

ADDENDA

**ANSI/ASHRAE/IES Addendum an 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 September 30, 2021, and by the Illuminating Engineering Society on September 27, 2021.

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FOREWORD

Addendum an clarifies baseline HVAC fan schedule requirements for projects that rely on ventilation via operable windows that are manually opened by the occupants. Such designs are fairly common in some parts of the country for multifamily apartments, dorm rooms and hotel guest rooms and have HVAC systems in the proposed design running intermittently to meet heating and cooling load during both occupied and unoccupied hours.

Table G3.1(4), "Proposed Design," column requires HVAC fans to be modeled as cycling with load because they do not provide OA for ventilation; the "Baseline Design" column requires schedules to be the same as in the proposed design, suggesting that the baseline PTAC/PTHP fans should also cycle. However, Section G3.1.2.4 requires baseline fans to operate continuously whenever HVAC zones are occupied, which conflicts with G3.1(4). This change eliminates Section G3.1.2.4, removes the language that was included in this section but was redundant or conflicted with Table G3.1(4), and moves requirement that were unique into Table G3.1(4) to consolidate all relevant requirements in one place.

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 an to Standard 90.1-2019

Modify Table G3.1 as shown (I-P and SI units).

Table G3.1 Modeling Requirements for Calculating Proposed and Baseline Building Performance

No.	Proposed Building Performance	Baseline Building Performance
[...]		
4. Schedule		
	<p>Schedules capable of modeling hourly variations in occupancy, lighting power, miscellaneous <i>equipment</i> power, <i>thermostat set points</i>, and <i>HVAC system</i> operation shall be used. The schedules shall be typical of the proposed <i>building</i> type as determined by the designer and approved by the <i>rating authority</i>.</p> <p>Temperature and Humidity Schedules. Temperature and humidity <i>control set points</i> and schedules as well as <i>temperature control throttling range</i> shall be the same for <i>proposed design</i> and <i>baseline building design</i>.</p> <p>HVACHVAC System Fan Schedules. Schedules for <u>HVACHVAC System</u> fans that provide <i>outdoor air</i> for <i>ventilation</i> shall run continuously whenever <i>spaces</i> are occupied and shall be cycled ON and OFF to meet heating and cooling loads during unoccupied hours.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> Where no heating and/or cooling <i>system</i> is to be installed, and a heating or cooling <i>system</i> is being simulated only to meet the requirements described in this table, heating and/or cooling <i>system</i> fans shall not be simulated as running continuously during occupied hours but shall be cycled ON and OFF to meet heating and cooling loads during all hours. <u>HVACHVAC System</u> fans shall remain on during occupied and unoccupied hours in <i>spaces</i> that have health- and safety-mandated minimum <i>ventilation</i> requirements during unoccupied hours. <u>HVACHVAC System</u> fans shall remain on during occupied and unoccupied hours in <i>systems</i> primarily serving <i>computer rooms</i>. 	<p>Same as <i>proposed design</i>.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> <i>Set points</i> and schedules for <i>HVAC systems</i> that <i>automatically</i> provide occupant thermal comfort via means other than directly controlling the air dry-bulb and wet-bulb temperature may be allowed to differ, provided that equivalent levels of occupant thermal comfort are demonstrated via the methodology in ASHRAE Standard 55, Section 5.3.3, "Elevated Air Speed," or Standard 55, Appendix B, "Computer Program for Calculation of PMV-PPD." Schedules may be allowed to differ between <i>proposed design</i> and <i>baseline building design</i> when necessary to model nonstandard <i>efficiency</i> measures, provided that the revised schedules have been approved by the <i>rating authority</i>. Measures that may warrant use of different schedules include but are not limited to <i>automatic lighting controls</i>, <i>automatic natural ventilation controls</i>, <i>automatic demand control ventilation controls</i>, and <i>automatic controls</i> that reduce <i>service water-heating</i> loads. In no case shall schedules differ where the <i>controls</i> are <i>manual</i> (e.g., <i>manual operation</i> of light switches or <i>manual operation</i> of windows). <u>HVACHVAC System</u> Fan schedules may be allowed to differ when Section G3.1.1(c) applies. <u>For Systems 6 and 8, only the terminal-unit fan and reheat coil shall be energized to meet heating set point during unoccupied hours</u>
[...]		

~~**G3.1.2.4 Fan System Operation.** Supply and return fans shall operate continuously whenever *HVAC zones* are occupied and shall be cycled to meet heating and cooling loads during unoccupied hours. Supply, return, and/or exhaust fans will remain on during occupied and unoccupied hours in *HVAC zones* that have health and safety mandated minimum *ventilation* requirements during unoccupied hours.~~

~~**Exception to G3.1.2.4:** For Systems 6 and 8, only the terminal-unit fan and reheat coil shall be energized to meet heating set point during unoccupied hours.~~

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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.

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