



Rod R. Blagojevich, Governor
Damon T. Arnold, M.D., M.P.H., Director

22 Kettle River Drive • Glen Carbon, Illinois 62034-2801 • www.idph.state.il.us

December 19, 2008

Environmental Toxicology #⁹11050801

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Division of
Environmental Health

Mr. Marty Cook
109 W. School Street
Camp Point, IL 62320

Dear Mr. Cook:

On November 12, 2008, Illinois Department of Public Health (IDPH) staff visually inspected the Central Elementary School in Camp Point, Illinois. The inspection was conducted at your request and you and Mr. Dave Lennerts were present during the inspection. You originally contacted IDPH due to concerns from a few teachers and school employees of thinning hair and headaches, along with other symptoms. [REDACTED], was interviewed during the inspection.

The visual inspection involved a walk-through of the hallways, music room, teachers lounge, most classrooms, janitor's closets, and mechanical/HVAC rooms while using a Q-Trak air monitor (Model 8851, Serial #52032). The Q-Trak monitors carbon dioxide, carbon monoxide, temperature and relative humidity. Carbon monoxide was not detected during the walk through and there are no combustion sources in the school. Carbon dioxide is used to indirectly measure ventilation efficiency, while temperature and relative humidity are associated with thermal comfort. None of the readings for carbon dioxide, temperature, or relative humidity were remarkable during the walk-through. During the walk-through odors were noted in various rooms, but none were unpleasant. No mold growth was observed during the inspection. Following the walk-through, the Q-Trak monitor was placed in [REDACTED] to collect data over six school days and a weekend. This data is discussed below.

The Q-Trak monitor was retrieved on November 21, 2008 and an additional walk-through was conducted through all the rooms in the school. The school principal accompanied IDPH staff during the walk-through and a PPB RAE Model 7240 monitor was used to detect the presence of volatile organic compounds (VOCs) in the air. VOCs are common in many products including paint, aerosol spray cans, cleaners, air fresheners, and perfumes. The highest reading was approximately 250 parts per billion (ppb) in the office/equipment storage area near the gymnasium. The level in the office/equipment room dropped rapidly when the door was opened to the gymnasium. Most rooms surveyed with the PPB RAE were less than 100 ppb. No adverse health effects would be expected based on these results.

Data collected from [REDACTED] is shown graphically in an attachment. The internal clock of the Q-Trak was five hours ahead of the actual time and thus the data should be shifted five hours to the left. As can be seen in the graph, carbon dioxide generally increases during school hours when students and teachers are present, temperatures increase to comfortable levels during school hours, and relative humidity levels somewhat follow the school day and temperature. The carbon dioxide, temperature, and relative humidity guidelines are discussed in greater detail in the attached fact sheet entitled "Illinois Department of Public Health Guidelines for Indoor Air Quality."

The carbon dioxide, temperature and humidity data used to determine the air quality in the school were collected from six school days (11/13-11/14 and 11/17-11/20) between the hours of approximately 8:00 AM and 4:00 PM. Data was recorded every 15 minutes. The data was compared with the guidelines set forth in the attached fact sheet: temperature (winter) 68 to 75 degrees Fahrenheit, relative humidity 20% to 60%, and carbon dioxide levels at or below 1,000 ppm. Temperature was within acceptable limits most of the time. Relative humidity was acceptable most of the time however approximately 23% of the readings were below 20% relative humidity. Most of the readings below 20% relative humidity during school hours occurred on Tuesday, November 18. Lower relative humidity levels occur most frequently during colder weather as cold air can not hold as much moisture as warm air. Low humidity may lead to complaints of dry skin and eye irritation.

The average carbon dioxide level during school hours was less than 1,000 ppm per day. However, approximately 25% of the carbon dioxide readings were greater than 1,000 ppm. The school day with the most readings greater than 1,000 ppm in [REDACTED] was Thursday, November 20, when 18 of 33 readings were greater than 1,000 ppm. These data would indicate that the ventilation is probably not adequate for the entire school day. The lack of adequate ventilation may be responsible for complaints of headaches by school occupants. It should be noted that it is not the carbon dioxide at the levels detected in the room that would cause the symptoms rather as stated in the fact sheet "a high level of carbon dioxide may indicate that other contaminants in the building also may be present at elevated levels and could be responsible for occupant complaints". The carbon dioxide level is only to be used as a guideline to determine the amount of outside air entering the building.

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Conclusions from the investigation of the Central Elementary School are that headaches may be due to inadequate ventilation and an environmental source of hair loss was not identified during the investigation. Relative humidity should be kept above 20% when possible, though this is difficult to accomplish in the winter months in Illinois. We recommend that a heating, cooling, and ventilation specialist or engineer be contacted to ensure that there is adequate ventilation and relative humidity in the building.

If you have questions or need additional information please contact me at 22 Kettle River Drive, Glen Carbon, IL 62034, or telephone (618) 656-6680.

Sincerely,



David R. Webb
Environmental Toxicologist

Attachments

cc: Division of Environmental Health ✓
Edwardsville Region

Central Elementary - Camp Point, IL

Carbon Dioxide, Carbon Monoxide, Temp, and Humidity

