

## Chairman Expected Overhaul of Standard 62.2P at ASHRAE Meetings

As reported in the December 2000 *IEQS*, most people who commented on the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.2P (*Ventilation for Acceptable Indoor Air Quality in Low-Rise Residential Buildings*) during its public review would prefer to see the proposed standard disappear into thin air. ASHRAE wrote the proposed standard intending that US states and municipalities would encode it as their minimum ventilation standard for housing with three or fewer floors. (High-rise residential buildings are covered under ASHRAE Standard 62.1, *Ventilation for Acceptable Indoor Air Quality*.)

Despite the use of political muscle by major players in the construction and gas industries, Standard 62.2P wasn't about to be gone with the wind after ASHRAE's *Winter Meeting* in Atlanta, Georgia, last month. That said, the nearly 3,000 comments ASHRAE received about the proposed standard coupled with decisions reached at a November 2000 symposium sponsored by the Building Environment and Thermal Envelope Council (BETEC) had convinced ASHRAE officials to vote on revisions to Standard 62.2P when they met in Atlanta on January 27-31. BETEC operates under the National Institute of Building Science, an industry trade group.

*Energy Design Update (EDU)*, a sister publication of *IEQS*, reported in its January 2001 edition that the November BETEC symposium on ventilation in Washington, DC, generally agreed that homes need mechanical ventilation. What they disagreed on was how much mechanical ventilation they should have. For some years, advocates had generally called for mechanical ventilation of 15 cubic feet per minute (cfm) per person of fresh air plus 1 additional cfm of ventilation per 100 square feet (ft<sup>2</sup>) of floor space. Advocates presumed that air infiltration through the building envelope provided the extra cubic foot of air per 100 ft<sup>2</sup> of floor area.

Industry operatives at the BETEC symposium revived the thorny issue that requiring 15 cfm per person could create problems in the Southeast and other climes where fresh air includes high heat and humidity. Anton TenWolde, a research physicist at the US Forest Products Laboratory in Madison,

Wisconsin, moderated that symposium. According to *EDU*, TenWolde noted, "Several [symposium] participants noted that there is no dehumidification equipment available to handle that additional load at an affordable price." Inadequate dehumidification might promote mold growth, thus reducing the very indoor air quality that advocates want to safeguard. Instead, the BETEC symposium recommended a minimum ventilation standard of 7.5 cfm per person and an assumption that air leaks through building envelopes at a rate of 2 cfm per 100 square feet of floor area.

Max Sherman, chairman of ASHRAE Standard Standing Project Committee 62.2, tells *IEQS* that several issues prompted his technical committee to discuss and "vote on in principle" several changes to Standard 62.2P that he expected the committee to approve formally at the ASHRAE *Winter Meeting* January 27-31. Those meetings occurred after our February issue deadline, but here are the changes Sherman expected the committee to adopt in Atlanta (exclusive of any other changes that might emerge there during two public hearings about the proposed ventilation standard):

- Reduce the mechanical ventilation requirement to 7.5 ft per person plus 1 cfm per 100 ft<sup>2</sup> of floor space and allow an infiltration credit of 2 cfm per 100 ft<sup>2</sup> of floor space
- Eliminate the requirement for carbon monoxide (CO) detectors
- Test air handlers or return ducts in garages for tightness as a safeguard against CO leakage into living space
- Vent range hoods to the outdoors and eliminate language that would have allowed a kitchen window alone to provide ventilation
- Perform a backdraft test in new homes with large exhaust fans (e.g., powerful range hoods) or provide an interlocking supply ventilation system to prevent back drafts
- Install an exhaust fan in all rooms with unvented combustion appliances (e.g., gas fireplaces lacking vents)

"Our thinking about the minimum ventilation requirements for people has not really changed," Sherman says. "But we were persuaded by various comments during public review that requiring 15 cfm per person could cause moisture problems in the Southeast under certain circumstances. People also said houses in the South are leakier [i.e., sustain more air infiltration]. We also received comments stating that all houses are so leaky, there is no need for mechanical ventilation, while other people said we should require mechanical ventilation only in airtight houses."

The Standard 62.2 Committee had intentionally set a low infiltration limit of 1 cfm per 100 ft<sup>2</sup>, Sherman says, so the group wasn't averse to doubling the infiltration credit. While this doesn't change the mechanical system much for large houses, he says, it does for small dwellings. Under another proposed change, however, the committee would allow a builder or homeowner to reduce mechanical ventilation if blower-door results demonstrate an existing house has enough infiltration to reduce the ventilation fan size and still meet the air exchange requirements. Sherman explains, "It isn't a good idea to require someone to waste energy unnecessarily by requiring an oversized fan." Sherman hastened to add that ASHRAE doesn't expect jurisdictions to require the ventilation standards for existing houses, though Standard 62.2P doesn't exempt existing housing from its minimum standards.

"I expect the committee, therefore, to significantly reduce the fan-size requirement at the *Winter Meetings*, but some members had originally supported the higher numbers because there were no requirements for the air handlers, for handling appliances [that lacked vents], and so on. Once we came up with changes to fix that, they were happy to reduce the mechanical requirement. Inserting a requirement to require a kitchen exhaust fan also helped the committee members feel comfortable enough to lower the mechanical rating. And since the more powerful kitchen fans can trigger backdraft problems, the committee added the requirement for backdraft testing." One way to compensate for a large kitchen fan is to have a

compensating makeup fan somewhere else in the home, Sherman notes.

