



INDOOR AIR QUALITY ASSESSMENT DURING CONSTRUCTION

Phase 2 – April 2022

Arlington High School 869 Massachusetts Ave, Arlington, MA

Prepared For:

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Job #: 7277-03

April 6, 2022

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1. INTRODUCTION

Cashins & Associates, Inc. was retained by Consigli Construction to provide professional industrial hygiene consulting services. Our scope of work consisted of measuring various basic indoor air quality parameters during renovation activities in certain locations throughout the Arlington High School located at 869 Massachusetts Ave. in Arlington, Massachusetts.

A representative from Cashins performed an indoor air quality assessment of the Downs Building, Fusco Building, and Buildings D and E on April 6, 2022.

At the time of these sampling days, active construction activities were occurring outside the Fusco Building, as well as the Building E auditorium area. These areas had several construction doors and barriers with signage, as well as a large temporary wall in the main lobby. Sampling was conducted in the occupied non-work areas throughout the school.

2. METHODOLOGIES

A Particles Plus™ part per billion photoionization detector (PID) was utilized to screen for the presence of total volatile organic compounds (TVOCs). The PID is a screening tool that provides information as to TVOC loading in the space. The instrument does not provide information pertaining to which specific compounds are present in the air.

Dust concentrations were also measured using the Particles Plus meter. This real-time aerosol monitor measures dust between 0.3 microns and 10 microns.

Carbon monoxide was measured using a BW Gas Alert Max XTII™ four gas meter, as well as a TSI Q-trak® indoor air quality meter.

3. FINDINGS

3.1 Findings: Basic IAQ Parameters

We have listed in Table 1 the results of the real-time air sampling. This table can be found in Appendix A to this report.

IAQ Criteria

No specific IAQ Plan has been developed for this site; thus, no official upper guideline limits have been established. However, it is typical to use the following values as upper limits in both the occupied and work zone areas:

Contaminant	Inside Construction Area	Occupied Area
Dust	1 mg/m ³	150 µg/m ³
Volatile Organic Compounds	10 ppm (10,000 ppb)	1 ppm (1,000 ppb)
Carbon Monoxide	15 ppm	9 ppm

4. DISCUSSION

Concentrations of carbon monoxide, VOCs, and Dust were found to be mostly below the upper limits throughout the occupied areas of the school. VOC levels were in the high hundreds (ppb) mostly around the Downs building nurses hallway and entrance. This could be due to new shipments of cleaning wipes and hand sanitizer stocked there, and they are having active COVID-19 testing in that area.

Dust concentrations in some areas were higher than expected in a well-ventilated building, but this was due to school period change with high foot traffic and a reading taken in a busy workshop. No construction activities in the school contributed to high dust concentrations, in fact the readings taken outside construction containments were all relatively low.

Attached, please find tables detailing IAQ measurements obtained during the assessment.

This assessment shows only a snapshot of the average school day. Indoor air quality should continue to be monitored on a regular basis throughout this project in order to ensure that concentrations of various airborne contaminants remain at acceptable levels.

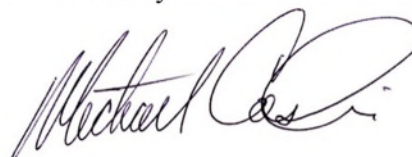
Please call if you have any questions or if we can be of further assistance.

Sincerely,
 Cashins & Associates, Inc.



Bret D. Bradley
 IH & Building Sciences Consultant

Reviewed by:



