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Sick Building Syndrome

ALMOST 75 PERCENT OF SURVEYED WORKERS SAY IAQ IS A PROBLEM IN FEDERAL BUILDINGS

To hear government union officials tell it, the nation's capital is dotted with government buildings that are dens of indoor pollution and are hazards to occupants.

A survey questionnaire was distributed to 18,000 government office workers in the Washington, D.C., area. The first 1,000 responses revealed that almost three-quarters of the workers consider poor indoor air quality (IAQ) a problem. According to those responses, 45 percent of respondents say poor IAQ is "definitely a problem" and 29 percent say poor IAQ is "probably a problem."

The survey results were announced March 2 at a press conference by the Safe Workplace Air Coalition (SWAC).

SWAC is made up of District 14 of the American Federation of Government Employees and the National Energy Management Institute (NEMI), a group funded by the Sheet Metal Workers International Union and the Sheet Metal and Air Conditioning Contractors National Association.

"Workers are aware that they are being put at risk from indoor air pollution," said AFGE Vice President David Schlein. Schlein said the survey "found that large numbers of people were being affected and many were not even reporting it. They did not realize" their problems were the "result of indoor air pollution." He predicted that as workers "become more aware, they will report, they will file workmen's compensation, Congress will respond, unions will negotiate on these problems."

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Lead

DECADES OF CONTAMINATION DESCRIBED; TRAIN UNEMPLOYED TO 'DE-LEAD' HOUSES?

RESEARCH TRIANGLE PARK, N.C. - The United States is "emerging from an episode of poorly recognized, widespread lead contamination" that lasted several decades, during which most urban Americans were apparently dosed with enough lead to produce biochemical and behavioral impairments, a Boston lead researcher said at a lead research conference in January.

"Despite many decades of de-leading and rehabilitation, there are still six million American children living in homes with lead paint," Michael Rabinowitz, of Harvard's Children's Hospital, said Jan. 10. He said nearly four million U.S. children are exposed to excessive lead in drinking water through old plumbing systems.

The conference was sponsored by the National Institute of Environmental Health Sciences and the National Institute of Child Health and Human Development.

Rabinowitz is on a team doing a longitudinal study on effects of lead exposure on children in Boston that is gathering data on the mental and physical effects of lead exposure on its subjects, who are now 19 years old. A longitudinal study is a long-term study that tracks a group of subjects over several years, sometimes from birth.

Two other longitudinal studies, one in Cincinnati and one in Port Pirie, Australia, have detected neurological impairment in infants and children exposed to lead at threshold levels much lower than previously thought, the 150 conferees were told.

"The full magnitude of past lead exposure is becoming clearer" as blood-lead levels in the United States begin to move toward natural or background levels, Rabinowitz said.

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Survey, from p. 1

The survey found that 94 percent of the respondents reported having suffered from physical symptoms that are associated with poor IAQ, including headaches, fatigue, sneezing, coughing, and sinus congestion. Of the 938 respondents who reported the symptoms, 83 percent said they believe poor IAQ either caused or exacerbated the symptoms, the survey said.

Of respondents reporting symptoms, 70 percent said their symptoms disappear when they leave their office building.

According to the survey, 468 of the 1,000 responding employees report they missed work because of IAQ-related symptoms. Also, 556 said poor IAQ has reduced their productivity.

How Good a Survey?

Surveying was done of both AFGE members and non-members by "desk drop" and "leafleting" at 47 buildings in the Washington area that house either federal or District of Columbia government workers, Schlein said.

Reporters at the press conference challenged Schlein on the association of seemingly common health symptoms with poor IAQ. Reporters also challenged the statistical validity of the survey, pointing out that results are based on 1,000 responses out of 18,000 people surveyed. Respondents would be the ones more likely to complain, they said, so apparently 17,000 workers are not affected enough to want to respond.