### CO Detectors Were Bone of Contention

Sherman says ASHRAE received many public comments declaring that CO detectors did not belong in a ventilation standard. Ultimately, he tells *IEQS*, his committee was satisfied to eliminate the detector requirement in exchange for addressing the issues of appliances without vents, garage air handlers, and backdraft testing. "It's better anyway to prevent CO from entering the living space than to alert people by alarm after the fact," Sherman says. "I think most of the committee probably believes having CO detectors is a good idea, but if you handle the source issues, it isn't necessary for Standard 62.2 to require CO detectors."

The American Gas Association (AGA), the powerful lobbying arm for the gas industry in Washington, DC, fought unceasingly to eliminate the detectors from the proposed ASHRAE standard. AGA, however, also takes the philosophical position that the proposed standard should not include vents and other requirements to handle unburned pollutants from appliances. Therefore, it's unclear what AGA's position would be on the proposed changes.

The National Association of Home Builders (NAHB) has also fought hard to stop Standard 62.2P. Sherman tells *IEQS* that NAHB revealed at the BETEC symposium that it has voted to object to any mechanical ventilation requirement. Presumably, that means NAHB would still seek to derail the standard in Atlanta.

Sherman scheduled public hearings about Standard 62.2 for January 26-27. He planned to provide the attendees with copies of the proposed changes, and he expected his Standard 62.2 Committee to vote on those and any other changes that might emerge during the public hearings when the committee met on January 28. In our March issue, we will report on all changes to Standard 62.2P that ASHRAE approved at its *Winter Meeting*.

## Committee Was Expected to Make Few Changes to ASHRAE Standard 62.1

Unlike the major overhaul that its proposed sister standard (see previous article about the American Society of Heating, Refrigerating and Air-Conditioning Engineers [ASHRAE] Standard 62.2) is expected to receive, ASHRAE Standard 62.1 — *Ventilation for Acceptable Indoor Air Quality* — should have undergone markedly fewer changes in Atlanta, Georgia, late last month. ASHRAE was scheduled to discuss and possibly act on changes to certain portions of the ventilation standard at its *Winter Meeting* January 27-31, 2001. ASHRAE sets minimum standards for US buildings, and many of its published standards, such as Standard 62.1, are also widely used in non-US countries.

Andy Persily, chairman of the ASHRAE Standard Standing Project Committee 62.1, said in mid-January that he expected the committee “may recommend [Addenda] 62q ‘Definitions’ and 62s ‘Filtration’ for publication. Less likely but also possible, would be to [recommend Addenda] 62l ‘Startup and Commissioning’ and 62m ‘Operations and Maintenance’ for publication,” he said.

Addendum 62q aims in part to remove definitions that do not otherwise appear in the standard. Standard 62.1 has defined “dust,” for example, but then does not recommend a limit or standard for it.

If approved, Addendum 62q would also clarify the current definitions of ventilation, supply air, and exhaust.

Addendum 62s would add code language about filtration that references ASHRAE Standard 52.2, a new standard that covers filtration in depth that did not exist when Standard 62.1 was last published. To ensure that a new building starts operating with acceptable indoor air quality (IAQ), Addendum 62l would explain the protocols to follow to test and balance building systems and for the filters used during construction. Addendum 62m would specify how to operate and maintain a building to provide minimum acceptable IAQ.

All of this comes under the auspices of “continuous maintenance,” the ASHRAE process for continual reviews and updates of the society’s code-intended published standards. Through this process, Persily said that at the Atlanta meetings, his committee might also approve a new version of Addendum 62k (which may be moved to an appendix) to get feedback from people who made public review comments about the previous version.

We will report the actions taken on Standard 62.1 in the March 2001 issue of *IEQS*.

## Study Finds Workplace Solvents Increase Risk of Parkinson’s Disease

People who use common solvents in their work are at greater risk for developing the symptoms of Parkinson’s disease earlier in life and for experiencing more severe symptoms throughout the illness. Prior evidence existed that supported a link between Parkinson’s and hydrocarbon exposure, but there were no prior large cohort studies on patients, according to the researchers.

Researchers from the Department of Neuroscience, Parkinson Institute (Istituto Clinico di Perfezionamento) in Milan, Italy, published their findings about hydrocarbon solvents and the degenerative neurological disease in the September 12, 2000, edition of *Neurology*, the scientific journal of the American Academy of Neurology. They designed the study to show any differences between 990 newly diagnosed Parkinson’s patients at their clinic who had regular

exposure to hydrocarbons versus those who did not have that exposure. Parkinson’s disease is a progressive, neurodegenerative illness that begins with the death of a small group of brain cells that control body movements. Its symptoms commonly include a continual tremor of arms and legs, rigid muscles, slowed movement, and a decreased ability to balance.

In studying the patients, the researchers found that nine occupations accounted for more than 91% of the exposure to hydrocarbon solvents. Researchers observed that subjects exposed to hydrocarbon solvents commonly found in paints and glues were, on average, some three years younger when they first developed Parkinson’s symptoms. Even more to the point, they found that the more severe symptoms were directly related to the amount of exposure to these