

Dragon, Karen E. (CDC/NIOSH/EID)

From: Dragon, Karen E. (CDC/NIOSH/EID) on behalf of NIOSH Docket Office (CDC)
Sent: Tuesday, July 12, 2011 7:01 AM
To: Dragon, Karen E. (CDC/NIOSH/EID)
Subject: FW: 238 - NIOSH Indoor Environmental Quality (IEQ) Alert

From: Elliott Horner [mailto:Ehorner@aq.s.com]
Sent: Monday, July 11, 2011 5:35 PM
To: NIOSH Docket Office (CDC)
Subject: 238 - NIOSH Indoor Environmental Quality (IEQ) Alert

Sir/Madam,

These comments were submitted in the online form. The table formatting may not have remained, however in the online entry. I send this copy by email in case the tabular formatting is useful

Regards,
Elliott Horner

Page	Line	Comment
All		There are statements that are very general and that are not substantiated through multiple sections. An example is the first paragraph of the Background section that states mycotoxins (in damp buildings) are the least studied. This should be supported with a reference.
1	16	Replace "mold" with "Fungi" (see following comment, apply as appropriate throughout)
1	17	Add "wood decay fungi" after "mold". Decay of wood products is not uncommon in moisture damaged buildings and is a separate type of biodeterioration caused by fungi that are not "molds".
1	25	Designers often do not understand the effects of moisture either. Designers should be added to the list of builders, owners, etc.
1	17-18	What exposures?
1	26	Which problems?
1	41	Replace immediate with prompt. See also page 10, line 13. Prompt action needs to be taken, i.e. delay in responding should be minimized. However, the word "immediate" has the risk of being misapplied to infer needing action before the end of the work shift. If taking action before the end of the shift is what is meant, then that should be the wording.
2	3	Insert "promptly" before correct.
2	5	Insert "Assure that energy saving measures consider effects on indoor humidity."
2	7	This is too simplistic. There is not a TLV for moisture. Yes, empirical, published evidence demonstrates that fungal colonization can occur under static conditions in 48 hours. However, field observations indicate that if substantial drying is underway (measurable reductions in moisture content), that colonization will be inhibited and final drying in more than 48 hours may still be free of visible mold growth.
2	11	Inert "visible" after mold. Substantial problems in the "mold inspection" industry derive from inappropriate use of some types of mold testing (culture of "table top" dust) to indicate the presence of a "mold problem". The EPA and NYC mold remediation guidelines (see your

		next bullet) refer to visible mold. Specifying “visible” will maintain consistency with the guidelines that this document recommends and reduce the risk of this document being mis-used.
2	7-10	How does the first part of the bullet on line 10 (up to the word ‘or’) differ from the bullet on line 7? The bullet on line 10 presumably is referring to materials that have been colonized (as opposed to only water damaged), but this is not stated.
2	16	Insert the version (year of publication) that is being referenced. There are four versions since 1993. The change in the title from the 1 st to the 2 nd version will not be enough for some readers to note.
2	21	What are the criteria for establishing that symptoms or disease are building-related?
2	28-29	This seems to assume that a physician is competent to conduct a building assessment. Building assessors should not diagnose disease in occupants without also being licensed medical practitioners. Conversely, MDs should not determine the presence of a moisture problem in a building without being a qualified assessor. This should be clearly stated. The occupant (who typically is not a qualified building scientist) stating to the physician that the building has a moisture problem is not always reliable, ie low specificity in clinical test language.
3	2-3	Insert after symptoms “in situations where dampness problems have been confirmed”.
4	36	Insert “(metabolites)” after “specific substances” to introduce the term. Subsequently using the term metabolite can avoid confusion with “substances” and “products”.
4	39-41	VOCs are released from wet vinyl?? This seems overly simplistic and should be clarified. Long term moisture issues in on-grade concrete slabs can lead to alkaline hydrolysis of flooring adhesives and generation of malodorous short chain alcohols. Is the example to which this refers? The statement does not however discriminate between this situation and using a wet mop on a floor.
5	7-9	Note that these are all considerations that an MD will need when concluding that respiratory disease of a worker/patient is due to a specific building, and that none of those conditions occur in other buildings that the worker/ patient occupies. Again the document should be clear that the MD typically is not a qualified building assessor and that conclusions of causation should not be drawn in the absence of an informed inspection of a building (just as a building assessor should not diagnose health issues of occupants).
5	2	Provide reference. There are numerous textbook and reviews that address allergy to fungi.
5	2-3	A sentence that begins “It is also well known...” should have a reference. If it really is well known, then it should be simple to find and include an appropriate reference. Many consultants in this field use commercial labs as their source of information, and many of the labs pull information from non-reviewed web sites. A document from NIOSH hopefully will be considered authoritative and as such statements included should be substantiated (or where data are lacking, say so).
5	12-14	Problems can derive from the design stage also. Design should be included in this sentence. See line 15, p 5.
6	3 and 23	References please.
8	15-21	The presentation of relative humidity (RH) values without corresponding dry bulb temperature is common, but of limited value. This is an opportunity to state that appropriate measures should be taken. Air moisture indications require for example, temperature (dry bulb) and RH or temperature and dew point temperatures. If one assumes that the mechanism inducing health effects from damp buildings relates to microbial growth, then air humidity is irrelevant or only indirectly related. The substrate moisture content or the equilibrium relative humidity (ERH) of the surface determines the water activity level of the environment of the microbes. Inclusion of this report [Welterman, 1998] is an opportunity to emphasize that assessors should be appropriately trained in moisture issues if they are to attempt determining whether or not a building is “damp”. Reporting the RH alone of the air is an incomplete psychrometric description

