



INDOOR AIR QUALITY ASSESSMENT DURING CONSTRUCTION

Phase 2 – March 2022

Arlington High School 869 Massachusetts Ave, Arlington, MA

Prepared For:

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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 and Fusco Building on March 2, 2022. They returned and performed an IAQ assessment of Building D and Building E on March 7, 2022.

At the time of these sampling days, construction activities were occurring only in the stage / auditorium area. This area had several construction doors 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 Tables 1 through 3 the results of the real-time air sampling. These tables 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. 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. No construction activities in the school contributed to high dust concentrations, in fact the readings taken outside construction containments were all 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 (ppm)</i>	<i>TVOC (ppb)</i>	<i>Dust ($\mu\text{g}/\text{m}^3$)</i>
Downs Building			
@Main Office Entrance	<1	210	65.3
@ Stairwell M next to link mechanical room	<1	101	21.4
2 nd Floor stairwell barrier	<1	89	10.3
Barrier outside class 229	<1	65	4.8
@ Classroom 231	<1	22	6.7
Stairwell N 2 nd floor	<1	55	7.2
3 rd Floor Fusco connector	<1	64	5.9
@ Classroom 339	<1	56	5.4
@ Classroom 331	<1	78	6.3
Stair M barrier 3 rd floor	<1	55	6.9
Stairwell M barrier 4 th floor	<1	57	4.7
Outside 430A	<1	57	8.1
@ Classroom 431	<1	42	10.1
Stairwell N 4 th floor	<1	51	8.3
@O 1 st floor F109 Locker Room	<1	138	10.2
@ 1 st floor Coaches Office	<1	3	6.9
1 st floor Hall @School Counselor	<1	162	6.4
Hallway outside Red Gym	<1	101	8.6
Downs Building Fusco Connector	<1	55	12.1
Fusco Building			
1 st Floor Elevator Barrier	<1	13	29.3
2 nd Floor Outside Mechanical A212	<1	25	34.5
2 nd Floor outside room 002	<1	22	38.4
Center of Interior Courtyard	<1	16	23.8
Center of Blue gym Café	<1	66	10.9
2 nd Floor outside elevator	<1	32	16.9
3 rd Floor Building connector	<1	38	11.7
3 rd Floor Outside elevator	<1	64	13.5
@3 rd Floor media center	<1	31	19.8
Fusco Building D temporary connector	<1	13	33.6

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

<i>Location</i>	<i>CO (ppm)</i>	<i>TVOC (ppb)</i>	<i>Dust ($\mu\text{g}/\text{m}^3$)</i>
@ Staff office A331	<1	4	9.8
@ Learning center 306	<1	8	14.3
Hallway outside 407	<1	6	14.2
@ Classroom 403	<1	6	8.9
@ Classroom 400	<1	207	34.5
@ Classroom 501	<1	69	26.3
@ Classroom 505	<1	11	18.5
@ Classroom 509	<1	14	19.2
Outside 6 th floor committee room	<1	49	25.2
Outside human resources	<1	84	24.5
Outside office A601	<1	87	11.4
Building D Floor 5			
Locker well outside Stair 2	<1	114	275
House Dean 532	<1	80	157
@Classroom 520	<1	74	141
@Office 524	<1	62	100
@Classroom 525	<1	59	96.4
@Classroom 526	<1	51	45.8
Classroom 528	<1	58	45.6
Classroom 530	<1	68	55.8
Building D Floor 4			
Locker well outside Stair 2	<1	44	90.5
Classroom 435	<1	37	22.8
Classroom 419	<1	143	76.8
Classroom 433	<1	109	17.9
Classroom 423	<1	101	20.6
Classroom 425	<1	88	17.6
Classroom 426	<1	26	10.7
Classroom 428	<1	35	14.9
Classroom 430	<1	32	33.1
Building D Floor 3			
Locker well outside Stair 2	<1	18	56.6
Classroom 319	<1	21	60.9

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

<i>Location</i>	<i>CO (ppm)</i>	<i>TVOC (ppb)</i>	<i>Dust ($\mu\text{g}/\text{m}^3$)</i>
House Dean 333	<1	20	68.4
Teacher room 322	<1	14	18.7
Classroom 325	<1	13	22.4
Classroom 326	<1	11	17.4
Classroom 328	<1	14	19.5
Classroom 331	<1	28	22.8
Building E Floor 3			
Corridor between Building D & E	<1	22	44.6
Practice room 338	<1	8	6.9
Office 342	<1	18	28.7
@Production studio 345A	<1	35	50.3
Chorus room 344	<1	88	5.3
Building E Floor 2			
Band Hallway Outside Stage	<1	56	116
Classroom 239	<1	23	55.9
Fusco Building D connector	<1	16	127
Building D Floor 2			
Main entrance lobby by temp wall	<1	24	57.4
Classroom 219	<1	21	66.2
Light well outside room 220	<1	23	58.5
Classroom 226	<1	4	31.3
Classroom 227	<1	2	39.6
Conference room 232B	<1	19	69.3
Corridor outside Admin offices	<1	15	109
Main office reception	<1	13	115