# OSHA PROPOSED RULE FOR INDOOR AIR QUALITY

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In 1994, the Occupational Safety and Health Administration (OSHA) published a proposed rule to adopt indoor air quality (IAQ) standards for nonindustrial work environments (Fed Reg 59:15968-16039). The OSHA stated:

> The basis for this proposed action is a preliminary determination that employees working in indoor work environments face a significant risk of material impairment to their health due to poor indoor air quality, and that compliance with the provisions proposed in this notice will substantially reduce that risk.

The risk encompasses environmental tobacco smoke and other contributors to poor IAQ. Our comments focus on the latter.

This rule proposes that all employers develop and implement a plan to address IAQ problems. Controls for specific contaminants and their sources, i.e, microbial contamination, cleaning chemicals, pesticides and other hazardous chemicals used in the workplace would be identified. Employers would be required to establish:

> ...a written record of employee complaints of signs or symptoms that may be related to building-related illness to include at least information on the nature of the illness reported, number of employees affected, date of employee complaint, and remedial action, if any, taken to correct the source of the problem...

Employees must be notified of any such complaints and actions taken to reduce or eliminate their symptoms. OSHA focused on two health effects when evaluating risks: upper respiratory symptoms including stuffy and/or runny nose, dry itchy eyes, nose and throat; and severe headaches.

## Flawed Foundation

The major problem in this proposed rule is the assumption that any nonspecific complaint has a physiological basis directly related to building conditions. When the rule was proposed in 1994, too few studies evaluated links between employee-reported symptoms and causal agents. Based on these limited publications, OSHA dismissed all potential causes other than building conditions.

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Since 1994, there have been hundreds of IAQ investigations ranging from case reports to complex epidemiological studies. These analyses increasingly acknowledge the multifaceted causes for an eclectic group of symptoms. Reviews reveal that employee symptoms may be linked to personal characteristics (e.g., gender, age, history of allergy or asthma), psychological factors (e.g., work satisfaction, family or other non-work stresses), type of work (e.g., clerical, working with video terminals), characteristics of the site (e.g., open-concept office, crowding, noise) and building comfort elements (e.g., ventilation type, humidity, temperature).[2] Therefore, OSHA's basic assumption – all complaints are related to building conditions – is flawed.

The effects identified by OSHA as being associated with poor IAQ are primarily nonspecific:

- irritation effects – sensory irritation to the skin, eyes, nose, throat, and mucous membranes, headache, abnormal taste sensations;
- pulmonary effects – rapid breathing, fatigue, increased infection rate, broncho-constriction, pulmonary edema, asthma and allergies, and flu-like symptoms;
- cardiovascular effects – headache, fatigue, dizziness, aggravation of existing cardiovascular disease and damage to the heart; and
- nervous system effects – headache, blurred vision, fatigue, malaise with nausea.

Yet, the general population experiences these same nonspecific effects on a regular basis without any association to poor IAQ.[3] A survey of healthy persons reveals that fatigue, headache, and upper respiratory symptoms are common. In fact, a typical adult endures a nonspecific symptom every 4 to 6 days. Causes of these symptoms may include hayfever resulting in headaches, dry and irritated eyes, or viral infections resulting in fatigue, headache, malaise, etc. Thus, it is imperative to evaluate the cause of any employee complaint at the outset. Symptoms could be a signal of a medical, psychological, or social problem unrelated to building contaminants. For these causes, the proposed standards will not provide effective resolution.

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[2]See Menzies, D., and Bourbeau, J. 1997. "Building-related illness." *New England Journal of Medicine* 337:1524-1531.

[3]See, Barsky, A.J., and Borus, J.F. 1999. "Functional somatic syndromes." *Ann Intern Med* 130:910-921.

## Recommended Approach

The bottom line of any investigation into worker complaints is to make them feel more comfortable – to remove their symptoms as quickly as possible. Three levels of investigation can be launched. The choice of any one will depend upon the identification of all potential causes.

- Level 1 – At its simplest, an IAQ investigation involves an uncomplicated inspection and minimal corrections, including cleaning of the HVAC system, adjustments to air flow, temperature, or humidity, or cleaning visible evidence of mold.

- Level 2 – A more intensive analysis is required as the quantity and diversity of health complaints suggest a more serious problem. Thus, a team of consultants is needed, including physicians, industrial hygienists, and engineers, to determine potential causal agents.

- Level 3 – Depending upon the severity of the complaints, this same team of consultants would direct a comprehensive sampling and laboratory analysis to efficiently determine source(s) for the problem and find a cost-efficient resolution.

## Conclusion

Eight years have lapsed since publication of OSHA's proposed standard. During those years, a substantial increase in our collective understanding about the multifaceted causes of IAQ complaints has occurred. OSHA's dismissal of any but direct building-related origins of these symptoms cannot be justified, nor scientifically supported by the current wealth of IAQ literature. OSHA acknowledges that two factors must be present to justify promulgation of workplace standards. The first is when "a significant risk of harm is present in the workplace." We question whether headaches, upper respiratory irritation and other nonspecific symptoms pose a true significant risk, particularly as they are prevalent symptoms experienced by the general population. The second is that a new standard is "reasonably necessary to reduce or eliminate that risk." The majority of the proposed requirements are common sense practices followed by conscientious building managers today. Causes of worker complaints are multiple in nature spanning physiological, psychological and social elements. Thus, the OSHA proposal falls substantially short of reducing or eliminating any but comfort-related

problems. We would strongly suggest that this out-dated proposal be revisited in light of our greater awareness about causes of employee complaints.