

Guideline, Supplement Underway for Standard 62.1

Standard 62.1 continues to be a topic of interest and sometimes intense discussion among designers, installers, owners and manufacturers. The 2004 rates, procedures and general requirements are in effect. They are supported by the Standard 62.1-2004 User's Manual and its spreadsheet program, and ready for incorporation with building codes.

By Dennis A. Stanke, Member ASHRAE

Members of Standing Standards Project Committee (SSPC) 62.1 continually work to improve and maintain the ventilation standard. At ASHRAE's Winter Meeting, progress included work toward an ASHRAE guideline related to ventilation and toward educational programs for local chapters and a supplemental publication of Standard 62.1 that will include several addenda.

At the close of the meeting, five addenda had been approved for inclusion in the Standard 62.1 Supplement, with publication expected by the second quarter of 2006. The following is a summary of the newly approved addenda.

Addendum 62.1a

Limiting space relative humidity by design can help limit mold and dampness related indoor air quality problems. Addendum 62.1a modifies Section 5.10 to clarify the conditions for evaluating system dehumidification performance.

Briefly, each ventilation system with mechanical cooling must be designed so that space relative humidity does not exceed 65% at design dew-point outdoor conditions with no space solar load (but with all other space loads at design values). These conditions result in low space sensible heat ratio and high mixed-air dew point, so an analysis of zone relative humidity performance under these circumstances can be a good test of system dehumidification capability. This addendum also includes exceptions to the relative humidity requirement for several spaces—kitchens and shower rooms, for instance—where process requirements dictate higher relative humidity conditions.

Addendum 62.1b

A more concise, more correct standard reduces confusion for all users. This addendum corrects discrepancies and omissions among Tables 5-2, 6-1 and 6-4. It actually removes all occupancy categories from Table 5-2 (deleting that table) and incorporates the occupancy categories, with airflow and air class information, into Tables 6-1 and 6-4 as appropriate.



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Addendum 62.1c

Addendum 62.1c updates material in Appendix B, which contains a number of referenced air quality guidelines and regulations issued by bodies other than ASHRAE. For many years, this appendix has been very helpful to users of the IAQ Procedure and to those using the standard in IAQ evaluations. Of course, the standard does not propose nor endorse any specific contaminant concentration standards or guideline values, but rather lists those values established by cognizant authorities.

Addendum 62.1d

It's important to keep referenced information in the standard up-to-date. This addendum updates Table 4-1, which lists the National Ambient Air Quality Standards for outdoor air, so that it matches the current U.S. EPA NAAQS pollutant listing. The biggest change is that the table now includes concentrations and exposure times for particles with diameters of 2.5 μm and smaller.

Addendum 62g

Addendum 62g, which has been under development for more than five years, applies to buildings with both smoking-permitted and no-smoking areas. It adds requirements

for the separation of areas that contain environmental tobacco smoke (ETS areas) from those that don't (ETS-free areas). Compliance with these separation requirements reduces the amount of ETS entering ETS-free areas from ETS areas. Standard 62 doesn't prescribe specific ventilation rates for smoking areas, but this addendum offers two important benefits. It allows designers to design buildings that comply with the standard by properly separating ETS areas from ETS-free areas, even when smoking is permitted in some areas. In addition, compliance with the separation requirements provides a level of "protection" to building occupants who choose to limit their exposure to ETS.

62.1 Addenda

The following addenda were approved by SSPC 62.1 (and ASHRAE) for public review, to be held in April. Public review comments will be considered at our next meeting. Without significant, substantive comments from the public, the next version of the standard, to be published in 2007, will incorporate these addenda.

Addendum 62.1e

Addendum 62.1e would add an informative appendix that summarizes the requirements for documentation found throughout the standard. Good documentation aids communication between all parties involved with the design, installation, operation and maintenance of ventilation systems, including designers, authorities having jurisdiction, builders, owners, and operators. Reducing communication failures among these parties reduces building-ventilation and IAQ problems.

Addendum 62.1f

Although they contain no specific compliance requirements, statements of scope and purpose must be clear and accurate to help users of the standard apply it properly. This proposed addendum changes the purpose and scope of Standard 62.1 to make them more consistent with the body of Standard 62.1-2004. The purpose of the standard retains its goals of providing acceptable IAQ for human occupants and reducing (minimizing) adverse health effects. The scope no longer includes single-family houses or multifamily buildings with three or fewer stories. Standard 62.2 covers these structures. The scope also clearly states that the standard includes no specific prescribed ventilation rates for smoking-permitted spaces or for improperly separated nonsmoking spaces (since these spaces also might contain ETS).

