

Illinois Department of  
**Public  
Health**

George H. Ryan, Governor • John R. Lumpkin, M.D., M.P.H., Director

525-535 West Jefferson Street • Springfield, Illinois 62761-0001

#208310001

October 16, 2000

Jeff Bryan, 6-12 Principal  
Avon Junior/Senior High School  
400 East Wood Street  
Avon IL 61415

Dear Mr. Bryan:

On August 31, 2000, Constanta Mosoiu, Environmental Toxicologist, and I performed a mold and moisture survey of your school. You specifically asked us to do so because a teacher came to your administration with concerns about mold in her classroom and the impact it would have for her health. During our survey, we collected eight air samples, monitored the temperature and relative humidity in Room 101 (see an attached map), and made general observations.

Air Sampling Results

Ms. Mosoiu and I collected eight air samples from four locations at Avon Junior/Senior High School. We collected each sample with an A-6 Bioaerosol sampler, manufactured by Aerotech Labs, and a malt extract agar plate. One two-minute sample was collected from each location during the morning and again in the afternoon. The sample locations include Rooms 101, 103, and 204. An additional sample was collected outside the building to serve as a background.

Exposure guidelines for mold do not exist so public health professionals must rely on relative comparisons when evaluating sample results. Typically, samples collected in a complaint area of a building are compared to an outdoor sample. Unless moisture problems are present in a building, mold concentrations in air should be similar or less than mold concentrations outside. In many cases, health professionals elect to identify specific organisms growing on samples and make similar comparisons. Our laboratory did not identify specific organisms from the samples collected at your school because a qualified mycologist was not available.

The laboratory results (see Table 1) indicate that mold samples collected in Room 101, the complaint area, and Room 204, a non-complaint area, were less concentrated than samples collected outside your school. Morning and afternoon samples collected in Room 103 were slightly more concentrated than outdoor samples, but they are probably not an indication of water damage or a hidden growth site for mold. They may be the result of an open window during our survey.

## Temperature and Relative Humidity Measurements

Temperature and relative humidity were monitored in Room 101 for the entire course of our survey. We collected these measurements using a Q-trak indoor air quality monitor, manufactured by TSI Inc. The average temperature in Room 101 during our survey was 87.4 degrees Fahrenheit and the average relative humidity was 54.1% (see an attached graph). The average outdoor temperature was 89 degrees Fahrenheit and the average relative humidity was 60% (The outdoor temperature and relative humidity reflect the average of morning and afternoon measurements).

Temperature is frequently the target of indoor air complaints, because it is directly linked to occupant comfort. Excessively high or low temperatures can lead to general thermal discomfort and occupant dissatisfaction. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (Standard 55-1992 section 5.1.2) recommend that building temperatures be maintained between 73 degrees and 79 degrees during the summer months.

Relative humidity is an important factor in indoor air quality because moisture levels are directly linked to occupant comfort. High moisture levels not only impair the body's ability to lose heat, but also can lead to microbial growth. Excessively low moisture levels result in dry air which can be irritating the lungs, eyes, nose and throat. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (Standard 55-1992) recommends that relative humidity be maintained between 30% and 60%.

## General Observations

During our mold and moisture survey, Ms. Mosoiu and I made the following general observations:

- Visible mold was not present in Room 101 or other locations at your school.
- No evidence of moisture damage, either past or present, was found at your school.
- Room 101 and Room 103 lack a means to actively obtain fresh, outdoor air. Currently these rooms can only obtain fresh, outdoor air by opening a single window.
- Two dehumidifiers were in use in Room 101. The cooling coils were visibly soiled and white scum was present in the condensate pans. The complainant indicated that water is drained from condensate pans daily, but they are not cleaned.
- Chemicals, including latex, acrylic, and enamel paints, glazes, and a wood finish were stored in cardboard boxes which were located in an unlocked closet of Room 101.

