NYC 9/11 Public Portal Document

REAL-TIME ENVIRONMENTAL MEASUREMENTS

ATC collected seventy-nine (79) sets of real-time environmental measurements consisting of seventy (70) from inside the school building and nine (9) from outdoors. All five floors of the school building were surveyed. These results are described below.

Field data sheets are found in Attachment 1. Readings began at 8:00 A.M. and concluded at approximately 11:30 A.M.

Temperature

Indoor dry bulb temperature measurements ranged from 70.2°F to 75.3 °F. Twenty-seven (29) of the indoor measurements for temperature were below the range of 73 to 79°F (at 50 percent relative humidity) as recommended by the ASHRAE Standard 55-1992 during the summer season . The outdoor temperature measurements ranged from 62.7 °F to 64 °F.

Relative Humidity

The relative humidity indoors ranged from 30.2 to 35.7 percent. All of the indoor measurements for relative humidity were within the ASHRAE-recommended range of 30 to 60 percent for occupant comfort. The outdoor relative humidity measurements ranged from 32.8 to 35.1 percent.

Carbon Dioxide Concentration

Carbon dioxide concentrations indoors ranged from 484 ppm to 1150 ppm. One (1) of the indoor measurement for CO_2 was above the ASHRAE Standard 62-1999 recommended maximum concentration of <700 ppm above the background level. The maximum outdoor (background) CO_2 concentration was 447 ppm. Therefore, the maximum acceptable level of CO_2 at this location was 1147 ppm (background level + 700 ppm). The highest reading (1150 ppm) was taken in room 402 at 10:30 AM with 35 occupants. Carbon dioxide measurements are used as an indicator of available outside makeup air. The primary source of CO_2 indoors is occupant respiration. The school building was occupied during ATC's assessment.

Carbon Monoxide Concentration

Carbon monoxide concentrations indoors ranged from 1 ppm to 2 ppm. These concentrations were below the NPAAQS/ASHRAE guideline of 9 ppm. The outdoor CO concentrations were 2 ppm for all collected readings.

Respirable Particulates ($PM_{2.5}$)

Respirable particulate concentrations* indoors ranged between 7 $\mu g/m^3$ to 35 $\mu g/m^3$. The average $PM_{2.5}$ concentration for the entire school building was approximately 19 $\mu g/m^3$. All of the indoor measurements were below the NPAAQS of 65 $\mu g/m^3$ 24-hour average concentration of particulate matter 2.5 micrometers or less in aerodynamic diameter and the USEPA recommended concentration of 40 $\mu g/m^3$ for sensitive individuals and children. The outdoor respirable particulate concentration measurements ranged from 47 to 58 $\mu g/m^3$ with an average of 52 $\mu g/m^3$.

NYC-WTC_000340609

NYC 9/11 Public Portal Document

* The measurements made during this assessment were instantaneous readings, the NPAAQS is a 24-hour average.

TVOC Concentrations

TVOCs were not detected anywhere inside the building (0.0 ppm). The outdoor TVOC concentration was also 0.0 ppm.

OBSERVATIONS

During this assessment, ATC noted the following:

- The school building was occupied at the time of the assessment.
- No smoke odor was detected in the building
- The interior of the building appeared clean and free of dust and debris.

FINDINGS

Based on the real-time measurements, the following findings are presented:

1. Concentrations of CO and TVOCs were below applicable standards and guidelines.
2. Twenty-seven (29) of the indoor measurements for temperature were below the range of 73 to 79°F (at 50 percent relative humidity) as recommended by the ASHRAE Standard 55-1992 during the summer season .
3. All of the indoor measurements for relative humidity were within the ASHRAE-recommended range of 30 to 60 percent for occupant comfort.
4. One (1) of the indoor measurement for CO_2 was above the ASHRAE Standard 62-1999 recommended maximum concentration of <700 ppm above the background level. The highest reading (1150 ppm) was taken in room 402 at 10:30 AM with 35 occupants. Carbon dioxide measurements are used as an indicator of available outside makeup air. The primary source of CO_2 indoors is occupant respiration. The school building was occupied during ATC's assessment.
5. All of the indoor respirable particulate measurements were below the NPAAQS of 65 $\mu g/m^3$ 24-hour average concentration of particulate matter 2.5 micrometers or less in aerodynamic diameter and the USEPA recommended concentration of 40 $\mu g/m^3$ for sensitive individuals and children.

It is our pleasure to provide these indoor air quality services to the New York City Board of Education. If you have any questions about this report, please call (212) 353-8280, extension 211 or 212.

Sincerely,
ATC ASSOCIATES INC.

Arnel Javal
Senior Project Manager

Reviewed by:

James R. Cohn, CIH, CSP
Regional Manager
Industrial Hygiene Division

Attachment

NYC-WTC_000340610