



VERITOX®

REDMOND, WA • PORTLAND, OR • HILTON HEAD, SC • CAPE ELIZABETH, ME

February 10, 2009

Washington State Senate
Committee on Labor, Commerce, & Consumer Protection
c/o Nancy Osmundson, Committee Assistant
osmundson.nancy@leg.wa.gov

Subject: SB 5644 Addition of Mold to RCW 18.280.030 - Written Testimony

Madame Chairman and Committee Members:

The undersigned professionals hereby submit comments on the addition of the words “mold and” to the scope of home inspections. This addition appears to be unnecessary and will likely lead to confusion in the marketplace and to an increase in the cost of home inspections.

Background information

Background information on mold and health effects is summarized below. Several valuable medical/toxicology/industrial hygiene references readily available on the internet are listed at the end of this letter. Attachments 1 and 2 are excerpted/summarized from two of the medical references (Ref.1, 2).

The term mold in a home context is usually used to describe fungal organisms (fungi) that grow on surfaces (surface mold). Mildew is not a good term to use. Common molds can grow on fruits, vegetables, and houseplants as well as bathtub caulk, window frame dirt, exterior paint and siding, sheetrock paper, or lumber. These types of fungi are always in the air around us, inside and outside the home. They reproduce via airborne spores. Surface molds do not readily attack and destroy wood.

A different group of highly specialized fungi, commonly called wood rot fungi, can break down wood products in a house and cause structural damage.

Spores of mold that settle on surfaces will not grow into colonies unless there is sufficient moisture available, along with the necessary food source and time. Likewise, wood rot fungi need sufficient moisture to establish themselves, grow, and decay wood. Unusual surface mold growth and/or wood rot fungi are indicators of excessive water intrusion or condensation.



The proposed “look for mold” language should not be added to the home inspectors’ responsibilities for the following reasons:

(I) Home inspectors are already required to address moisture conditions that would support mold growth. Inspectors visually look for and report on the general condition of systems and components of the building envelope, plumbing, structure, and ventilation system (RCW 18.280.030). There is no indication in the rules that an inspection is driven by health issues. Inspectors must also “refer in his or her report to rot or conducive conditions for wood destroying organisms” (RCW 18.280.190). The inspection activities apparently include looking for active water leaks and condensation. It is assumed that inspectors also look for indicators of past water intrusion or condensation, such as staining or discoloration of visible surfaces, which may or may not include mold or wood rot growth (OSHA guidance on mold refers to both surface mold and wood rot fungi as “mold” (Ref. 5)).

(II) “Looking for mold” may be an impossible, endless task for inspectors. The term mold is undefined. “Mold” in any given home is normal. Mold spores are everywhere in the air and on most surfaces in a home. There is also visible mold growth (actual small mold colonies) on at least some surfaces in all homes, for example, on wood materials in crawl spaces and attics, on bathtub or shower caulk, or on window frames, as well as in the refrigerator, on fruit, or on houseplants. Mold spores and growth can be sporadic. Some mold growth is related to occupant practices, not structural or water intrusion issues.

(III) A home inspector is not trained to identify “mold.” An inspector cannot differentiate surface discoloration versus mold growth versus wood rot fungi. Appropriate sampling and analysis by an accredited mycology laboratory is needed for confirmation of mold growth.

(IV) Home inspectors should not be required to address unknown, individual health issues a homeowner may have related to mold or other allergens. The popular press would lead one to believe that the presence of “toxic mold” or “black mold” in a home can cause toxic effects on bodily organs. However, the consensus in the medical community is that one cannot experience an exposure in a home sufficient to cause toxic effects (Ref. 1, 2, 3, 4). Common surface mold spores and particles are known to cause allergic reaction and may worsen asthma in susceptible individuals. However, other allergens in the home may cause similar symptoms, such as animal dander, dust mites, cockroaches, and pollens. Some may be much more allergenic than molds. The homeowner cannot self-diagnose or establish illness causation for themselves. If the potential homeowner is concerned about mold exposure, they should discuss health issues with their doctor or a certified allergist/immunologist, particularly if asthmatic or immune compromised. Working closely with an industrial hygienist, a separate indoor air quality/allergen survey can be conducted prior to purchasing a home, but it is an excessive requirement for all home inspections.

(V) Adding a “mold” survey, even if limited in scope, would increase the time needed for a home inspection and would increase the cost. Inspectors cannot tell visually if discoloration of a surface is simply staining of some kind or mold growth. Sampling and analysis would be needed to confirm mold growth. The most common type of sampling is a



tape lift. Collection of samples, documentation, shipping, analysis, and reporting of results would delay the home sale and would add significant expense.

