INTERPRETATION IC 62-2001-12 OF
ANSI/ASHRAE STANDARD 62-2001
VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY

TRANSFER TO 62-2001 APPROVED: January 12, 2002
WITHDRAWAL OF PARTS 1 AND 3 APPROVED APRIL 5, 2003

Originally issued as interpretation of Standard 62-1989 (IC 62-1989-2a) on December 13, 1993, but transferred to Standard 62-1999 (IC 62-1999-10) on August 14, 2000, and subsequently to Standard 62-2001. Since no changes were made to the relevant sections of Standard 62-2001, no revisions were made to the interpretation as part of this transfer.

Request from: This reissued interpretation incorporates changes to the caveat accompanying the answer to Question 1 and deletes the comment. It also incorporates editorial changes for clarification of the Background Section, the headings, and Comment (b) to Answer 3. This revised interpretation is intended to resolve comments received as a result of publication of the original interpretation in the October 1991 issue of the ASHRAE Journal. The comments were received from Mr. Kenneth D. Mentzer, North American Insulation Manufacturers Association, 44 Canal Center Plaza, Suite 310, Alexandria, VA 22314. The original request for interpretation was received from William S. Ostrander, P.E., Newcomb & Boyd, Consulting Engineers, One Northside 75, Atlanta, GA 30318-7761.

References. This request refers to the requirements given in ASHRAE Standard 62-2001, paragraph~~s~~ ~~5.6,~~ 5.11 ~~and 5.12~~.

Background. The questions in Mr. Ostrander's April 2, 1991 letter relate to the control of microorganisms in ventilation systems. His letter is quoted below. The Interpretation Committee responses to specific questions follow.

"We (Newcomb & Boyd) are told that their growth accelerates in the presence of increased moisture, nutrients and rough textured surfaces to shelter the colony; and that the denial of one or more of these essentials is an effective control means.

~~1. Section 5.6 requires ducts and plenums to be 'constructed and maintained to minimize the opportunity for growth and dissemination of microorganisms.' This is being interpreted by some individuals as prohibiting the use of glass fiber or any other type duct liner with a rough surface where particles would be likely to adhere. Duct linings can be coated or encapsulated to provide a smoother surface, but these surfaces are still subject to damage.~~

~~Our interpretation of this section is that it is not intended to prevent the use of conventional duct linings for acoustical control purposes. It is intended to minimize the growths by appropriate means, including:~~

~~(a) avoiding unnecessary use of duct liner,~~

~~(b) emphasis on proper air filtration upstream of duct liner, especially during the construction period when large quantities of nutrients and contaminants are present,~~

~~(c) encapsulation of duct liner,~~

~~(d) protection of duct liner with perforated metal, or similar protected package sound attenuators, and~~

~~(e) provision of access to duct liner for future cleaning.~~

2. Section~~s~~ 5.11 ~~and 5.12~~ reference the risk of mold, mildew, fungus, and other growths in high humidity environments. ~~Section 5.12 cautions about 'humidity above 70 percent RH in low velocity ducts and plenums.'~~ The humidity downstream of a dehumidifying coil will generally be between 90 and 95

percent RH. The velocity in the supply air ducts of a 'low velocity' air distribution system will generally vary between 2000 fpm at the fan to as low as 700 fpm at the extremities.

~~This statement could be interpreted as requiring or recommending a maximum of 70 percent RH in the supply system downstream of the cooling coils. Such interpretation would require the use of reheat or cooling coil bypass, resulting in either a large increase in supply air quantity or a significant lowering of chilled water or refrigerant temperature. A substantial initial system cost and annual energy penalty is involved.~~

We (Newcomb & Boyd) interpret this statement as a caution: since the high relative humidity will promote the growths of microorganisms, it is essential to minimize the accumulation of dirt that would provide nutrients. The same preventative measures listed above would accomplish this objective."

~~Question 1~~. ~~"Is our (Newcomb & Boyd) interpretation of 5.6 correct as given in Item No. 1 above?"~~

~~Interpretation Committee (IC) Answer 1~~. ~~Yes, with the following caveat:~~

~~It is not the intent of 5.6 to restrict the use of any duct lining material provided adequate precautions have been used to prevent the accumulation of liquid water, condensation, and moisture at levels conducive to microbial growth.~~

Question 2. "Is our (Newcomb & Boyd) interpretation of 5.11 ~~and 5.12~~ correct as given in Item No. 2 above?"

IC Answer 2. Yes.

~~Question 3~~. ~~"(Newcomb & Boyd) Is it the intent of 5.12 to limit the relative humidity to 70 percent or less in low velocity ducts and plenums?"~~

~~IC Answer 3~~. ~~No.~~

IC Comments

~~(a) Paragraph 5.6 is mandatory for users who wish to claim compliance with the standard, while 5.11 and 5.12 are advisory in nature.~~

(b) It is the intent of 5.11 ~~and 5.12~~ to advise the user of the standard of conditions that, especially in combination, are conducive to the growth of microorganisms. The currently available means of using desiccants for dehumidification are expensive, and the practice commonly used in the past of reheating subcooled air for humidity control purposes has been discarded, except in special applications, by the need to conserve energy and economic resources. Practical measures available today include those listed by Mr. Ostrander ~~in 1(a – e)~~ above, plus assuring that drain pans remain free of standing water. ~~Also, it is recommended that 50 to 70 percent efficient or better filters be specified in 1(b). Paragraph 5.12 gives additional recommendations.~~ In general, microbiological growth can be controlled by limiting moisture or by limiting nutrients (e.g., dirt and debris). Innovative design concepts for reducing moisture as well as dirt and debris in air supply systems are encouraged.

~~(c) The requirements and recommendations given in ASHRAE 62-1989 are based on investigation by microbiologists of buildings experiencing complaints of poor indoor air quality. Yet most buildings operate with duct humidities in excess of 70 percent without complaints. Standards Project Committee 62-1981R believes there is urgent need for research to provide more data on why not all susceptible buildings experience poor indoor air quality.~~