



Indoor Air Review

Volume 6 Fall 2001

CANADA'S NATIONAL STRATEGY FOR SUSTAINABLE/GREEN BUILDINGS



gent levels of sustainability. The sustainable Building Canada Committee has a clear mandate to develop programs that can be implemented as policies and regulations by those jurisdictions having authority.

There is a parallel effort underway in British Columbia called the BC Green Buildings Ad-HOC Committee. This group recently commissioned a report recommending the adoption of a comprehensive Building Environment



By ELIA M. STERLING
THEODOR D. STERLING
AND ASSOCIATES LTD.

Assessment Method for British Columbia. This assessment method is intended for adoption by the key stakeholders of the BC Green Buildings Ad-HOC Committee including the City of Vancouver, the Greater Vancouver Regional District, The Provincial Government through the Green Building BC program and the British Columbia Buildings Corporation.

Healthy Indoors – A Partnership Approach to Achieving Healthier Indoor Environments in Canada.



In January 1999, Pollution Probe initiated a research project to examine the increased use of voluntary / non-regulatory initiatives for achieving healthy indoor environments* in Canada. The resulting report, *Achieving Healthy Indoor Environments: A Review of Canadian Options*, detailed the complex multi-sectoral and multi-jurisdictional nature of the indoor environment issue, legal aspects, best practices in the field, and the market for related products and services in Canada. The report recommended a series of options for creating healthier indoor environments in Canada. Among these was the development and implementation of a strategy that would use new communication technology to promote learning and knowledge transfer and dissemination, increase citizen engagement, and build alliances for developing a comprehensive multi-stakeholder strategy for addressing indoor environment issues in Canada. The resulting strategy development and alliance building process was called Healthy Indoors.

during the fall (2000) and spring (2001) to develop a vision of what is possible in the field of healthy indoor environments — along with the collaborative strategy and multi-stakeholder commitment for achieving that strategy. Simultaneously, to increase outreach, it facilitated an on-line consultation forum (www.healthyindoors.com) that enabled interested stakeholders and other citizens across Canada to participate in the discussion, access information and post comments. A total of 160 participants, from a range of related sectors and organizations / levels of government, attended one of the three daylong face-to-face forums. Users of the interactive online forum viewed over 8,000 web pages of information and downloaded the discussion documents about 1,000 times. As the process evolved, Healthy Indoors engaged and helped strengthen partnerships among 42 voluntary organizations, industries, public sector partners, and hundreds of citizens committed to improving indoor environments in Canada.

Healthy Indoors brought people and ideas together in Halifax, Toronto and Vancouver

To keep the momentum moving forward
Continued on page 2

Federal Minister of Environment David Anderson recently confirmed Canada's commitment to meeting the targets of a 22% reduction in greenhouse gas emissions from 1999 levels by 2010 set in the Kyoto Protocol established in the Kyoto Agreement on Global Warning.

Buildings have been identified as a significant part of the problem of global warming, in fact they have been identified as the second largest source of greenhouse gas emissions in Canada, accounting for approximately one quarter of all sources, second only to motor vehicles.

Energy use for electricity and space conditioning are identified as the primary sources of building related greenhouse gases. Any new policies or regulations which will have an effect on building energy use will also affect IAQ within these buildings.

To date the priority for regulatory action has been primarily targeted at reducing boiler emissions from commercial buildings. The next phase of regulatory action will focus on overall building environmental performance with respect to sustainability issues, particularly energy management for new and existing buildings

Within the next 24 months The Royal Architectural Institute of Canada will oversee a public sector /industry partnership which will develop a platform framework for the education, design, construction, regulation and evaluation of built "green" environments in Canada, leading to progressively more strin-



The Association is the single source for a complete range of Indoor Air Quality Services. They are designed to achieve a balance between cost effective IAQ solutions, and the well being of occupants within all buildings in British Columbia.

The Association provides proactive IAQ Services, including education, information gathering, documentation and dissemination covering legislation, regulation, and industry standards.

For Further Information Call: 1-877-830-6000 or (604) 408-0898

IAQ in Your Home Away from Home

Improving Air Quality in Hotel Rooms

On a recent trip to California, I stayed in a typical mid range hotel. As usual, my allergies played up during the night due to the high dust levels in the room. At home and at work I have updated air filters and portable air cleaners to improve the air. But when I travel, I have no direct control over the air quality in a hotel room, and it is almost always poor. So much attention has been put recently on IAQ for the home or office, that the "home away from home", namely thousands of hotel rooms, have been overlooked for years. Thankfully, that is beginning to change.

The hotel itself was about 30 years old and had been renovated 5 years ago. It had a central HVAC system for the common areas, and an individual air conditioner/heating unit in each room. The unit had no filtration on it so all it served to do was circulate the dust stirred up by the vacuuming and changing the bed linen.

The typical hotel goer is beginning to ask about air issues. It started of course with non-smoking rooms, but many hotel managers see that expanding to include dust reduction, odour control etc.

IAQ in a hotel can be improved during a new construction in the same way as a new office building. But for existing hotels, the problem is much more difficult. Retrofitting existing rooms, upgrading filters, changing procedures, all cost more after new construction. In addition any changes must be properly planned to avoid inconvenience to staff and guests. Budget cutbacks complicate things further.

