

WOOD COUNTY INVESTIGATIO

BENTON ELEMENTARY SCHOOL

1410 HINKSON AVENUE

COLUMBIA, MISSOURI

*Prepared for:*

[REDACTED]

ENVIRONMENTAL

Contract C-23018  
January 2023

## QUALITY ASSURANCE/QUALITY CONTROL

Project: Indoor Air Quality Investigation

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

Project: Boston Elementary School

[Redacted]

[Redacted]

1410 Hinkson Avenue

*C. Mannebach*

QA/QC Manager:

*A. Polacek*

Kimberly . Polacek

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## LIST OF ACRONYMS AND ABBREVIATIONS

American Council on Education

AC	American Council on Education
AE	American Express
AF	American Federation of Teachers
AG	American General
AI	American International
AL	American Life
AM	American Medical Association
AN	American National
AO	American Overseas
AP	American Pacific
AQ	American Quality
AR	American Republics
AS	American States
AT	American Teachers
AV	American Veterans
AW	American Workers
AX	American X
AY	American Y
AZ	American Z

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## Introduction

NPN Environmental was engaged by Ms. Christy Serrage (Columbia Public School District) to conduct an IAQ investigation and limited HVAC inspection of the Benton Elementary School facility located at 1410 Hinkson Avenue, Columbia, Missouri.

The investigation was conducted by NPN Environmental at the request of Columbia Public School District personnel to characterize the IAQ of the building. The focus of this investigation was on the general assessment of IAQ parameters and contaminants in the building in response to health issues reported by an office occupant.

Sampling and investigation of the building and components were performed during the morning of January 13, 2023. In addition to a visual inspection of the building and its components, IAQ parameters and air contaminants were measured.

along the perimeter wall prevented observations of that wall. A large amount of clothing and shoes is stored in this office.

- The Home School Coordinator's office opens into the Computer Lab/Office. This area appeared to be clean and in good condition. Caulk

[REDACTED]

- The Principal's office is located in the administrative office suite. This area appeared to be clean and in good condition. Caulk around exterior windows of this office (and other windows and expansion joints) is damaged or missing.

- No currently wet building materials were observed or reported in the area.

[REDACTED]

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*HVAC Systems*

HVAC system components and ductwork were not specifically evaluated as part of this survey; however, visible ductwork and supply and return air registers appeared to be clean and in good condition. Columbia Public School District personnel indicated the system was functioning in normal operating mode during the investigation and filters are changed every three months.

Based on information provided by Columbia Public School District personnel, visual



acceptable guidelines where appropriate. Air samples were submitted to EMSL Analytical, Inc. in St. Louis, Missouri for analysis by light microscopy to determine counts of organisms and various particles deposited on the filter.

OSHA, USEPA, and other regulatory agencies do not regulate mold spore or pollen concentrations for indoor environments or even suggest acceptable airborne concentration levels. For the purpose of this investigation, the following procedures were used in evaluating indoor air quality. These procedures are based on NPN Environmental's Indoor Air Quality



- Area 3 – Principal's Office
- Area OS – Outdoor, east entrance

A copy of the laboratory analytical report for the air sampling cassettes is attached (*Appendix A – Laboratory Results*).

### Discussion of Results

#### Primary AQ Parameters Summary

#### Results of carbon monoxide, carbon dioxide, and temperature sampling in the

investigated were within guideline levels of

## Conclusions

Based on the sampling results and visual findings of the investigation, the following conclusions have been formulated:

- IAQ parameters were observed at acceptable levels to *IAQA* and *ASHRAE* guidelines in the areas tested on the day of the investigation, with the exception of relative humidity.
- Relative humidity levels in the areas inspected were well below referenced IAQ guideline levels, likely due to operation of the HVAC

system in heating mode with insufficient makeup air.

- Air sampling results exhibited acceptable levels of mold spores relative to guideline levels and outdoor concentrations on the day of testing. These levels are typical of normal levels found in a clean building environment and do not indicate the presence of indoor mold contamination or an atmosphere that may promote mold growth and amplification.

Stained ceiling tiles in a few locations in the areas tested are likely due

Building materials commonly impacted by water intrusion and microbial growth may

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**TABLE 1**  
**Air Sampling Results**

Parameters	Area 1	Area 2	Area 3	Area OS Outdoor
<b>Primary IAQ Parameters</b>				
Carbon Monoxide ppm	0	0	0	0
Carbon Dioxide ppm	595	599	604	424
<b>Mold Spores Spores/m<sup>3</sup></b>				
<b>Temperature °F</b>				
Temperature °F	72.8	72.7	71.8	24.7
<b>Relative Humidity %</b>				
Relative Humidity %	15.6	16.9	17.0	75.0
<b>Fungal Spores</b>				
Alternaria Ulocladium	ND	ND	20	ND
Ascomycetes	ND	ND	ND	ND
Aspergillus/Penicillium	ND	ND	20	ND
Basidiomycetes	ND	20	20	100
Bionidiales	ND	ND	ND	ND
Chaetomium	ND	ND	ND	ND
<b>Air Contaminants particles/m<sup>3</sup></b>				
<b>Curvularia</b>				
Curvularia	ND	ND	ND	ND
<b>Epicoccum</b>				
Epicoccum	ND	ND	ND	ND
<b>Fusarium</b>				
Fusarium	ND	ND	ND	ND
<b>Ganoderma</b>				
Ganoderma	ND	ND	ND	ND
<b>Mycosporium</b>				
Mycosporium	ND	ND	ND	ND







572500549

# CHAIN OF CUSTODY RECORD

1631 Headland Drive  
Fenton, MO 63026  
888-343-1300  
www.npnenv.com

TEXAS

ENVIRONMENTAL

Laboratory

SL-STZ

Contract No. C-23018

Facility Elene School

Site Address 10 Inkson C

### Matrix

Air  Bulk  Wipe

6-Hour 24-Hour  5-Day

### Sample Identification

Sample ID 132 Date 11/23 Time 9:15  
S 9:12  
9:12

### Analysis

Fungal Spores  Spores Tape Lift  Fungal Swab  Cultural Fungi  Culturable Bacteria  Bacteria Swab

### Results Delive

Email npn-lag@npnenv.com  
 Email npn-lag@npnenv.com  
 Other

### Collected By

Ruth Moor

### Remarks

70 5 83 -Cox  
38  
44 325  
4

Received By [Signature]

Date 11/23

Time 2:41 PM

Received By [Signature]

Date 1/3

Time W