



INDOOR AIR QUALITY ASSESSMENT DURING
CONSTRUCTION
October, 2014

WINCHESTER HIGH SCHOOL
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1. EXECUTIVE SUMMARY

BACKGROUND

Consigli retained Cashins & Associates, Inc., to perform an indoor air quality (IAQ) assessment at areas adjacent to Phase I of the project at the Winchester High School in Winchester, Massachusetts. This testing was conducted in order to determine whether various IAQ parameters were in compliance with the project's Indoor Air Quality Management Plan.

SCOPE OF WORK

On October 17, 2014, a Senior Indoor Air Quality Consultant from Cashins & Associates performed air sampling as required by the Indoor Air Quality Management Plan developed by Cashins & Associates.

Measurements were taken for the following:

- Carbon Dioxide
- Temperature
- Relative Humidity
- Carbon Monoxide
- Volatile Organic Compounds (VOCs)
- Dust

FINDINGS

Real-time readings for CO, VOCs, and dust were all below upper limits set forth in the IAQ Management Plan.



2. INTRODUCTION

Cashins & Associates, Inc. was retained by Consigli to provide professional industrial hygiene consulting services. Our scope of work consisted of measuring various basic indoor air quality parameters during construction activities at Winchester High School in Winchester, Massachusetts. This assessment took place on October 17, 2014, and focused on areas adjacent to Phase I of the project.

3. INDOOR AIR QUALITY PARAMETERS

The following is a breakdown of upper limits related to indoor air quality as stipulated in section 01 81 19 of the Project Specification:

Analyte	Upper Limit
Airborne dust	150 $\mu\text{g}/\text{m}^3$ (Occupied), 500 $\mu\text{g}/\text{m}^3$ (Work Area)
Volatile Organic Compounds (VOCs)	5 ppm (5,000 ppb)
Carbon Monoxide (CO)	9 ppm

4. METHODOLOGIES

A TSI Q-Track indoor air quality meter was used to measure carbon dioxide, carbon monoxide, temperature, and relative humidity in the space. The range of measurements obtained is reported in Table 1.

A RAE Instruments part per billion photo-ionization detector (PID) was utilized to screen the school building for the presence of TVOC. The PID is a screening tool that provides information as to total volatile organic compound loading in the space. The instrument does not provide information pertaining to which specific compounds are present in the air.

Dust concentrations were measured using a MIE pDR-1000AN passive air sampler. This real-time aerosol monitor measures both respirable and thoracic fractions, with optimal responses to particles in the 0.1-10 micron size range. The monitor was zeroed on June 19, 2014 prior to the monitoring event by using a hand-inflatable “zero air” pouch in conjunction with an inlet filter cartridge.

5. FINDINGS

5.1 Findings: Basic IAQ Parameters

We have listed in Table 1 the results of the real-time air sampling.

Table 1: Real-time Air Quality Readings

<i>Location</i>	<i>CO₂</i> <i>(ppm)</i>	<i>CO</i> <i>(ppm)</i>	<i>TVOC</i> <i>(ppb)</i>	<i>Dust</i> <i>(µg/m³)</i>
1st floor				
Exit 34	596	<0.1	7	17
@ A101	1032	<0.1	5	43
@ WOMEN'S Room	1106	<0.1	11	54
@ B102	1046	< 0.1	3	59
@ Photography	1263	<0.1	4	50
@ Cafeteria	958	<0.1	7	23
@ Library	553	<0.1	10	26
2nd floor				
@B209	955	<0.1	7	68
@C212	1064	<0.1	5	24
@C210	1055	<0.1	6	14
@C207	783	<0.1	3	36
@C201	749	<0.1	2	14
@C204	846	<0.1	10	13
@B210	896	<0.1	4	11
@B207	859	<0.1	8	17
@B201	759	<0.1	5	16
@A210	793	<0.1	7	12
@A211	811	<0.1	4	16
@A202	665	<0.1	2	26
@A202	573	<0.1	3	16
Stair landing	550	<0.1	9	16
3rd Floor				
@A301	633	<0.1	7	17
@ Science Lecture	627	<0.1	8	23
@A306	515	<0.1	5	15
@B301	597	<0.1	3	15
B wing hall @ TCP	622	<0.1	6	17
@C301	796	<0.1	8	15
C wing hall @ work	769	<0.1	4	12
1st floor E wing				
@ music suite construction	411	<0.1	9	14
Band room corridor	405	<0.1	5	14
Band room	387	<0.1	4	15
Hall near WOMEN'S locker	390	<0.1	7	16
@ Men's locker room	358	<0.1	5	13
@ Boiler room	373	<0.1	8	14



6. DISCUSSION

Real-time readings for CO, VOCs, and dust were all below upper limits set forth in the IAQ Management Plan.

No significant construction-related odors were detected at the time of this assessment.

It should be noted that pooled water was observed on the floor of the first floor B-wing hall. In addition, water was seen dripping through the roof in the E Wing near the band room hallway. The source of this water should be identified and the problems corrected as soon as practical.

Indoor air quality will be monitored on a regular basis by Cashins & Associates 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.



Zachary Keefe, CIE
Senior Indoor Air Quality Consultant