But Schlein said symptoms can be "shown to be caused by sick building syndrome [because] when the people leave the environment, they [the symptoms] tend to dissipate."

Schlein said AFGE does not claim the survey is a "tight study," but he rejected the contention that the results are statistically invalid.

He said that although the announced results are based on the first 1,000 responses received, another 1,000 have been received and more are expected. Schlein said that in his experience as a union leader surveys "get a small response no matter what the issue. In fact, the response here is greater than with many issues that people do care about - flex-time, their own pay, leave-sharing, or whatever."

Jamie Yereb, an official of the firm that designed and conducted the survey, Consolidated Safety Services, Vienna, Va., told reporters the survey of "federal and D.C. employees is a preliminary study. It is not meant to be a scientific, hair-splitting type of study." Yereb said the "results are staying the same" as new responses are tallied.

Responses come back with "a lot of extra comments," Schlein said, recounting stories of mushrooms growing out of mold on baseboards and of previously healthy people suffering repeated sicknesses after moving to a new building.

Frank Powell, director of engineering for NEMI and co-chairman of SWAC, said SWAC attributes most IAQ problems to poorly designed, operated, and maintained heating,

ventilation, and air conditioning (HVAC) systems. Poorly designed fans, poor filtration, dirt built up on coils and in ducts, and poor fresh air distribution are typical, he said.

"It is common to find things growing in the ventilation system, fungus in the work site, [and] biological contaminants in collected water" in HVAC systems, Powell said. He said poorly ventilated buildings can trap chemicals like formaldehyde, a binder and preservative used in carpets, glues, and textiles.

Schlein added another alleged cause of IAQ problems: improper use of space. The General Services Administration, the federal government's landlord agency, "starts piling worker upon worker. Five or 10 are planned for a space, and 50 or 100 workers" are crowded in, Schlein said.

IAQ problems are "very serious. Workers are getting sick from over 500 chemicals found in the workplace; and unfortunately [problems] are not getting any better."

A recent Environmental Protection Agency study of 10 buildings showed that their indoor air contained levels of volatile organic compounds up to 100 times as high as levels found outdoors (IPN, Nov. 17, 1988, p. 1).

Schlein said "harmful chemicals are being trapped and people are getting sick" mainly in newer buildings that are built "very tight," inadequately ventilated in order to save energy costs, poorly maintained, and overcrowded. Problems are not confined to Washington, he said, citing cases at federal buildings in Philadelphia and Boston.

Over the past year, a string of sick building syndrome (SBS) episodes have been reported in federal government buildings in Washington, leading to picketing and other forms of protest (IPN, Oct. 6, 1988, p. 3). (See story, p. 5.)

SBS problems are not confined to government buildings, Schlein said, but they may be highlighted there because:

- Many government office workers are organized; and
- Government managers grappling with budget cuts feel pushed to save costs on HVAC system maintenance and operation - less cleaning is getting done and less fresh air is let in that has to be heated or cooled by expensive energy.

Schlein said "absolutely no standards have been put forward by GSA, the Department of Labor, or anybody on indoor air quality, and that needs to be done." He added that it is "ironic that many agencies responsible for regulating safe and healthy environments for workplaces across the country are not meeting responsibilities for their own."

Schlein accused GSA, Congress, the District of Columbia, and the Donohoe Cos., a Washington development company, of being unresponsive to IAQ concerns. "When made aware [of IAQ problems] they have been unwilling to act," he said. He said GSA has been "incredibly unresponsive" to documented IAQ problems and Donohoe has been "totally uncooperative in getting the problems solved."

(For GSA's viewpoint, see story on page 5. Donohoe officials did not return phone calls from IPN.)

Powell said an American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) study of buildings in 10 different climate zones showed that providing 20 cubic feet per minute (cfm) per person of fresh air - a new ASHRAE standard - cost building operators less than 5 percent in increased energy costs. □

*Perspective***AN OPPOSING POINT OF VIEW: GSA RESPONDS**

To hear Guy Boston's response to accusations of sick building indifference brought by the American Federation of Government Employees is to hear the travails of a federal government manager working within the system.