### Conclusions & Recommendations

Based on the information gathered during our mold and moisture survey, I make the following conclusions and recommendations:

- Mold and moisture damage do not appear to be present in Room 101 or any other location at your school.
- The thermal comfort environment in Room 101 is unacceptable. We did not collect temperature and relative humidity measurements in Room 103, but the thermal environment in that classroom was similar to Room 101. I recommend you consult with a ventilation engineer about providing a means for conditioning air in these classrooms as well as an active system for introducing fresh, outdoor air.
- Dehumidifier drain pans should be cleaned regularly with soap and water since these can be significant sources for mold growth.
- Paints and other chemicals used in Room 101 should be stored in a locked cabinet or locked closet to prevent students from gaining access.

If you have other questions or concerns, or if you would like to discuss this letter in detail please contact me at (217) 782-5830.

Sincerely,



Aaron Martin  
Environmental Toxicologist

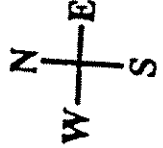
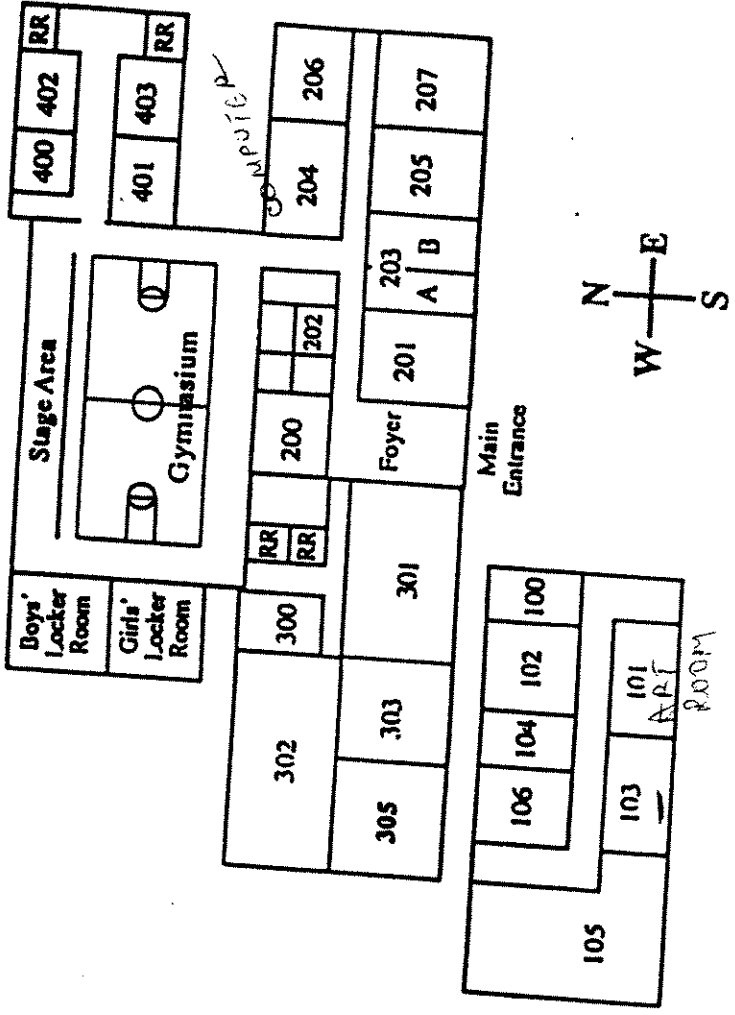
cc: Constanta Mosiou, Peoria Regional Office  
Alan Coleman, Assistant Regional Superintendent

**Table 1: Mold Sample Results**

Sample ID	Location	Result (cfu/m <sup>3</sup> )
1	Room 101	1,069
2	Room 204	638
3	Outdoor	3,310
4	Room 103	3,403
5	Room 101	1,442
6	Room 204	846
7	Outdoor	2,625
8	Room 103	3,567

Notes: cfu/m<sup>3</sup> = colony forming units per cubic meter of air  
Samples 1,2,3, and 4 were collected in the morning  
Samples 5,6,7, and 8 were collected in the afternoon

# Avon High School



# Avon High School Bioaerosol Samples

