13:48:11
Probe Model	982	Stop Date	2018-12-06
Probe S/N	P18040063	Stop Time	14:38:11
Meter Cal Date	2018-02-07	Total Time	0:00:50:00
		Logging Interval	300 seconds

Statistics				
	CO2	T	H	CO
Avg	459 ppm	21.2 deg C	16.0 %rh	0.0 ppm
Max	490 ppm	21.4 deg C	16.4 %rh	0.0 ppm
Max Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Max Time	14:33:11	13:53:11	14:33:11	14:18:11
Min	410 ppm	21.2 deg C	15.1 %rh	0.0 ppm
Min Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Min Time	13:53:11	14:03:11	13:53:11	14:13:11
TWA (8 hr)	48			0.0
TWA Start Date	2018-12-06			2018-12-06
TWA Start Time	13:48:11			13:48:11
TWA End Time	14:38:11			14:38:11

## SA-05

EXTERIOR

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	2018-12-06
Meter S/N	7575X1806005	Start Time	14:55:53
Probe Model	982	Stop Date	2018-12-06
Probe S/N	P18040063	Stop Time	15:10:53
Meter Cal Date	2018-02-07	Total Time	0:00:15:00
CO2 Cal	2018-01-26	Logging Interval	300 seconds
Temperature Cal	2018-01-26		
Humidity Cal	2018-01-26		
CO Cal	2018-01-26		

Statistics				
	CO2	T	H	CO
Avg	248 ppm	-3.5 deg C	66.8 %rh	0.9 ppm
Max	267 ppm	-1.2 deg C	80.4 %rh	1.0 ppm
Max Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Max Time	14:58:53	14:47:53	15:03:53	15:15:53
Min	234 ppm	-4.9 deg C	48.3 %rh	0.9 ppm
Min Date	2018-12-06	2018-12-06	2018-12-06	2018-12-06
Min Time	15:04:53	15:08:53	15:02:53	15:02:53
TWA (8 hr)				
TWA Start Date	2018-12-06			2018-12-06
TWA Start Time				
TWA End Time				



## SA-01

IC1

Instrument		Data Properties	
Model	Dust Trak	Start Date	2018-12-06
Meter S/N	85200519	Start Time	10:37:47
		Stop Date	2018-12-06
		Stop Time	11:37:47
		Total Time	0:01:00:00
		Logging Interval	60 seconds

Statistics	
	Aerosol
Avg	0.008 mg/m <sup>3</sup>
Max	0.034 mg/m <sup>3</sup>
Max Date	2018-12-06
Max Time	11:37:47
Min	0.006 mg/m <sup>3</sup>
Min Date	2018-12-06
Min Time	10:57:47
TWA (8 hr)	0.001
TWA Start Date	2018-12-06
TWA Start Time	10:37:47
TWA End Time	11:37:47

## SA-02

2C2

Instrument		Data Properties	
Model	Dust Trak	Start Date	2018-12-06
Meter S/N	85200519	Start Time	11:45:05
		Stop Date	2018-12-06
		Stop Time	12:38:05
		Total Time	0:00:53:00
		Logging Interval	60 seconds

Statistics	
	Aerosol
Avg	0.008 mg/m <sup>3</sup>
Max	0.015 mg/m <sup>3</sup>
Max Date	2018-12-06
Max Time	11:58:05
Min	0.006 mg/m <sup>3</sup>
Min Date	2018-12-06
Min Time	11:54:05
TWA (8 hr)	0.001
TWA Start Date	2018-12-06
TWA Start Time	11:45:05
TWA End Time	12:38:05

## SA-03

2B1 Corridor

Instrument		Data Properties	
Model	Dust Trak	Start Date	2018-12-06
Meter S/N	85200519	Start Time	12:44:47
		Stop Date	2018-12-06
		Stop Time	13:43:47
		Total Time	0:00:59:00
		Logging Interval	60 seconds

Statistics	
	Aerosol
Avg	0.023 mg/m <sup>3</sup>
Max	0.043 mg/m <sup>3</sup>
Max Date	2018-12-06
Max Time	13:40:47
Min	0.007 mg/m <sup>3</sup>
Min Date	2018-12-06
Min Time	12:50:47
TWA (8 hr)	0.003
TWA Start Date	2018-12-06
TWA Start Time	12:44:47
TWA End Time	13:43:47