Fairmont Hotels in Vancouver have recently set aside an entire floor for hypo allergic guests.

Through a combination of improved air filters, central vacuums, and selected bedding, guests can have a more pleasant experience. General Manager Francis Parkinson says that this was a direct result of guest demand. With a custom designed multilevel filter approach using bag, pleated and regular filters in the HVAC, Fairmont is achieving much higher dust/particle control than can be done with traditional HVAC filtering. That, combined with a central vacuum system and special bedding, keeps dust particulate to a minimum.

Another solution, being looked at by the Travelodge Hotel in Richmond, BC, is individual HEPA air cleaners in each room on the executive floor. "Smoke that drifts in from the smoking floor is an issue, plus temperature differences with the outside air causing difficulties. A personal Air cleaner would be a competitive advantage now and will likely be standard fare, much as Coffee makers in rooms started out as a luxury service, and then became a standard item" Assistant General Manager Sue Belzer says.

Like many new services in the hospitality industry, improved Indoor Air Quality will be offered to the luxury or frequent guest first. In time however, it's likely that the average guest will demand air quality as good as or better than they have at home. Perhaps there may even be a rating system for air quality, much like the star rating system of hotels, to help us breathe easier at night in our home away from home.

Malcolm Gray is President of Sycorp Environmental Inc, a Vancouver based company specializing in IAQ solutions, Contamination Control and Cleanroom services



- Portable Air Scrubbers
- IAQ Monitors
- Contamination Control
- Controlled Environment Solutions

From small offices to construction sites to high tech Cleanrooms, Sycorp Environmental Inc. can assist with your IAQ and contamination control needs.

"Your Indoor Air Quality Solution Provider"
(866) 679-2677 www.sycorp.ca

Continued from page 1

Pollution Probe formed the Healthy Indoors Partnership to bring together the private sector, various levels of government and NGOs, to prioritize and lead the implementation of a national and truly multi-stakeholder strategy. Pollution Probe is taking the initial lead in getting the partnership established by facilitating on-going dialogue among partners, coordinating the implementation of the 18 action items developed from the cross-Canada consultation, and monitoring/reporting progress publicly. Over time, the Healthy Indoors Partnership will mature into an increasingly self-sufficient and independent organization. For more information about the Healthy Indoors Partnership contact Ian Morton at 416-922-9038 ext. 26.

*Defined as non-industrial (e.g., residential, commercial, institutional -including recreational) indoor settings

By Ian Morton M.Sc.
Manager-Indoor Environment Program
Pollution Probe

Clear the Air

Good Indoor Air Quality is Good Business

As a result of tough new standards and regulations, indoor air quality has become a serious challenge for property managers across Canada.

You can meet the challenge by implementing our proactive indoor air quality management program.

Now Provided Nationally



The Indoor Air Quality Experts Setting the Standard Since 1973

Tel 604-681-2701
Toll Free 1-877-993-9933
elia@sterlingiaq.com



310-1122 Mainland St.
Vancouver, B.C. V6B 5L1

Demand Control Ventilation

We have all heard the phrase "The only thing in the universe that is constant - is change". For decades mechanical systems in buildings functioned pretty much the same - primarily employing a technique called constant air volume then, in recent years, variable air volume. Of late, however, there is a new approach taking hold. It is called Occupancy Control or Demand Control Ventilation (DCV). The key to this philosophy is Carbon Dioxide (CO2).

Infra Red CO2 sensing is employed to determine the number of occupants in a given space. If there is one person in the space, the outdoor air dampers can be closed to limit the amount of outside air being introduced. As the number of occupants increases so does the CO2 level and the system is asked for more air. The appeal for this concept comes primarily from the energy savings a building owner can realize while improving the quality of the indoor environment.


The high cost of energy across the country motivates building owners and managers to embrace new strategies and DCV seems to be the right tool. Traditional HVAC systems typically operate to a fixed maximum occupancy level; a level that is only reached periodically. The systems often provide two to three times more air than the designed ventilation rate of the building. All that air must be moved and heated or cooled. That takes energy. In addition to over-inflated utility costs, operators have observed coils freezing in colder climates or very high levels of humidity in warmer

regions. DCV, on the other hand, provides the right amount of ventilation to the right place at the right time.


One of the biggest concerns over DCV was whether or not it satisfies the requirements of ASHRAE Standard 62.1-1999. In 1997 an interpretation, IC62-1999-27, clarified that CO2 is not a pollutant or a contaminant, but is really an indicator of ventilation rate and occupancy. It clarifies that CO2 DCV can be used under the ventilation rate procedure as part of the provisions for variable and intermittent occupancy. It is possible to reduce ventilation levels below design, as long as the target cfm per person provided for in the Standard is maintained (15cfm/person). The interpretation also makes it clear that CO2 control is for control of occupant related ventilation and that a base ventilation rate to control other non-occupant related sources is necessary.