Respectfully submitted:

Michael Krause, MSPH, CIH
Veritox, Inc.

Payam Fallah, PhD Mycology
Indoor Environmental Health Laboratory (IDEHL)

References:

- (1) American College of Occupational and Environmental Medicine (ACOEM), 2002 Position Statement on Mold, <http://www.acoem.org/guidelines.aspx?id=850>
- (2) American Academy of Allergy Asthma and Immunology (AAAAI), 2006 Position Statement: "The Medical Effects of Mold Exposure," http://www.aaaai.org/members/academy_statements/position_statements/mold.pdf
- (3) American Academy of Allergy Asthma and Immunology, "Tips to Remember – Indoor Allergens," <http://www.aaaai.org/patients/publicedmat/tips/indoorallergens.stm>
- (4) American Academy of Allergy Asthma and Immunology, Position Statement: "Idiopathic Environmental Intolerances," http://www.aaaai.org/members/academy_statements/position_statements/ps35.asp
- (5) OSHA Safety and Health Bulletin (SHIB), "A Brief Guide to Mold in the Workplace," <http://www.osha.gov/dts/shib/shib101003.html>



Attachment 1
Excerpt from the ACOEM Position Statement on Mold:
Adverse Human Health Effects Associated with Molds in the Indoor Environment

“In recent years, the growth of molds in home, school, and office environments has been cited as the cause of a wide variety of human ailments and disabilities. So-called "toxic mold" has become a prominent topic in the lay press and is increasingly the basis for litigation when individuals, families, or building occupants believe they have been harmed by exposure to indoor molds. This evidence-based statement from the American College of Occupational and Environmental Medicine (ACOEM) discusses the state of scientific knowledge as to the nature of fungal-related illnesses while emphasizing the possible relationships to indoor environments. Particular attention is given to the possible health effects of mycotoxins, which give rise to much of the concern and controversy surrounding indoor molds. Food-borne exposures, methods of exposure assessment, and mold remediation procedures are beyond the scope of this paper.

The fungi are eukaryotic, unicellular, or multicellular organisms that, because they lack chlorophyll, are dependent upon external food sources. Fungi are ubiquitous in all environments and play a vital role in the Earth's ecology by decomposing organic matter. Familiar fungi include yeasts, rusts, smuts, mushrooms, puffballs, and bracket fungi. Many species of fungi live as commensal organisms in or on the surface of the human body. "Mold" is the common term for multicellular fungi that grow as a mat of intertwined microscopic filaments (hyphae). Exposure to molds and other fungi and their spores is unavoidable except when the most stringent of air filtration, isolation, and environmental sanitation measures are observed, eg, in organ transplant isolation units.

Molds and other fungi may adversely affect human health through three processes: 1) allergy; 2) infection; and 3) toxicity. One can estimate that about 10% of the population has allergic antibodies to fungal antigens. Only half of these, or 5%, would be expected to show clinical illness. Furthermore, outdoor molds are generally more abundant and important in airway allergic disease than indoor molds — leaving the latter with an important, but minor overall role in allergic airway disease. Allergic responses are most commonly experienced as allergic asthma or allergic rhinitis ("hay fever"). A rare, but much more serious immune-related condition, hypersensitivity pneumonitis (HP), may follow exposure (usually occupational) to very high concentrations of fungal (and other microbial) proteins.

Most fungi generally are not pathogenic to healthy humans. A number of fungi commonly cause superficial infections involving the feet (*tinea pedis*), groin (*tinea cruris*), dry body skin (*tinea corporis*), or nails (*tinea onychomycosis*). A very limited number of pathogenic fungi — such as *Blastomyces*, *Coccidioides*, *Cryptococcus*, and *Histoplasma* — infect non-immunocompromised individuals. In contrast, persons with severely impaired immune function, eg, cancer patients receiving chemotherapy, organ transplant patients receiving immunosuppressive drugs, AIDS patients, and patients with uncontrolled diabetes, are at significant risk for more severe opportunistic fungal infection.