Michael R. Cashins, CIH
 Director of Consulting Services

APPENDIX A

RESULTS OF REAL-TIME AIR SAMPLING

Table 1: Real-time Air Quality Readings, Round 1

<i>Location</i>	<i>CO</i> <i>(ppm)</i>	<i>TVOC</i> <i>(ppb)</i>	<i>Dust</i> <i>($\mu\text{g}/\text{m}^3$)</i>
Thresholds	9 ppm	1000 ppb	150 $\mu\text{g}/\text{m}^3$
Downs Building			
@Main Office Entrance	<1	574	54.2
@ Stairwell M next to link mechanical room	<1	789	33.8
2 nd Floor stairwell barrier	<1	826	30.2
Barrier outside class 229	<1	578	20.1
@ Classroom 231	<1	525	24.4
Stairwell N 2 nd floor	<1	594	28.2
3 rd Floor Fusco connector	<1	611	27.3
@ Classroom 339	<1	179	21.7
@ Classroom 331	<1	305	13.8
Stair M barrier 3 rd floor	<1	458	17.2
Stairwell M barrier 4 th floor	<1	722	30.5
Outside 430A	<1	533	29.8
@ Classroom 431	<1	538	25.7
Stairwell N 4 th floor	<1	529	22.6
@ 1 st floor F109 Locker Room	<1	362	23.1
@ 1 st floor Coaches Office	<1	20	10.4
1 st floor Hall @School Counselor	<1	893	30.6
Hallway outside Red Gym	<1	26	15.5
Downs Building Fusco Connector	<1	2	36.4
Fusco Building			
1 st Floor Elevator Barrier	<1	8	110
2 nd Floor Outside Mechanical A212	<1	<1	20.6
2 nd Floor outside room 002	<1	2	34.3
Center of Interior Courtyard	<1	<1	42.9
Center of Blue gym Café	<1	5	24.8
2 nd Floor outside elevator	<1	<1	25.3
3 rd Floor Building connector	<1	202	43.5
3 rd Floor Outside elevator	<1	148	44.1

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Thresholds	9 ppm	1000 ppb	150 $\mu\text{g}/\text{m}^3$
@3 rd Floor media center	<1	20	112
Fusco Building D temporary connector	<1	<1	206
@ Staff office A331	<1	<1	70.5
@ Learning center 306	<1	<1	43.5
Hallway outside 407	<1	<1	42.7
@ Classroom 403	<1	<1	48.3
@ Classroom 400 containment	<1	49	58.8
@ Classroom 501	<1	35	45.7
@ Classroom 505	<1	11	50.4
@ Classroom 509	<1	2	45.7
Outside 6 th floor committee room	<1	<1	75.8
Outside human resources	<1	<1	77.3
Outside office A601	<1	<1	79.4
Building D Floor 5			
Locker well outside Stair 2	<1	19	39.3
House Dean 532	<1	5	39.5
@Classroom 520	<1	<1	33.6
@Office 524	<1	271	35.3
Classroom 525	<1	275	38.3
Classroom 526	<1	68	27.4
Classroom 528	<1	39	14.7
Classroom 530	<1	2	28.6
Building D Floor 4			
Locker well outside Stair 2	<1	2	69.7
Classroom 435	<1	<1	9.1
Classroom 419	<1	<1	29.2
Classroom 433	<1	<1	22.5
Classroom 423	<1	<1	17.2
Classroom 425	<1	<1	16.5
Classroom 426	<1	<1	14.8

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Thresholds	9 ppm	1000 ppb	150 $\mu\text{g}/\text{m}^3$
Classroom 428	<1	<1	17.9
Classroom 430	<1	<1	34.2
Building D Floor 3			
Locker well outside Stair 2	<1	122	62.2
Classroom 319	<1	35	44.2
House Dean 333	<1	16	27.6
Teacher room 322	<1	2	34.2
Classroom 325	<1	<1	27.7
Classroom 326	<1	<1	26.5
Classroom 328	<1	<1	38.3
Classroom 331	<1	<1	39.7
Building E Floor 3			
Corridor between Building D & E	<1	259	62.8
Practice room 338	<1	186	52.6
Office 342	<1	155	48.5
@Production studio 345A	<1	138	36.9
Chorus room 344	<1	102	9.9
Building E Floor 2			
Band Hallway Outside Stage	<1	152	134
Classroom 239	<1	15	11.6
Fusco Building D connector	<1	55	50.8
Building D Floor 2			
Main entrance lobby by temp wall	<1	16	63.6
Classroom 219	<1	4	66.5
Light well outside room 220	<1	<1	89.1
Classroom 226	<1	<1	22.6
Classroom 227 wood workshop	<1	<1	236
Conference room 232B	<1	<1	54.2
Corridor outside Admin offices	<1	4	58.2
Main office reception	<1	<1	60.2