ASHRAE Standard 62.1-1999 states that there shall be no greater than 700ppm differential between indoor and outdoor levels of CO2. DCV continually measures outdoor and indoor CO2 concentration levels. By calculating the occupancy level of the space and the differential between outside and inside levels, the ventilation rate per person can be determined and compared to the Standard's requirements. As an alternative to actual measurement, the Standard allows for an established outdoor air CO2 value of 400ppm to be used.

The debate continues over what the DCV base
Continued on page 4



""""YESTEK""""



Indoor Air Quality MONITOR SALE

YES 205 and YES 206LH
PMExpo Show Price Only
10% off
Save up to \$477.50
Plus \$300 Trade-In on any
YES 203 or YES 204

Talk to us about Demand Control Ventilation
Booth 1643

Founding Member

**Indoor Air Quality Association of
Canada**
Young Environmental Systems Inc.
#140-8771 Douglas St. Richmond, British
Columbia

www.yestek.com ***NEW***
604-276-9923 / 800-663-5481

IAQ Questions?



We have been providing superior indoor air quality duct cleaning services to Property Managers for over 20 years. Our ongoing research and development of cleaning technology reflects our commitment of quality to all of our clients.

Our Indoor Air Quality Team provides our clients with the confidence of any project completed on budget and on time.

Our Services Include:



HVAC and air make-up system inspection and cleaning will address the duct systems integrity, and air quality within the building.

Complete in-suite cleaning of all heating and cooling units and ductwork as well as laundry and exhaust vent cleaning.

ONTARIO 1-800-ONT-DUCT
BC 604-730-9300
WWW.natech.ca

Proudly affiliated with:



Continued from page 3

line rate of ventilation should be for a building. Unfortunately, Standard 62.1-1999 and most building codes do not provide any data on what this minimum rate should be. ASHRAE tried to include a rate in 62R at one time but the standard was applied to continuous maintenance. 100 occupants would require 1500 cfm of ventilation (15cfm/person). If some or all occupants leave the building a facility manager is mandated to ventilate, to be 90.1 compliant, but there is no standard to tell him at what rate. The answer may be to switch from tables that offer only cfm per person to a table that gives both cfm per person and cfm per sq ft in general ventilation required.

While the ASHRAE interpretation is clear that CO2 control is for occupancy control only, and that a base ventilation rate of 20 – 30% of the design ventilation rate works well, it is important to note that the base rate is not a fixed parameter of design, it is an operational parameter that can easily be adjusted by the user if there are complaints.

Both the proponents of traditional HVAC and CO2 DCV agree on one thing - some form of diagnostic monitoring is required to ensure that the system (any system) is functioning as intended. Until recently, with advancements in modern electronics, traditional systems, particularly the vav systems have been erratic and difficult to monitor. With DCV, it is imperative that some form of independent CO2 monitoring occurs. Data logging and documenting ventilation performance in all areas of a building is necessary to ensure proper ventilation is taking place throughout the building and not only in DCV locations.

CO2 measurement in a space provides us with a unique measure of ventilation never available before. Previously we could only tell how much outside air was being introduced at the air intake. With Zone level measurements of CO2 we can actually determine how much fresh air is being distributed to each area of the building and ensure that target per person ventilation rates are achieved.

Despite the caution with which some approach CO2-based DCV it is likely the concept will become more popular. We only need to look at energy consumption crisis occurring in North America to see that there will be accelerated interest in this technology. While we genuinely care about our health and the health of those around us, it is often the almighty dollar that moves us to action. In the past three years the technology has matured and the old concerns of repeatability, accuracy, and drift are being put to rest. The infrared CO2 sensor has become cost effective and reliable and the simplicity of the theory brings us closer to acceptance every day.

Contact: Don R Irwin
800-663-5481 604-276-9923
doni@yestek.com
www.yestek.com

Providing Indoor Air Quality Solutions



An Invitation for Membership

Established in 1998, the Indoor Air Quality Association of Canada (IAQA) is committed to protecting the well-being of building occupants throughout Canada. We accomplish that mandate by providing you with IAQ services, education and information as well as influencing legislative reform and industry standards.

If you are a property manager, building owner, a facility manager or an IAQ service provider, your IAQA membership will keep you in touch with the industry and will link you with others across Canada who are concerned about indoor air quality.

You'll Benefit from your IAQA membership by:

- Staying informed on national and provincial IAQ issues
- Networking with others committed to superior indoor air quality
- Receiving discounts for IAQ seminars and workshops
- Strengthening the industry's voice in BOMA, ASHRAE and WSIB
- And more!

Annual Membership Fees:

- Associate - Corporate: \$450
- Associate - Organization: \$250
- Non-voting - Individual: \$150

IAQA Memberships are Ideal for:

- Property Managers
- IAQ Service Providers
- Public Service Sector
- Building Owners
- Facility Managers
- Home Inspectors

For a membership application or for more information, contact us today!

IAQA BC CHAPTER

310-1122 Mainland Street, Vancouver, BC V6B 5L1
Tel: 1-877-830-6000 • Fax: 604.681.2702

IAQA ONTARIO CHAPTER

5635 Finch Ave. E. #5, Scarborough, ON M1B 5K9
Tel: 1-877-318-0988 • Fax: 416.292.7600

