



ADDENDA

**ANSI/ASHRAE/IES Addendum c 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 October 30, 2020, and by the Illuminating Engineering Society on October 6, 2020.

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

Section 6.4.3.3 includes an exception for off-hour controls in small units. However, this negates the requirements in Section 6.4.3.3.1 for residential spaces that typically have small HVAC units. The controls that have proven cost-effective and less complex to use in hotel and motel guest rooms are also suitable and readily available for use in apartments. These programmable thermostats are required under residential energy codes for residential spaces in buildings three stories and lower. An exception is made here to allow them in other spaces.

Similar provisions related to simplified systems in Section 6.3.2 are adjusted to make them consistent with the description of unoccupied setback controls elsewhere in the standard.

A review of thermostats available in the market shows that going from a product with no scheduling capability to one with weekday/weekend schedule capability adds between \$0 and \$13 per thermostat. So at 2 kW, the incremental cost is covered in all climate zones that require heating based on the Standard 90.1 scalar cost-effectiveness analysis.

This revision limits the exceptions to nonresidential spaces and lowers the exception limit to 2 kW. It also allows a simplified schedule (two schedules per week) for units under 5 kW. Residential spaces are defined in Standard 90.1 as follows:

residential: spaces in buildings used primarily for living and sleeping. Residential spaces include, but are not limited to, dwelling units, hotel/motel guest rooms, dormitories, nursing homes, patient rooms in hospitals, lodging houses, fraternity/sorority houses, hostels, prisons, and fire stations.

dwelling unit: a single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.

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 c to Standard 90.1-2019

Revise Sections 6.3.2 and 6.4.3.3 of the Standard as shown (I-P and SI).

6.3.2 Criteria. The HVAC system must meet all of the following criteria:

[. . .]

- j. ~~Systems serving spaces other than hotel/motel guest rooms~~residential spaces, and other than those that do not require continuous operation, ~~which have both with~~ a cooling or heating capacity greater than ~~15,000~~ 7000 Btu/h (2.1 kW) and a supply fan motor power greater than 0.75 hp, shall be provided with a time clock that (1) can start and stop the ~~system~~ under different schedules for seven different day types per week, (2) is capable of retaining programming and time setting during a loss of power for a period of at least ten hours, (3) includes an accessible ~~manual~~ override that allows temporary operation of the ~~system~~ for up to two hours, (4) is capable of and configured with temperature ~~setback~~ down to 55°F during off hours, and (5) is capable of ~~capable of~~ and configured with temperature setup to 90°F during off hours. ~~shall comply with Sections 6.4.3.3.1 and 6.4.3.3.2.~~
- k. Systems serving residential spaces other than hotel/motel guest rooms shall comply with Section 6.4.3.3.1 and 6.4.3.3.2 except for electric resistance heaters rated at 1.5 kW or less with a readily accessible manual control that lowers the set point or turns the unit off.
- l. Systems serving hotel/motel guest rooms shall comply with Section 6.4.3.3.5.

[. . .]

6.4.3.3 Off-Hour Controls. HVAC systems shall have the off-hour controls required by Sections 6.4.3.3.1 through 6.4.3.3.5.

Exceptions to 6.4.3.3:

1. HVAC systems intended to operate continuously.

2. *HVAC systems not serving residential spaces and having a design heating capacity and cooling capacity less than ~~15,000~~ 7000 Btu/h (2.1 kW) that are equipped with a readily accessible manual on/off controls.*

6.4.3.3.1 Automatic Shutdown. *HVAC systems shall be equipped with at least one of the following:*

- a. *Controls that can start and stop the system under different time schedules for seven different day types per week, are capable of retaining programming and time setting during loss of power for a period of at least ten hours, and include an accessible manual override or equivalent function that allows temporary operation of the system for up to two hours.*
- b. *An occupancy sensor that is capable of shutting the system off when no occupant is sensed for a period of up to 30 minutes.*
- c. *A manually operated timer capable of being adjusted to operate the system for up to two hours.*
- d. *An interlock to a security system that shuts the system off when the security system is activated.*

Exceptions to 6.4.3.3.1:

1. *Systems serving ~~Residential~~ occupancies with ~~may use~~ controls that can start and stop the system under at least two different time schedules per week.*
2. *Systems serving non-residential occupancies where heating or cooling capacity is less than 15,000 Btu/h (4.4 kW) with controls that can start and stop the system under at least two different time schedules per week.*

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 as required to maintain zone temperatures below an adjustable cooling set point at least 5°F above the occupied cooling set point or to prevent high space humidity levels.*

Exception to 6.4.3.3.2: *Radiant heating systems capable of and configured with a setback heating set point at least 4°F below the occupied heating set point.*

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.

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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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