

ADDENDA

**ANSI/ASHRAE/IES Addendum bk to
ANSI/ASHRAE/IES Standard 90.1-2019**

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by ASHRAE and the American National Standards Institute on January 21, 2022, and by the Illuminating Engineering Society on January 18, 2022.

This addendum was approved 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. Instructions for how to submit a change can be found on the ASHRAE® website (<https://www.ashrae.org/continuous-maintenance>).

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FOREWORD

Addendum bk brings Standard 90.1 into alignment with changes in Standard 62.1-2019 that limit dew point rather than relative humidity and that also require limiting the dew point during unoccupied periods. Additional changes address efficient humidification and dehumidification with the goals of minimizing simultaneous heating and cooling and encouraging use of site recovered energy.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~striketrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum bk to Standard 90.1-2019

Modify Section 6.3.2 as shown (I-P and SI).

6.3.2 Criteria

[. . .]

- i. The *system controls* shall not permit *reheat* or any other form of simultaneous heating and cooling for *humidity control*.

Exception to 6.3.2.(i): Humidity control assisted by hot-gas reheat or heat from 100% site-recovered energy is permitted.

Modify Section 6.4.3.3.2 as shown (I-P and SI).

6.4.3.3.2 Setback Controls. Heating *systems* shall be equipped with *controls* capable of and configured to *automatically* restart and temporarily operate the *system* as required to maintain zone temperatures above an adjustable heating *set point* at least 10°F below the occupied heating *set point*. Cooling *systems* shall be equipped with *controls* capable of and configured to *automatically* restart and temporarily operate the *mechanical cooling system* at the lowest practical fan speed as required to maintain zone temperatures below an adjustable cooling *set point* at least 5°F(3°C) above the occupied cooling *set point* or to prevent ~~high-maximum space~~ humidity levels as required by Standard 62.1.

Modify Section 6.4.3.3.5 as shown (I-P and SI).

6.4.3.3.5 Automatic Control of HVAC in Hotel/Motel Guest Rooms. Hotels and motels with greater than 50 guest rooms shall be provided with *automatic controls* for the HVAC *equipment* serving each guest room capable of and configured according to the requirements in the following subsection.

6.4.3.3.5.1 Guest Room HVAC Set-Point Control. HVAC *systems* serving hotel guest rooms shall be capable of and configured with three modes of temperature *control*.

- a. **Rented and unoccupied.** Within 20 minutes of all occupants leaving the guest room, HVAC *set points* shall be *automatically* raised by at least 4°F from the occupant *set point* in the cooling mode and *automatically* lowered by at least 4°F from the occupant *set point* in the heating mode.
- b. **Unrented and unoccupied.** HVAC *set points* shall be *automatically reset* to 80°F or higher in the cooling mode and to 60°F or lower in the heating mode. The HVAC *set points* in the unrented and unoccupied guest room modes shall be initiated within 16 hours of the guest room being continuously unoccupied or within 20 minutes of the guest room being continuously unoccupied where a *networked guest room control system* indicates the guest room is unrented.
- c. **Occupied.** HVAC *set points* shall return to their occupied *set points* once occupancy is sensed.

Exceptions to 6.4.3.3.5.1:

1. A *networked guest room control system* shall be permitted to return the *thermostat set points* to their default occupied *set points* 60 minutes prior to the time the room is scheduled to be occupied.

2. ~~Cooling for humidity control shall be permitted during rented and unoccupied or unrented and unoccupied periods.~~ Dehumidification shall be permitted to limit the space humidity levels as required by Standard 62.1 during unoccupied mode for both rented and unrented periods.

Modify Section 6.4.5 as shown (I-P and SI).

6.4.5 Walk-In Coolers and Walk-In Freezers

[...]

- j. Antisweat heater *controls* shall reduce the *energy* use of the antisweat heater as a function of the ~~relative~~ humidity in the air outside the *door* or in response to the condensation on the inner glass pane.

[...]

Modify Section 6.4.6 as shown (I-P and SI).

6.4.6 Refrigerated Display Case

[...]

- f. Antisweat heater *controls* shall reduce the *energy* use of the antisweat heater as a function of the ~~relative~~ humidity in the air outside the *door* or in response to the condensation on the inner glass pane.

Modify Section 11.4.1.1 as shown (I-P and SI).

11.4.1.1 The *simulation program* shall be approved by the *adopting authority* and shall, at a minimum, have the ability to explicitly model all of the following:

- 8760 hours per year
- Hourly variations in occupancy, lighting power, miscellaneous equipment power, thermostat set points, humidity set points, and HVAC system operation, defined separately for each day of the week and holidays
- Thermal mass effects
- Ten or more thermal zones
- Part-load performance curves for mechanical equipment
- Capacity and efficiency correction curves for mechanical heating and mechanical cooling equipment
- Air-side economizer and fluid economizer with integrated control
- The budget building design characteristics unless otherwise specified in Section 11.5

Modify Section 11.5.2 as shown (I-P and SI).

11.5.2 HVAC Systems

[...]

- d. **Minimum Outdoor Air Ventilation Rate.** Minimum *outdoor air ventilation* rates shall be the same for both the *budget building design* and *proposed design*. Exhaust air ~~heat~~ energy recovery shall be modeled for the *budget building design* in accordance with Section 6.5.6.1.

Modify Normative Appendix G as shown (I-P and SI).

G2.2.1 The *simulation program* shall be approved by the *rating authority* and shall, at a minimum, have the ability to explicitly model all of the following:

- 8760 hours per year.
- Hourly variations in occupancy, lighting power, miscellaneous *equipment* power, *thermostat set points*, humidity set points, and *HVAC system* operation, defined separately for each day of the week and holidays.
- Thermal mass effects.
- Ten or more thermal zones.
- Part-load performance curves for mechanical *equipment*.
- Capacity and *efficiency* correction curves for *mechanical heating* and *mechanical cooling equipment*.
- Air economizers* with integrated *control*.
- Baseline building design characteristics specified in Section G3.

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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.

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