ANSI/ASHRAE Addenda 62*t*
Addenda to ANSI/ASHRAE Standard 62-2001

ASHRAE® STANDARD

Addenda to

Ventilation for Acceptable Indoor Air Quality

Approved by the ASHRAE Standards Committee January 12, 2002; by the ASHRAE Board of Directors January 12, 2002; and by the American National Standards Institute April 9, 2002.

This standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. The change submittal form, instructions, and deadlines are given at the back of this document and may be obtained in electronic form from ASHRAE's Internet Home Page, *http://www.ashrae.org*, or in paper form from the Manager of Standards. The latest edition of an ASHRAE Standard and printed copies of a public review draft may be purchased from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: *orders@ashrae.org*. Fax: 404-321-5478. Telephone: 404-636-8400 (worldwide), or toll free 1-800-527-4723 (for orders in U.S. and Canada).

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Cognizant TC: TC 4.3, Ventilation Requirements and Infiltration
(Addendum *t*)
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ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

ASHRAE Standards are prepared by a Project Committee appointed specifically for the purpose of writing the Standard. The Project Committee Chair and Vice-Chair must be members of ASHRAE; while other committee members may or may not be ASHRAE members, all must be technically qualified in the subject area of the Standard. Every effort is made to balance the concerned interests on all Project Committees.

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a. interpretation of the contents of this Standard,
b. participation in the next review of the Standard,
c. offering constructive criticism for improving the Standard,
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In referring to this Standard or Guideline and in marking of equipment and in advertising, no claim shall be made, either stated or implied, that the product has been approved by ASHRAE.

(This foreword is not part of this standard but is included for information only.)

FOREWORD

Addendum 62*t*. *This addendum replaces Section 5.11. In so doing, it clarifies and codifies requirements for drain pan design, carryover from cooling coils, access for inspection and cleaning, and requirements related to the proper application of humidifiers and water spray devices within the air distribution systems. Recognizing that liquid water within air distribution systems increases the likelihood of microbial growth, the requirements in this addendum seek to prevent standing water in drain pans, limit water droplet carryover, and minimize stagnant water in humidifier and water spray sumps.*

Finned-tube coils collect dirt and can thereby promote microbial growth. Coil surfaces can be cleaned, but proper cleaning depends upon coil depth, fin spacing, and fin geometry. Since coil depth, fin spacing, and fin geometry combine to determine coil pressure drop, this coil pressure drop can be used as a measure of the relative difficulty of coil cleaning. To ensure cleanability, this addendum limits coil pressure drop rather than the depth of finned-tube coils. The following table shows typical pressure drops for various coils and is included to assist with evaluation of the addendum requirements, but it is not part of the addendum itself.

Typical Dry Coil Pressure Drop in inches of H_2O at 500 fpm

Rows	90 fins/ft	120 fins/ft	150 fins/ft	168 fins/ft
4	0.31	0.37	0.44	0.50
4	0.29	0.32	0.38	0.44
6	0.47	0.55	0.66	0.75
6	0.43	0.49	0.57	0.66
8	0.62	0.73	0.88	1.00
8	0.58	0.65	0.77	0.88
10	0.66	0.92	1.24	1.45
10	0.63	0.79	1.02	1.16
12	0.80	1.10	1.49	1.74
12	0.76	0.95	1.23	1.39

Condensate not collected (water droplet carryover) or collected but improperly drained leads to downstream surface wetting and increased potential for microbial growth, so this addendum clarifies requirements for condensate management, including drain pan size and drain outlet size. Sufficient access facilitates periodic inspection, routine maintenance, and periodic or as-required cleaning. Inspection and cleaning are necessary to avoid the buildup of dirt and debris and, in some situations, microbial growth within air distribution systems.

Addendum 62*t*

Delete Section 5.11 and replace it with the following new text to address moisture management within the air distribution system.

5.11 ~~Microbial contamination in buildings is often a function of moisture incursion from sources such as stagnant water in HVAC air distribution systems and cooling towers. Air handling unit condensate pans shall be designed for self-drainage to preclude the buildup of microbial slime. Provision shall be made for periodic in-situ cleaning of cooling coils and condensate pans. Air handling and fan coil units shall be easily accessible for inspection and preventive maintenance. Steam is preferred as a moisture source for humidifiers, but care should be exercised to avoid contamination from boiler water or steam supply additives. If cold water humidifiers are specified, the water shall originate from a potable source, and, if recirculated, the system will require frequent maintenance and blow-down. Care should be exercised to avoid particulate contamination due to evaporation of spray water. Standing water used in conjunction with water sprays in HVAC air distribution systems should be treated to avoid microbial buildup. If the relative humidity in occupied spaces and low velocity ducts and plenums exceeds 70%, fungal contamination (for example, mold, mildew, etc.) can occur. Special care should be taken to avoid entrainment of moisture drift from cooling towers into the makeup air and building vents.~~

5.11 Drain Pans. Drain pans, including their outlets and seals, shall be designed and constructed in accordance with this section.

