



State of California—Health and Human Services Agency
Department of Health Services



SANDRA SHEWRY
Director

ARNOLD SCHWARZENEGGER
Governor

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Dorothy Shimer
Research Division
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Dear Ms. Shimer,

Thank you for the opportunity to present these comments on the June 2004 Draft for Public Review of “Indoor Air Pollution in California.” We applaud the draft report for its excellent organization, content and accessibility. Please consider that our comments, while pointed, are meant in a constructive spirit, and reflect perspectives we have developed as we carry out our occupational health mandates.

HESIS has over 20 years of experience responding to telephone inquiries about occupational health from employees, government agencies, employers, health care providers and labor unions. In 2003, 19% of our inquiries related to IAQ, giving us broad insight into current IAQ problems, practices and perceptions in California workplaces.

HESIS functions as a consultant in occupational medicine, industrial toxicology, and industrial hygiene, providing practical information and referrals. Our mandates from the legislature include identifying and evaluating workplace hazards and recommending regulations for improving occupational health and safety. HESIS is located in DHS Prevention Services, Division of Environmental and Occupational Disease Control, in the Occupational Health Branch.

Workplace Ventilation Regulation: Section 5142, Minimum Building Ventilation, is the most fundamental and relevant regulation addressing IAQ in the workplace because it requires a quantified supply of fresh air for each indoor occupant. The report should note, however, that section 5142 has some acknowledged shortcomings. In 2003 Cal/OSHA convened an Advisory Committee to recommend revisions to make 5142 more effective. For instance, the standard relies on knowing the Building Code air supply specifications at the time the building was permitted, but for older buildings these are often unknown. Buildings without HVAC systems rely on infiltration and/or opened windows. In both these cases, a minimum of 5 cfm per person is permitted by Cal/OSHA; this rate is low compared to most recommended standards.

Permissible Exposure Limits (PELs) for airborne contaminants. The report section on workplace standards should explain that PELs are not useful for IAQ. PELs, while legally applicable to both industrial and non-industrial workplaces, are too high to realistically impact non-industrial IAQ. In our experience, non-industrial workers experiencing IAQ problems are seldom exposed to contaminant levels approaching PELs. This view is shared by DOSH: Cal/OSHA's Indoor Air Quality Policy and Procedure (C-48) states: "Most complaints about the quality of indoor air arise from employees who work in non-industrial environments...Approaches using traditional industrial hygiene techniques usually demonstrate compliance with 8 CCR section 5155 (PELs) despite the persistence of IAQ complaints from the building occupants."

PELs do not provide appropriate guidance for IAQ evaluations because (a) they allow exposures that are higher than non-industrial workers expect to tolerate and (b) no PELs exist for many known IAQ contaminants.

In HESIS' experience, the use of PELs as primary criteria for evaluation of workplace IAQ complaints typically results in the conclusion that "no overexposures have been found." This approach is counter-productive to IAQ problem resolution.

Many vulnerable populations do work, and this should be addressed in the report: The draft report states "PELs... do not protect vulnerable members of the population such as infants, the elderly, or individuals with pre-existing heart or respiratory disease." This sentence is true, but we feel it suggests some confusion about the mandates of air quality agencies versus occupational health agencies.

Although PELs do not attempt to protect vulnerable groups, all public health agencies should do so. Although there are relatively few infants or elderly present in employment settings, there are very large numbers of vulnerable "working-age" individuals. Poor IAQ conditions can disproportionately affect these individuals at work, or can even prevent them from continuing to work (or volunteer).

For instance, trends of increasing asthma prevalence in the general public can be expected to translate into increased numbers of asthmatic workers; for this group, exposure to respiratory irritants and allergens is a critical issue.

Proportional increases in employment are predicted among seniors, as more Americans delay retirement. To some extent, age-related incidence in early- to mid-stage cardiovascular and respiratory disease can be expected to accompany this cohort into the workplace.

