



**North Carolina Department of Health and Human Services**  
**Division of Public Health • Epidemiology Section**  
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Michael F. Easley, Governor

Carmen Hooker Buell, Secretary

**September 5, 2001**

Dear School Superintendents and Maintenance Directors:

Fungal contamination, or mold, in buildings has become a growing concern as public awareness of indoor environmental quality has increased. More and more schools have had to deal with mold problems and other indoor environmental quality issues in recent years.

The Occupational and Environmental Epidemiology Branch (OEEB) has been providing Local Education Agencies (LEAs) with information, guidance and consultative services on indoor environmental quality since the 1980s. This year we have been involved with a growing number of LEAs that were having problems with mold (fungal) contamination of buildings. These LEAs expended considerable human and financial resources to assess and remediate indoor mold. However, the overall cost of many of these projects was much greater than it should have been. A basic understanding of mold diagnosis and remediation can save LEAs a great deal of money, time, and effort and can increase the effectiveness of remediation efforts.

Based on OEEB's experience in a large number of specific situations, we offer you the following points to help guide you in addressing mold issues:

- The underlying cause of indoor mold problems is excessive indoor moisture. Therefore, the initial focus of a mold investigation should be identification and assessment of moisture. Moisture problems can result from roof leaks, plumbing problems, flooding, elevated humidity in buildings and other sources.
- The primary, and usually best, method to identify mold growth indoors is inspection for visible mold growth. In most cases, it is not necessary to use bulk sampling of suspected materials and air sampling as the initial or primary method to determine if there is a mold problem in a building. We have seen both overuse of testing and sampling, and improper interpretation of results.
- Currently there is no consensus on quantitative limits for mold exposure in the indoor environment. As a result, sampling, particularly air sampling, to characterize human exposure and risk can provide uncertain and often misleading results. Although there are no quantitative exposure limits for human exposure to mold in buildings, numerous federal agencies including EPA and CDC, professional organization such as the American Conference of Government Industrial Hygienist (ACGIH), and the N.C. Department of Health and Human Services uniformly advise that mold should not be allowed to grow in the indoor environment.
- Since individual sensitivity to mold exposure is highly variable, OEEB recommends that any mold growth identified be removed and that environmental conditions such as moisture be modified to prevent re-growth



of the mold. Mold is always present indoors as a result of transport of spores and other cells from outdoors. However, with proper moisture control, the mold will not grow indoors.

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- A common misconception about mold contamination is that it can be corrected by spraying the affected surfaces with products such as disinfectants, biocides or cleaners. While these products may kill mold spores and take away their ability to reproduce, these products will not solve a mold problem. Removing moisture sources and mold particles is the only lasting solution. In addition, the use of certain biocides and antimicrobial products might also present a health hazard to workers and building occupants, especially if applied inside air conditioning systems.
- Whether living (viable) or dead (nonviable), airborne mold spores and other parts of the mold may still present a health risk to exposed individuals. Either the mold must be completely removed from the affected material, or the mold-contaminated material must be removed from the building.
- Empathetic and open communication with building occupants and others is essential for a successful solution to indoor environmental problems. When addressing a mold issue, building management should communicate to building occupants and other affected parties, such as parents, the results of the mold investigation and the remediation plans. Occupants' perceptions of the health risk may become exaggerated if they feel that information is being withheld from them.

In addressing mold exposure in buildings, the OEEB recommends that you follow the guidance provided in the following three documents:

- 1) The US EPA's recent publication, *Mold Remediation in Schools and Commercial Buildings*. This document, along with other mold information, can be printed or downloaded at the EPA indoor air quality web site at [www.epa.gov/iaq](http://www.epa.gov/iaq).
- 2) The New York City Department of Health's *Guidelines on Assessment and Remediation of Fungi in Indoor Environments*, which is available on their web site at [www.ci.nyc.ny.us/html/doh/html/epi/moldrpt1.html](http://www.ci.nyc.ny.us/html/doh/html/epi/moldrpt1.html).
- 3) The N.C. OEEB's guidance document, *Mold and Human Health*, which is available at [www.schs.state.nc.us/epi/oii/mold/index.html](http://www.schs.state.nc.us/epi/oii/mold/index.html).

We encourage school systems that have not already addressed mold issues to talk with staff of other systems that have had experience with this problem (call us for contact information). Our office is also considering organizing a seminar on this issue in the near future. If you have questions, need assistance, or would like to participate in a seminar on mold issues, please contact Mr. Romie Herring of my staff at 919-715-3564.

Sincerely,

William Tynan, MD, MPH Branch Head  
Occupational and Environmental Epidemiology Branch

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