5.11.1 Drain Pan Slope. Pans intended to collect and drain liquid water shall be sloped at least 10 mm per meter (1/8 in. per foot) from the horizontal toward the drain outlet or shall be otherwise designed to ensure that water drains freely from the pan whether the fan is on or off.

5.11.2 Drain Outlet. The drain pan outlet shall be located at the lowest point(s) of the drain pan and shall be of sufficient diameter to preclude drain pan overflow under any normally expected operating condition.

5.11.3 Drain Seal. For configurations that result in negative static pressure at the drain pan relative to the drain outlet (such as a draw-through unit), the drain line shall include a P-trap or other sealing device designed to maintain a seal against ingestion of ambient air while allowing complete drainage of the drain pan under any normally expected operating condition, whether the fan is on or off.

5.11.4 Pan Size. The drain pan shall be located under the water-producing device. Drain pan width shall be sufficient to collect water droplets across the entire width of the water-producing device or assembly. For horizontal airflow configurations, the drain pan length shall begin at the leading face or edge of the water-producing device or assembly and extend downstream from the leaving face or edge to a distance of either:

(a) one half of the installed vertical dimension of the water-producing device or assembly, or

(b) as necessary to limit water droplet carryover beyond the drain pan to 1.5 mL per m^2 (0.0044 oz per ft^2) of face area per hour under peak sensible and peak dew point design conditions, considering both latent load and coil face velocity.

Add a new Section 5.12 to specify requirements for finned-tube coils in the air distribution system.

5.12 Finned-Tube Coils and Heat Exchangers.

5.12.1 Drain Pans. A drain pan in accordance with Section 5.11 shall be provided beneath all dehumidifying cooling coil assemblies and all condensate-producing heat exchangers.

5.12.2 Finned-Tube Coil Selection for Cleaning. Individual finned-tube coils or multiple finned-tube coils in series without adequate intervening access space(s) of at least 457 mm (18 in.) shall be selected to result in no more than 187 Pa (0.75 in.wc) combined pressure drop when dry coil face velocity is 2.54 m/s (500 fpm).

Exception: When clear and complete instructions for access and cleaning of both upstream and downstream coil surfaces are provided.

Add a new Section 5.13 to specify requirements for humidifiers and water spray devices in the air distribution system.

5.13 Humidifiers and Water-Spray Systems. Steam and direct evaporation humidifiers, air washers, and other water-spray systems shall be designed in accordance with this section.

5.13.1 Water Quality. Water shall originate directly from a potable source or from a source with equal or better water quality.

5.13.2 Obstructions. Air cleaners or ductwork obstructions, such as turning vanes, volume dampers, and duct offsets greater than 15 degrees, that are installed downstream of humidifiers or water spray systems shall be located a distance equal to or greater than the absorption distance recommended by the humidifier or water spray system manufacturer.

Exception: Equipment such as eliminators, coils, or evaporative media may be located within the absorption distance recommended by the manufacturer, provided a drain pan complying with the requirements of 5.11 is used to capture and remove any water that may drop out of the airstream due to impingement on these obstructions.

Add a new Section 5.14 to specify access requirements, intended to accommodate periodic inspection, cleaning, and routine maintenance.

5.14 Access for Inspection, Cleaning, and Maintenance

5.14.1 Equipment Clearance. Ventilation equipment shall be installed with sufficient working space for inspection and routine maintenance (e.g., filter replacement and fan belt adjustment and replacement).

5.14.2 Ventilation Equipment Access. Access doors, panels, or other means shall be provided and sized to allow convenient and unobstructed access sufficient to inspect, maintain, and calibrate all ventilation system components for which routine inspection, maintenance, or calibration is necessary. Ventilation system components comprise, for example, air-handling units, fan-coil units, water-source heat pumps, other terminal units, controllers, and sensors.

5.14.3 Air Distribution System. Access doors, panels, or other means shall be provided in ventilation equipment, ductwork, and plenums, located and sized to allow convenient and unobstructed access for inspection, cleaning, and routine maintenance of the following:

(a) Outdoor air intake areaways or plenums

(b) Mixed air plenums

(c) Upstream surface of each heating, cooling, and heat-recovery coil or coil assembly having a total of four rows or less

(d) Both upstream and downstream surface of each heating, cooling, and heat-recovery coil having a total of more than four rows and air washers, evaporative coolers, heat wheels, and other heat exchangers

(e) Air cleaners

(f) Drain pans and drain seals

(g) Fans

(h) Humidifiers

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the standards and guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive technical committee structure, continue to generate up-to-date standards and guidelines where appropriate and adopt, recommend, and promote those new and revised standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating standards and guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.