		and this is an opportunity to draw attention to this.
9	38-42	Several of the factors were or could be design issues. The prevalence of insufficient design detail or inappropriate design should be discussed on a comparable level with issues related to construction and operations.
10	9	Replace contamination with colonization. The word contamination can have various meanings to different audiences. Colonization more specifically describes the process of microbial growth, including on wet/damp building materials. Replace this throughout.
10	31	In this instance “contamination” should be replaced with “products” or “metabolites”.
10	35-36	Replace “and” with “and/or”. Add “operations” and “occupant activities” to the list. The sentence should read: Many building dampness problems occur because of suboptimal design, construction, commissioning, operations and/or occupant activities of new or existing buildings. See the EPA “Tools for Schools” to review the importance of having all stakeholders involved, including owners and occupants.
11	6	Amend to read “...building materials and <u>when and</u> how they are to be...”.
12	6-11	To my knowledge, this is an accurate depiction. However, it could easily be construed from this that a “rain-screen wall” is the only acceptable design. This section should be reviewed by an architect or other design professional with adequate expertise of envelope design to assure that other satisfactory designs are not inadvertently implicated as inherently faulty.
12	23	Another frequent situation where typically designed cooling systems cannot provide adequate dehumidification is during the “shoulder” season between cooling and heating (or between heating and cooling) seasons where outdoor air is already at the design temperature, but humid (i.e. outdoor air is 72F and 90%RH). In this case, there is no demand on the HVAC system for cooling (or heating) and hence there is no chance for dehumidification unless humidity and temperature control are decoupled by design (which is very rare).
12	39-40	This is a very good point. There should be some level of explanation though, so that the reader can understand that vinyl wall covering greatly reduces permeability of the wall assembly.
12	48	Add “and chilled water lines” in front of “adequately insulated” to avoid confusion that only domestic cold water pipes are the concern. Chill water lines serving fan coil units in a building are often a source of condensation problems in humid climates. (the authors’ intent may have been chill water lines (which are pipes with cold water), but “cold water lines” is typically taken to mean domestic cold water lines.
14	4-12	A useful source of information to include here is the ANSI/GEI standard MMS1001 – Moisture management and mold prevention for new construction” (Greenguard Environmental Institute, 2009).
13	39	The situation described in this sentence is better referred to as “bypass” than “leaking”.
14	16	The A in HEPA stands for “arrestance”.
15	5	Replace “might” with “should”. All of the guidelines cited in this document state that building maintenance staff with training are capable of remediation small areas (<10ft ²) of colonized material.
15	22-23	This is often done in bags rather than in sheeting.
15	49	Cleaning of surfaces after removal of colonized materials is a KEY component of an effective mold remediation job. This step (cleaning of surfaces) should be included in this sentence.
16	3-5	This statement indicates an immunologic mechanism for the health effects of damp buildings. Although that is possible, even likely, I am not aware that this has been demonstrated. Such a statement should be supported with citations from peer-reviewed scientific literature.
18	47	Cartter??

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