Other vulnerable individuals may not have any discernable disease or fit into any age bracket. HESIS has heard numerous IAQ complaints from office workers with no diagnosed disease who report sensitivities to fragrances brought in by co-workers, cleaning chemicals, stale air, construction dusts/VOCs, etc.

In summary, important vulnerable populations are found in workplaces, and we feel some information about their needs should be included in the report.

High priority for provision of fresh air: We agree with the draft regarding the high importance of adequate general ventilation for IAQ, and suggest additional emphasis in the report on maintaining proper fresh air supply in buildings. We suggest that Table ES-3 include “Recirculated Building Air” as a source of pollutants, and given a high priority. (Or, if the Table ES-3 lists original sources of pollutants only, please find a way for the report to prioritize mitigation of recirculated air, since it is such an important secondary source.)

Certain energy technologies supply thermally pre-conditioned fresh air at a low energy cost. These technologies, such as exhaust/supply air heat exchangers and perforated plate solar thermal devices, may have special value to both IAQ and energy conservation in some climate regions.

Page 5, workplace ETS exposure is said to decline to almost zero, but on page 12 it is reported that 7% of workers still experience it. Please clarify.

Page 115, re: Title 8, section 5143, General Requirements of Mechanical Ventilation Systems, has limited applicability to this report. Section 5143 only applies to local exhaust ventilation, not general HVAC; therefore, it is generally only applicable to industrial workplaces in which harmful quantities of airborne contaminants are generated in the normal course of work. However, it is applicable to some chemical-intensive work areas of nominally “non-industrial” workplaces such as hospitals. (As the draft correctly states, general HVAC in the workplace is regulated by section 5142, Minimum Building Ventilation.)

Please correct section 4.2.3 “Guidelines for Europe” which states “They [the Air Quality Guidelines for Europe] address public health, not occupational health, and so are intended to be protective of the entire population.” This sentence reflects an unfortunate misconception of the relationship between occupational health and public health. If guidelines do not protect people while they are working, then they do *not* protect the entire population. The Occupational Health Branch provides public health services focused on the needs of Californians at work. We consider occupational health to be a part of public health, not outside of it.

Page 15, “Air Cleaning Devices” discusses HEPA filters for use in HVAC systems. The sentence implies that HEPA filters are normally used in commercial or public building intakes, but in our experience HEPA filters are rarely used for general ventilation (except for electronics clean rooms, operating theatres, etc.). Also please note, the “A” in HEPA stands for “air, not “arrestor.”

Product substitution/reformulation and Pollution Prevention: We appreciate the importance of controlling pollutant sources in Table ES-3 such as building materials, furnishings, and architectural coatings. We suggest broadening the “Consumer Products” category to explicitly

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include institutional cleaning and maintenance products (not only household products), since these also are important pollutant sources and a source of worker/occupant complaints.

Worker impact assessment. The report should discuss the impact of chemical product changes on workers in the industries that create and maintain buildings. Changes in cleaning products affect janitorial workers; construction/renovation products impact painters and construction workers; changes in the composition of building materials impact manufacturing workers far from the building site. In California government, HESIS has the role of assessing new chemical hazards to workers, including new uses for regulated chemicals, as well as unregulated chemicals. HESIS works collaboratively with other state agencies to ensure that state regulations and other actions do not create unnecessary new health and safety risks to workers statewide. When a class of chemical use is restricted by regulation, substitutes will generally take their place, so it is incumbent upon the regulatory authority to prepare by recommending proven, safe alternatives. Assessing proposed alternative chemicals is often a difficult technical challenge, requiring evaluation of toxicity, practicality/effectiveness for the intended use, and anticipation of unintended consequences in the real world. Occupational health impacts should always be considered when regulations are developed.

Please contact me directly for any clarifications you may need. My direct line is 510-622-4242.

Sincerely,

Elizabeth Katz, MPH, CIH
HESIS Industrial Hygienist

cc:

Julia Quint, Chief, Hazard Evaluation System and Information Service
Barbara Materna, Chief, Occupational Health Branch