## SA-04

Location #4 Room 607

Instrument		Data Properties	
Model	Dust Trak	Start Date	2018-12-06
Meter S/N	85200519	Start Time	13:50:13
		Stop Date	2018-12-06
		Stop Time	14:43:13
		Total Time	0:00:53:00
		Logging Interval	60 seconds

Statistics	
	Aerosol
Avg	0.007 mg/m <sup>3</sup>
Max	0.012 mg/m <sup>3</sup>
Max Date	2018-12-06
Max Time	13:53:13
Min	0.005 mg/m <sup>3</sup>
Min Date	2018-12-06
Min Time	13:51:13
TWA (8 hr)	0.001
TWA Start Date	2018-12-06
TWA Start Time	13:50:13
TWA End Time	14:43:13

## SA-05

Exterior

Instrument		Data Properties	
Model	Dust Trak	Start Date	2018-12-06
Meter S/N	85200519	Start Time	14:55:02
		Stop Date	2018-12-06
		Stop Time	15:15:02
		Total Time	0:00:15:00
		Logging Interval	60 seconds

Statistics	
	Aerosol
Avg	0.005 mg/m <sup>3</sup>
Max	0.007 mg/m <sup>3</sup>
Max Date	2018-12-06
Max Time	14:58:02
Min	0.004 mg/m <sup>3</sup>
Min Date	2018-12-06
Min Time	15:06:02
TWA (8 hr)	0.000
TWA Start Date	2018-12-06
TWA Start Time	
TWA End Time	

## Datalog

### Current Event:Location 1

#### Summary

-----  
Unit Name           MiniRAE 3000(PGM-7320)  
Unit SN             592-902089  
Unit Firmware Ver   V2.16  
-----

Running Mode        Hygiene Mode  
Datalog Mode        Manual  
Diagnostic Mode     No  
Stop Reason         Stop by User  
-----

Site ID             RAE00000  
User ID             ALL12345  
-----

Begin               2018-12-06 10:58:11  
End                 2018-12-06 11:57:47  
Sample Period(s)   60  
Number of Records   59  
-----

Sensor              PID(mg/m3)  
Sensor SN           S023030041K4  
Measure Type        Avg  
Span                10.0  
Span 2              15.5  
Low Alarm           40.8  
High Alarm          51.6  
Over Alarm          15000.0  
STEL Alarm          100.0  
TWA Alarm           1010.0  
Measurement Gas     Isobutylene  
Calibration Time    2018-06-28 15:32  
Peak                N/A  
Min                 N/A  
Average             N/A

## Datalog

### Current Event:Location 2

#### Summary

-----  
Unit Name           MiniRAE 3000(PGM-7320)  
Unit SN             592-902089  
Unit Firmware Ver   V2.16  
-----

Running Mode        Hygiene Mode  
Datalog Mode        Manual  
Diagnostic Mode     No  
Stop Reason         Stop by User  
-----

Site ID             RAE00000  
User ID             ALL12345  
-----

Begin               2018-12-06 12:02:40  
End                  2018-12-06 12:57:43  
Sample Period(s)   60  
Number of Records   55  
-----

Sensor              PID(mg/m3)  
Sensor SN           S023030041K4  
Measure Type        Avg  
Span                10.0  
Span 2              15.5  
Low Alarm           40.8  
High Alarm          51.6  
Over Alarm          15000.0  
STEL Alarm          100.0  
TWA Alarm           1010.0  
Measurement Gas     Isobutylene  
Calibration Time    2018-06-28 15:32  
Peak                N/A  
Min                  N/A  
Average             N/A

## Datalog

### Current Event:Location 3

#### Summary

-----  
Unit Name           MiniRAE 3000(PGM-7320)  
Unit SN             592-902089  
Unit Firmware Ver   V2.16  
-----

Running Mode        Hygiene Mode  
Datalog Mode        Manual  
Diagnostic Mode     No  
Stop Reason         Stop by User  
-----

Site ID             RAE00000  
User ID             ALL12345  
-----

Begin               2018-12-06 13:03:26  
End                  2018-12-06 14:03:10  
Sample Period(s)    60  
Number of Records   59  
-----

Sensor              PID(mg/m3)  
Sensor SN           S023030041K4  
Measure Type        Avg  
Span                 10.0  
Span 2               15.5  
Low Alarm           40.8  
High Alarm           51.6  
Over Alarm           15000.0  
STEL Alarm           100.0  
TWA Alarm            1010.0  
Measurement Gas     Isobutylene  
Calibration Time    2018-06-28 15:32  
Peak                 N/A  
Min                  N/A  
Average              N/A



