

# Is Canada's Current Ventilation Standard Acceptable?

WCB AND ASHRAE DON'T THINK SO

*The controversy over indoor air quality continues with the latest news of two "diametrically opposed" ventilation standards proposed by the Workers' Compensation Board and ASHRAE. The following article examines this potentially explosive issue in detail, with a special view to the plight of building owners and operators who could be caught in the middle. — Editor*

**T**he quality of air as perceived by tenants of office and commercial buildings has been a growing concern over the last 20 years. Thousands of buildings have been investigated throughout North America and Western Europe due to indoor air quality (IAQ) complaints; however, few serious IAQ problems have been identified.

In fact, consider the findings of a recent survey which polled 858 persons working in commercial buildings throughout the United States. When asked to assess the quality of air in their buildings, the vast majority of respondents gave their buildings positive rates. Only 9% rated the air where they work as being poor (source: BOMA, 1995).

The concerns that building occupants have expressed, related to indoor air quality problems, have been primarily about comfort conditions—particularly stale and stuffy air, less than ideal temperature conditions and unpleasant odours. While occupants have reported symptoms such as headaches, fatigue, and eye, nose and throat irritation, there is no widespread serious health impairment that has been linked to indoor air quality.

In 1983, The American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)—the organization primarily responsible

for setting ventilation, air conditioning and energy management standards—convened a committee to develop an Indoor Air Quality Standard. The committee brought together representatives from divergent groups for a common cause: to improve indoor air quality and building occupant comfort. The most outspoken of the groups were the Occupational Health Professionals, and Energy Management Engineers—perhaps a sign of what was to follow in seven years.

The immediate result of this effort was ANSI/ASHRAE Standard 62-1989,

areas and restaurants, require slightly more ventilation air due to higher occupant densities, while other spaces, such as copy rooms and smoking lounges, require significantly more ventilation air due to the presence of strong contaminant sources.

Standard 62-1989 has been in place for seven years and all reports indicate that it has been a successful solution to IAQ concerns. Research conducted in Canada, the U.S. and Western Europe has confirmed that the recommended ventilation rates effectively provide acceptable IAQ.

For example, a 1993 study conducted by NIOSH in the U.S. finds a significant relationship between buildings ventilated at rates prescribed by the Standard and reduced IAQ symptoms and related concerns. In another example and in the same year, Canadian researchers demonstrated that increasing ventilation levels above what was recommended did not have an effect on IAQ complaints. Yet, the apparent success of this standard has created a dilemma. The alliance that carefully crafted the ventilation solution of Standard 62-1989 is about to become unraveled.

## CLEAR AND PRESENT CONFLICT

Occupational health regulations administered by Provincial Workers' Compensation Boards across Canada are demanding ever-increasing ventilation rates to provide comfortable conditions. For example, regulations proposed by the Workers' Compensation Board (WCB) of British Columbia would see minimum outdoor air ventilation rates soar to 35 cfm per person from the current ASHRAE requirement of 15 cfm. Clearly this is not a health and safety issue that is being addressed by the WCB.

According to Paul LaBranche, Executive Director of Building Owners & Managers Association B.C., an organi-

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"THE WCB IS  
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UNACCEPTABLE  
REGULATIONS"  
—LABRANCHE

"Ventilation for Acceptable Indoor Air Quality". This ventilation standard, which took effect in 1989, was a carefully crafted response to tenant IAQ concerns. The standard's primary emphasis was and continues to be on the provision of sufficient ventilation to the occupied space, to dilute both occupant-generated contaminants as well as contaminants emitted by other sources, such as building materials and office equipment. The key is sufficient ventilation, not over-ventilation leading to energy management problems.

The standard sets a minimum outside air ventilation rate of 15 cubic feet per minute (cfm) per person to accomplish this objective. The standard also recognizes that some spaces, such as office

■ BY ELIA M. STERLING

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zation that has taken a leadership role in speaking on behalf of the buildings industry, "The WCB is proposing unacceptable regulations in spite of all the evidence that a responsive marketplace is providing good air quality in-line with the ASHRAE ventilation standard". If the WCB regulations proposed in B.C. are adopted, there will likely be a ripple effect across Canada, causing the cost of heating and air conditioning in buildings to increase drastically.

On the other hand, a new ASHRAE ventilation standard (62R) will be published for public review in August, 1996. This revised standard is a result of criticism by the energy engineering community in that the current ventilation rates recommended in *Standard 62-1989* are too high and cause excessive energy use. If adopted, the new ventilation standard would reduce ventilation rates by as much as 50%—or from 15 cfm per person to less than 7 cfm per person. The new standard will apply to all existing buildings as well as to new construction.

The result will be a "catch-22" situation for building owners and operators. With Canada's *National Energy Code* coming into effect this year, the *Building Code* will ensure that ventilation systems

only provide the minimum requirements of 7 cfm per person (ASHRAE 62R). This reduced ventilation rate will not be sufficient to meet the WCB ventilation requirement of 35 cfm per person.

Both the engineering community (ASHRAE) and the occupational health community (WCB) have chosen a sledge hammer approach to amending ventilation requirements. These two groups, both of which administer regulations that the building industry must adhere to, are diametrically opposed—leaving buildings and operators squeezed in the middle.

**OPPORTUNITY TO COMMENT**

Placed in this dilemma by established regulatory and standard-setting groups which cannot appear to come to an agreement, the prudent building owner and operator must ask a basic question: Will increasing or reducing ventilation rates improve indoor air quality for my tenants?

Most buildings in Canada comply with the ventilation rates recommended in the current *ANSI/ASHRAE Ventilation Standard 62-1989*. Studies have shown that reducing the recommended 15 cfm per person ventilation rates often resulted in increased IAQ concerns

among tenants, while increasing the ventilation rate to more than 20 cfm per person provides no benefit. It appears that the most effective approach for prudent building owners and operators is to comply with the time-tested ventilation standard 62-1989, "*Ventilation for Acceptable Indoor Air Quality*".

Public review comment periods for both the British Columbia WCB Proposed Indoor Air Quality Regulations and the proposed new ASHRAE ventilation standard 62R will be announced shortly. This commentary period is a valuable opportunity for the building industry to voice its concerns and endorse a continued application of the *ANSI/ASHRAE Standard 62-1989*. ▀

*Elia M. Sterling, MRAIC, MASHRAE, is President of Theodor D. Sterling and Associates Ltd. With over 20 years of service to the building industry in B.C., he has conducted indoor air quality assessments encompassing over 40 million square feet of space. He was also a member of the ASHRAE committee that wrote the current ventilation standard and has published over 100 research and technical articles on the subject of indoor air quality.*

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