Addendum 62.1h

Since the scope of the standard specifically includes some residential occupancy categories, designers expect Table 6-1 to prescribe ventilation rates for these occupancies. Addendum 62.1h adds ventilation requirements for residential spaces to the ventilation rate table (Table 6-1), because the standard applies to high-rise residential buildings. These ventilation rates are somewhat higher than the residential rates in Standard 62.2. That standard bases its rates for single-family dwellings and small multifamily structures (with three or fewer stories) on the assumption that infiltration always provides some ventilation, and on the requirement that each dwelling unit includes operable windows for supplemental ventilation. The Standard 62.1 rates, on the other hand, assume that ventilation requirements are independent of infiltration and operable windows.

Building Codes

The Code Interaction Subcommittee (CIS) of the ASHRAE Standards Committee has the responsibility to develop code change proposals on behalf of ASHRAE. CIS delegates the responsibility of writing the actual proposals to its Code Development Committee (CDC). A small working group within CDC, including several members of SSPC 62.1, developed three alternative proposals to change Chapter 4 (Ventilation) of the International Mechanical Code.

Briefly, the proposals developed would either:

1. update the table rates to match Standard 62.1-2004;
2. update the table rates and update the multiple-zone system equation to match the Ventilation Rate Procedure in Standard 62-2004; or
3. include an alternate compliance path in the code, allowing designers to find minimum ventilation rates using Standard 62 tables and procedures by referencing the standard rather than by revising Chapter 4.

SSPC 62.1 discussed these alternative proposals extensively and eventually approved them. Some committee members were uncomfortable that the proposals don't include the entire standard and that the full committee wasn't involved in developing the proposals. However, overall, the committee seemed to see the rates as the most important first step toward including Standard 62 requirements into code. The committee also seemed to think that other important requirements from the standard could be deferred for now and incorporated into additional future proposals, so that any potential objections to other proposed changes don't jeopardize the rates update.

Standards

Interested Parties and Continuous Maintenance

As you probably know, the current published standard has generated much discussion and opinion. Most designers and building owners like the fact that the ventilation rates stay the same or drop (compared to Standard 62-2001 and most building codes) in 84% of the occupancy categories, and increase in only 16%. Many designers and other users seem to like the flexibility and completeness of the Ventilation Rate Procedure, including default values for important parameters like zone air change effectiveness and system ventilation efficiency. And, many feel that the general requirements for systems and equipment in Section 5 help to minimize both nonventilation and ventilation-related IAQ problems.

On the other hand, some designers and other users think that separate accounting (i.e., additivity) for people-related and building-related ventilation requirements—a primary reason for the flexibility mentioned above—makes compliance with the standard too complicated. Some also say that the detailed treatment of ventilation calculations for multiple-zone systems adds to the complexity, even though a form of these calculations has been required by some building codes for many years and by Standard 62 since 1989. Some say the wide-ranging requirements in Sections 5, 7 and 8 unnecessarily add to the complication of the ventilation standard.

Regardless of viewpoint, Standard 62 continues to be a topic of interest and sometimes intense discussion among designers, installers, owners and manufacturers. The 2004 rates, procedures and general requirements are in effect. They are supported by the *Standard 62.1-2004 User's Manual* and its spreadsheet program, and ready for incorporation with building codes. The continuous maintenance process affords all parties an opportunity to express differing opinions and introduce new ideas for improving the standard. SSPC 62 considers such proposed changes at each meeting.

Summary

SSPC 62.1 accomplished a lot in Chicago. We expect to keep working to improve Standard 62.1 in response to proposed changes, interpretation requests and committee insights. We expect to continue our work with CIS to help update the model building codes. We also expect to continue our work toward a ventilation guideline (GPC 19P) and toward member educational programs related to the ventilation standard (such as the ASHRAE Learning Institute Web-based online seminar “Complying with Requirements of ASHRAE Standard 62.1-2004”).

We'll be busy again in Quebec City, QC, Canada, for ASHRAE's Annual Meeting on June 24–28. Please join us if you can.

Dennis A. Stanke is a staff applications engineer with Trane, La Crosse, Wis. He is the chair of SSPC 62.1. ●