Boston is director of safety and environment management for the National Capital Region of the General Services Administration. GSA is the bureaucracy's bureaucracy – the agency that administers offices for other agencies.

GSA "does have and has had an [indoor] air quality [IAQ] policy," Boston told IPN March 2. Several years ago panic-stricken employees evacuated a federal building in the Washington, D.C., suburb of Hyattsville, Md., for several days due to sick building syndrome (SBS) caused by heating, ventilating, and air conditioning (HVAC) system problems and furniture off-gassing, he said.

That SBS episode led to an IAQ policy and a GSA advisory committee on IAQ that includes the Environmental Protection Agency, the Occupational Safety and Health Administration, and the National Institute of Occupational Safety and Health, Boston said. He said the IAQ policy is incorporated into GSA's health and safety evaluations of all buildings, which include evaluations for fire safety, industrial hygiene, and OSHA requirements.

"Complete, top-to-bottom" evaluations of buildings are done on four-year cycles, Boston said. IAQ monitoring includes examinations for fresh air, carbon dioxide, aero-allergens, mold and fungus, and algae, spores, growths, or dirt in HVAC systems and cooling towers – "the whole nine yards, an IAQ study."

GSA has a "mechanism to handle complaints that come up if an employee has [an SBS] problem," Boston said.

He said employees should "call [officials at their] agency and go through the chain of command." The affected agency "comes back to GSA," Boston said.

If GSA feels problems are "substantiated," Boston said, it does an IAQ "workup." He said a conference of all interested parties is called at which "pathogenic information" is shared and follow-up testing and measures are outlined.

Follow-up usually centers on "clean, clean, and clean," Boston said, as well as on balancing HVAC air systems.

Boston said "all surfaces" should be clean, joking that "you know how bureaucrats are" about cluttering desks with

papers. He said a certain bacteria likes to grow on papers.

HVAC systems can become unbalanced, he said, if, for example, during winter an employee who prefers a warmer environment either widens a diffuser or raises a thermostat. If a thermostat is raised, the HVAC system will send in more fresh, heated air to that employee's area, but that could result in less fresh air for employees in other areas.

GSA "treats each building individually," Boston said. He said sometimes a simple cure suffices, such as popping open with a screwdriver a "damper that has always been closed" or moving fresh air intakes away from loading docks where they can suck in carbon monoxide fumes.

But when a simple cure does not suffice, Boston said, an SBS solution "builds up to a time-consuming process":

- Samples of potentially pathogenic biological contamination – legionella or other microbes – that are sent to laboratories take up to four weeks to be cultured and have results returned. "You've got a panicked building and you've got a four-week wait; and that's the longest four weeks you'll ever wait," Boston said. The wait "seems longer than it is," he said, because on health "nobody likes uncertainty."

- Modifications or replacements of equipment – such as a large HVAC fan – take a long time due to procurement regulations. "Changing or modifying a contract – you ever try to do that in government?" Boston asked. Redesign of a major HVAC part just cannot be ordered off the shelf, he observed.

- Mitigation strategies must suit all seasons.

- Solutions that are successful for most people may not solve IAQ problems for "a small percentage of people that are hypersensitive to everything." For example, Boston said, a biocide that successfully disposes of an allergen might itself cause allergic problems to certain hypersensitive people.

"One thing we've learned in IAQ," Boston said, "is that the vast majority of symptoms are not imaginary. Anyone with half a brain would not pooh-pooh the symptoms these people are experiencing." □

... AND THE ODOR OF ASBESTOS?