Some species of fungi, including some molds, are known to be capable of producing secondary metabolites, or mycotoxins, some of which find a valuable clinical use, eg,



penicillin, cyclosporine. Serious veterinary and human mycotoxicoses have been documented following ingestion of foods heavily overgrown with molds. In agricultural settings, inhalation exposure to high concentrations of mixed organic dusts — which include bacteria, fungi, endotoxins, glucans, and mycotoxins — is associated with organic dust toxic syndrome, an acute febrile illness. The present alarm over human exposure to molds in the indoor environment derives from a belief that inhalation exposures to mycotoxins cause numerous and varied, but generally nonspecific, symptoms. *Current scientific evidence does not support the proposition that human health has been adversely affected by inhaled mycotoxins in the home, school, or office environment...*



Attachment 2

Synopsis of the Position Paper of the American Academy of Allergy, Asthma, and Immunology "The Medical Effects of Mold Exposure"

The purpose of this position paper is to provide a state-of-the-art review of the role that molds are known to play in human disease, including asthma, allergic rhinitis, allergic bronchopulmonary aspergillosis, sinusitis, and hypersensitivity pneumonitis. In addition, other purported mold-related illnesses and the data that currently exist to support them are carefully reviewed, as are the currently available approaches for the evaluation of both patients and the environment.

The Relationship of Molds to Allergy and Asthma

- Atopic patients (those with allergic asthma, allergic rhinitis, and atopic dermatitis) commonly have IgE antibodies to molds as part of polysensitization.
- Allergic responses to inhaled mold antigens are a recognized factor in lower airway disease (ie, asthma).
- Currently available studies do not conclusively prove that exposure to outdoor airborne molds plays a role in allergic rhinitis, and studies on the contribution of indoor molds to upper airway allergy are even less compelling.
- Exposure to airborne molds is not recognized as a contributing factor in atopic dermatitis.
- Exposure to airborne molds is not recognized as a cause of urticaria, angioedema, or anaphylaxis.
- Patients with suspected mold allergy should be evaluated by means of an accepted method of skin or blood testing for IgE antibodies to appropriate mold antigens as part of the clinical evaluation of potential allergies.

Allergic Bronchopulmonary Aspergillosis and Sinusitis

- ABPA and allergic fungal sinusitis are manifestations of significant hypersensitivity to fungi, particularly *Aspergillus* species.
- Data supporting the role of fungi in CRS are lacking at this time.

Hypersensitivity Pneumonitis

- HP is an uncommon but important disease that can occur as a result of mold exposure, particularly in occupational settings with high levels of exposure.

Infection

- Common superficial fungal infections are determined by local changes in the skin barrier, resident microflora, or both.
- A very limited number of aggressive fungal pathogens can be acquired through specific outdoor exposures.
- Host factors, rather than environmental exposure, are the main determinant of opportunistic fungal infection.

*Toxic Effects of Mold Exposure*

- The occurrence of mold-related toxicity (mycotoxicosis) from exposure to inhaled mycotoxins in nonoccupational settings is not supported by the current data, and its occurrence is improbable.

Irritant Effects of Mold Exposure

- The occurrence of mold-related irritant reactions from exposure to fungal irritants in nonoccupational settings are theoretically possible, although unlikely to occur in the general population given exposure and dose considerations.
- Such irritant effects would produce transient symptoms-signs related to the mucus membranes of the eyes and upper and lower respiratory tracts but would not be expected to manifest in other organs or in a systemic fashion.
- Further information about thresholds for irritant reactions in at-risk populations is needed to better define the role of molds, mold products, and other potential irritants in such individuals.

Immune Dysfunction

- Exposure to molds and their products does not induce a state of immune dysregulation (eg, immunodeficiency or autoimmunity).
- The practice of performing large numbers of nonspecific immune-based tests as an indication of mold exposure or mold-related illness is not evidence based and is to be discouraged.

Laboratory Assessment

- Measurement of antibodies to specific molds has scientific merit in the assessment of IgE-mediated allergic disease, HP, and allergic bronchopulmonary mycosis.
- Measurement of antibodies to molds cannot be used as an immunologic marker to define dose, timing, and/or location of exposure to mold antigen inhalation in a noninfectious setting.
- Testing for antibodies to mycotoxins is not scientifically validated and should not be relied on.

*Measurement Of Molds And Mold Product Exposure In The Patient's Environment/
Measurement Of Fungal Products In The Patient's Environment*

- Sampling of both indoor and outdoor air for mold spores provides a measure of potential exposures and can be useful in certain clinical conditions, but it has many shortcomings.
- Bulk, surface, and within-wall cavity measurement or [sic] molds or mycotoxins, although having potential relevance for other purposes, cannot be used to assess exposure.
- Testing for airborne mycotoxins in nonagricultural environments cannot be used to diagnose mold exposure.