## Datalog

### Current Event:Location 4

#### Summary

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Unit Name	MiniRAE 3000(PGM-7320)
Unit SN	592-902089
Unit Firmware Ver	V2.16

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Running Mode	Hygiene Mode
Datalog Mode	Manual
Diagnostic Mode	No
Stop Reason	Stop by User

---

Site ID	RAE00000
User ID	ALL12345

---

Begin	2018-12-06 14:07:22
End	2018-12-06 15:03:51
Sample Period(s)	60
Number of Records	56

---

Sensor	PID(mg/m3)
Sensor SN	S023030041K4
Measure Type	Avg
Span	10.0
Span 2	15.5
Low Alarm	40.8
High Alarm	51.6
Over Alarm	15000.0
STEL Alarm	100.0
TWA Alarm	1010.0
Measurement Gas	Isobutylene
Calibration Time	2018-06-28 15:32
Peak	N/A
Min	N/A
Average	N/A

## Datalog

### Current Event:Exterior

#### Summary

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Unit Name	MiniRAE 3000(PGM-7320)
Unit SN	592-902089
Unit Firmware Ver	V2.16

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Running Mode	Hygiene Mode
Datalog Mode	Manual
Diagnostic Mode	No
Stop Reason	Stop by User

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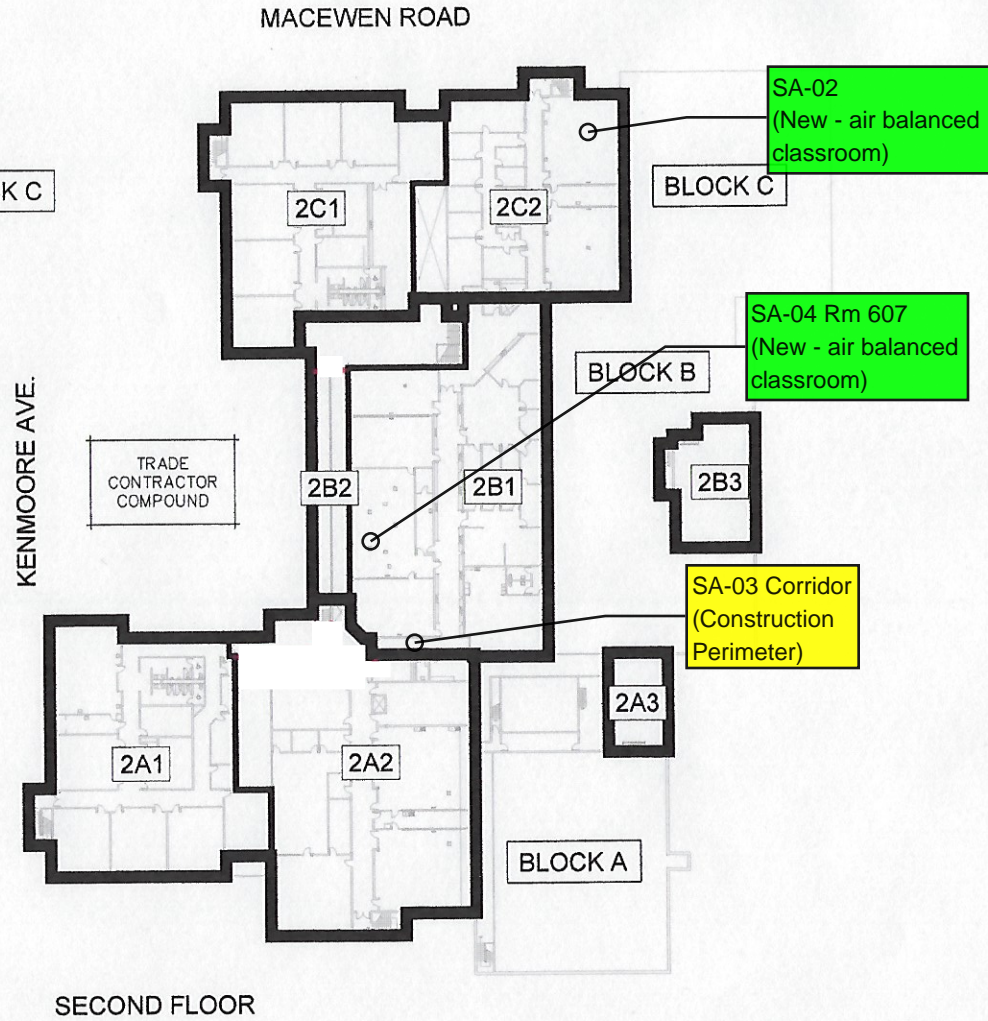
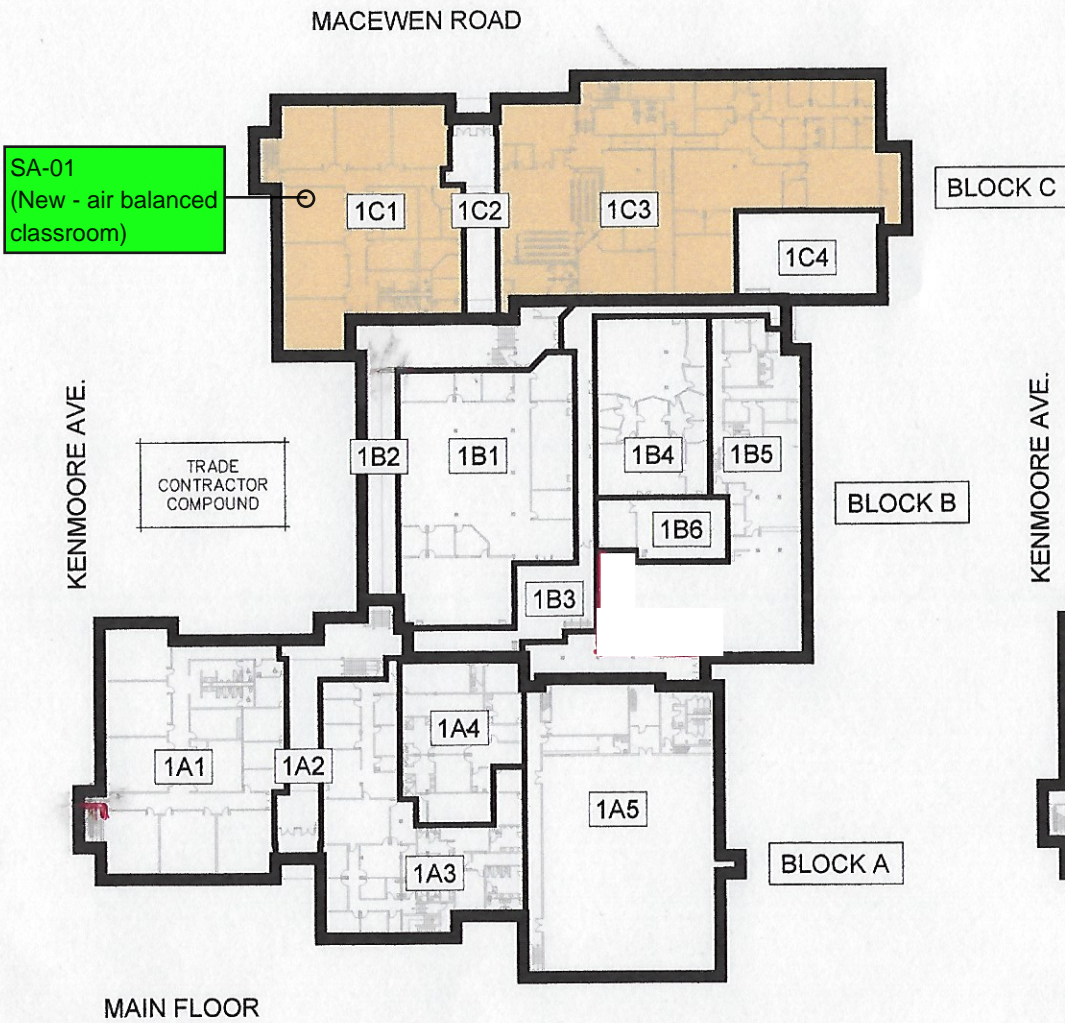
Site ID	RAE00000
User ID	ALL12345

---

Begin	2018-12-06 14:55:27
End	2018-12-06 15:10:40
Sample Period(s)	15
Number of Records	

---

Sensor	PID(mg/m3)
Sensor SN	S023030041K4
Measure Type	Avg
Span	10.0
Span 2	15.5
Low Alarm	40.8
High Alarm	51.6
Over Alarm	15000.0
STEL Alarm	100.0
TWA Alarm	1010.0
Measurement Gas	Isobutylene
Calibration Time	2018-06-28 15:32
Peak	N/A
Min	N/A
Average	N/A



Indoor Air Quality Sample Locations - Dec 2018

# TOSH Renovation

ISSUED ON MAY 11, 2017