Boston cautions against thinking SBS symptoms are imaginary (see story above), but he recalls a Hyattsville, Md., SBS episode in which panicked employees distinctly – and impossibly – smelled the odor of asbestos. □

Sick Building Syndrome**IRS EMPLOYEES TAKE TO STREET TO DEMONSTRATE THEIR SBS IRE**

Internal Revenue Service workers took to the sidewalk in front of the Ariel Rios Federal Building in Washington, D.C., Feb. 14 to "dramatize" sick building concerns. Terry Smith, vice president of Chapter 65 of the National Treasury Employees Union, told IPN March 6.

The incident was at least the sixth in a series of sick building problems plaguing the federal government in the Wash-

ington area (IPN, Oct. 3, 1988, p. 3).

Smith said the building "has air problems" and "water problems." Nevertheless, she said, IRS contends, "Our hands are tied. We have no control." She said IRS refers problems to the General Services Administration.

"We understand bureaucracy – no one person may have responsibility," Smith said. But she said workers want a "positive response."

Smith said the building's eighth floor particularly disturbs employees, who see maintenance workers in hip boots, raincoats, and face masks entering and leaving a mechanical room

with orange doors labeled "PCBs."

Eighth-floor employees wonder if, when the orange doors open, they are exposed to polychlorinated biphenyls (PCBs) or asbestos from deteriorating wrappings around pipes. "What if there's a leak?" is a question asked about the PCBs, Smith said. She said only the Navy is designated to remove hazardous chemicals from the building, and building managers, when asked, had no alternative phone numbers to call in an emergency.

Employees on the eighth floor suffer from nosebleed, sore throat, and burning eyes, and they have to shake soot off the papers on their desks in the morning, Smith said. They asked for cheesecloth to put over ventilation grilles to keep the soot out, but this request was refused, she said.

Smith said employees for another federal agency suffered similar problems and used many hours of sick leave – which were later restored to them – but the IRS is "obstinate" and is even moving more workers into the Ariel Rios building.

When contacted by IPN for comment, IRS officials said that the agency is only a tenant in the building and that questions should be referred to GSA. (See story above for GSA's view of SBS issues.)

'Potential Death Trap'

The lead story in the February NTEU newsletter was devoted to Ariel Rios and dubbed the building "a potential death trap" because of fire safety as well as sick building hazards.

"For more than six years [the union] has persistently warned management of the building's many dangers – not only fire hazards and lack of evacuation plans but also lead-poisoned drinking water, PCBs, asbestos, temperature extremes, dirty air, poor ventilation, leaky ceilings, broken elevators, falling plaster, and even flooding," the newsletter said.

"Management usually responds either with delaying tactics (it 'will look into' each problem) or by passing the buck ('only GSA can fix the building')," the newsletter said.

The newsletter reported that in November 1987 a top IRS official "pleaded for improvements in what he called 'appalling conditions'" and in "May 1988, the GSA announced a 10-year, \$1 billion overhaul of Washington-area government buildings, including \$50 million" for Ariel Rios.

In a statement partially attributed to NTEU President Robert Tobias, the newsletter said, "The renovation is still on hold, however, while budget-conscious Washington officials 'annually weigh the value of federal employees' lives, and annually decide that we aren't worth too much.' . . . The escalating number of hazardous and 'sick' federal buildings across the nation [is] 'the ultimate assault on the value and dignity of federal employees, surpassing even the indignities of declining pay and shrinking benefits.' 'After all,' said Tobias, 'what good is a pay increase to employees killed on the job, or to those whose lives are shortened five or ten years because of conditions on their worksites?'"

Tobias was quoted as saying, "If President Bush wants a quick introduction to one of the harsher realities of federal work life, I invite him to travel a short five blocks from the White House to the Ariel Rios building for a five-minute guided tour." □

IAQ

MITCHELL READY TO REINTRODUCE COMPREHENSIVE BILL, AIDE SAYS

New Senate majority leader George Mitchell (D-Maine), who last term sponsored the comprehensive Mitchell bill on indoor air quality (IAQ), will reintroduce the bill this spring.

Mitchell and Sens. John Chafee (R-RI), Frank Lautenberg (D-NJ), and David Durenberger (R-Minn) sent a "Dear Colleague" letter Feb. 10 to members of the Senate seeking support for the bill, according to Jeffrey Peterson, a staffer on the Senate Environment and Public Works Committee.

Peterson spoke Feb. 23 at a seminar at the Environmental Law Institute, a Washington, D.C., think tank.

Chafee is ranking minority member on the committee. Lautenberg chairs the Senate Subcommittee on Superfund, Oceans and Water Protection, which has jurisdiction over IAQ. Durenberger is ranking subcommittee minority member.

A member of the staff of Rep. Joseph Kennedy (D-Mass) told IPN Feb. 27 that Kennedy's companion IAQ bill will be reintroduced in the House, but "not for several weeks."

At the ELI seminar, Peterson reprised the "themes" of the Mitchell bill: money for research by the Environmental Protection Agency, public health advisories on effects of indoor air contaminants, a non-regulatory national plan to help achieve compliance with health recommendations, use of state grants, creation of an Office of Indoor Air Quality in EPA, and more sick building evaluations by the National Institute of Occupational Safety and Health (IPN, Jan. 26, p. 1).

Peterson emphasized that the Mitchell bill takes a non-regulatory approach, but he said a regulatory approach to IAQ health recommendations is a possibility if over time a non-regulatory program is judged to fall short.

Mitchell is "open to continuing comments and suggestions on improvements" to the IAQ bill, Peterson said. He said that he "expects a hearing process" and that the bill will "evolve and expand in some ways not entirely clear yet."

Elizabeth Agle from EPA's IAQ staff, told the seminar:

- IAQ issues will require "strategies" that are "different" from those used to address outdoor air pollution;
- IAQ efforts are decentralized within EPA, across federal agencies, and under several statutes that address air quality, toxic substances, pesticides, radon, and asbestos;
- Existing IAQ legislation – Title IV of the Superfund Amendments and Reauthorization Act of 1986 – authorizes research and recommendations but not regulation.

Agle said EPA is wrestling with policy questions such as whether to "develop criteria for healthy indoor air." "If so," she asked, "to what degree do we protect [hyper]sensitive populations?" In addition, she said EPA was examining whether to consider a "ventilation regulation."

The ventilation standard of the American Society of Heating, Refrigerating and Air Conditioning Engineers is voluntary and applies only to designs, not operations, Agle noted.

EPA has "no more deadlines" after its IAQ recommendations are submitted in a report to Congress, Agle said. She said the report is done and awaits White House approval. □

IAQ**BUSINESS GROUP ON IAQ FORMED;
DIALOGUE WITH AGENCIES SOUGHT**

About 200 companies are expected to join forces in a Business Council on Indoor Air (BCIA), according to consultant Paul Cammer, who says he will be president of the new trade group.

Cammer refused to name firms that have signed on to BCIA, which he said is in the "germinative stages," but he assured IPN in a Feb. 21 interview, "I'm confident you know the companies. You know at least half the companies."

Environmental engineering firms and makers of consumer products, chemicals, ventilation equipment, and building materials are being approached, Cammer said, as well as trade associations of industries concerned with IAQ issues.

Most BCIA members will have "small vested interests" in IAQ, he said. Such firms are "besieged by other issues and problems," Cammer said. They might devote "one-half percent" of their attention to IAQ, he said. "They don't devote a lot of resources to [IAQ], but want to monitor, keep tabs on, have some influence on [IAQ issues] in Washington."

Cammer said he has told EPA officials that BCIA will "act as a funnel. Get bulletins to us; we'll get them out. You want comments; we'll get them back."

Preliminary meetings show that viewpoints within BCIA will "vary [like] night and day," Cammer said. "There are a lot of different perspectives out there in industry. Company X disagrees with company Y. You have chemical companies and environmental engineers arguing."

But he said members agree on one thing: They "do not pretend [IAQ] is not an issue." They "can't say we're going to ignore indoor air." If they did, "we wouldn't let them in."

Cammer said that in 1989 EPA's report on IAQ policy recommendations will be submitted to Congress - "an event that will get a lot of things started." In addition, he said, this year IAQ legislation will be reintroduced and data will come in from "current research conducted by [the Consumer Product Safety Commission] and EPA."

Cammer, reflecting on BCIA priorities, said, "EPA happily is not in a regulatory mode," but he is "concerned about over-reaction either by the federal government or states." He said some states, "primarily California, think EPA is not doing enough [about IAQ] and want to jump into the fray."

BCIA wants to "make sure any legislation is reliable. Let the punishment fit the crime," Cammer said. BCIA "certainly doesn't want to fool the public" about the seriousness of IAQ problems, Cammer said, but he is "not fond of EPA's effort to date to communicate risk to the public."

As a former EPA toxicologist, Cammer said, "I don't have a lot of faith" in cancer unit risk numbers. "If you even think animal data is relevant to humans, and that's an assumption, [risk assessments] are still overestimated and often grossly overestimated." EPA lawyers should use numbers "more akin to a best estimate," not "upper boundaries" or worst-case scenarios of cancer risk, he said.

In a Feb. 6 memorandum to BCIA members, Cammer said:

"EPA's report to Congress was sent to [the Office of Management and Budget] a week or so ago. As you know we have been discussing with EPA staff some of the problems such a document can cause if the Agency does not carefully draw its conclusions. Specifically, we objected to a long list of indoor air contaminants with accompanying estimates of cancer cases. At this time, it is my understanding that estimated cancer cases are provided for radon exposures only. That is not to say that unit risk numbers are absent from the document. These are provided with the latest view on carcinogen classification for each chemical."

In a Nov. 22, 1988, memorandum to members, Cammer said about EPA's "Inside Story" IAQ consumer guide:

"Those of you who have reviewed drafts . . . will notice that much of the chemical-specific health effects discussion present in earlier versions was omitted from the final. While the document is far from perfect, I believe that most of the beneficial changes can be attributed, at least in part, to the substantive comments several of us submitted. Clearly, we need to continue interacting with EPA at all levels."

BCIA probably will incorporate and elect officers this month, Cammer said. BCIA probably will publish a newsletter and memoranda, and hold quarterly board of director meetings and "an open annual meeting of some sort," he said.

BCIA's telephone number in Washington, D.C., is (202) 775-5887.□

CFCs**BUSH CALLS FOR TOTAL BAN;
STIPULATES 'SAFE SUBSTITUTES'**

BRUSSELS - President Bush told the National Academy of Sciences in Washington, D.C., March 3 that he authorized Environmental Protection Agency Administrator William Reilly, who was scheduled to arrive in London for an international meeting on chlorofluorocarbons (CFCs), to push for international action to eliminate CFCs and halons by 2000.

In the meantime, the European Community Council of Environment Ministers agreed March 2 to prohibit by the year 2000 the production and consumption of the five ozone-depleting CFCs targeted by the Montreal Treaty - which was ratified and effective Jan. 1 - and to move to reduce them by 85 percent of 1986 levels as quickly as possible.

Bush conditioned his call for a total ban on CFCs on whether "safe substitutes" are available, according to White House spokesman Marlin Fitzwater.

The American heating, ventilation, and air conditioning industry is bracing for a shortage of CFCs, almost ubiquitous as refrigerants, as their supply is phased out under the Montreal Treaty. A search for non-toxic, non-flammable, and environmentally non-threatening substitutes is already well under way (IPN, Feb. 23, p. 1).

Reilly, at a White House meeting of the Domestic Policy Council March 2, urged adoption of the policy to eliminate CFCs. The council did not immediately accept the proposal but sent it to Bush with other options, an EPA representative said March 3. "Reilly got what he wanted from the president," the representative said.□