

STANDARD

**ANSI/ASHRAE/IES Addendum ar to
ANSI/ASHRAE/IES Standard 90.1-2022**

Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings

Approved by the ASHRAE Standards Committee on February 8, 2025; by the American National Standards Institute on March 11, 2025; and by the Illuminating Engineering Society on January 28, 2025.

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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ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

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- participation in the next review of the Standard,
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FOREWORD

Addendum ar requires that an energy cost budget (ECB) and Appendix G analysis be conducted using actual utilities rates or supply contracts from utilities or energy suppliers versus average U.S. DOE Energy Information Administration (EIA) rates when available. Actual utility rate schedules often include demand charges that can significantly impact the annual energy cost of a project, especially projects incorporating load management energy efficiency measures. Utility rates are typically available from the provider's web-site. Select rates may also be found at https://openei.org/wiki/Utility_Rate_Database.

Note that the standard does not guarantee the prediction of actual building operational costs.

This addendum impacts an optional performance path in the standard designed to provide increased flexibility and therefore was not subjected to cost-effectiveness analysis.

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 ar to Standard 90.1-2022

Revise Section 3.2 as shown below.

3.2 Definitions

[...]

purchased energy rates: costs for units of energy or power purchased at the building site. These costs may include energy costs as well as costs for power demand as determined by the adopting authority. The tariff, published rate, or contract for energy to be used at the building site, including fixed charges, energy unit costs, and demand charges that can vary by quantity, time of use, or season.

[...]

Revise Section 12.4.3.2 as shown below.

12.4.3.2 Annual Energy Costs. *The design energy cost and energy cost budget shall ~~be determined using rates for use the applicable published purchased energy rates for the project (such as electricity, gas, oil, propane, steam, and chilled water) that are approved by the adopting authority.~~*

Exceptions to 12.4.3.2:

- 1. For projects in the United States (U.S.), where it can be demonstrated to the authority having jurisdiction that applicable published energy rates are unavailable, the most recent state average annual energy prices published by the U.S. Energy Information Administration (EIA) for commercial customers or an approved alternative shall be used.*
- 2. Where applicable published purchased energy rates are unavailable for projects outside of the U.S., an approved alternative shall be used.*

Where on-site renewable energy or site-recovered energy is in excess of what is required in the budget building design by Table 12.5.1, the budget building design shall be based on the energy source used as the backup energy source, or electricity if no backup energy source has been specified. Where the proposed design includes on-site electricity generation systems other than on-site renewable energy systems, the baseline design shall include the same generation systems excluding its site-recovered energy.

[...]

Revise Table 12.5.1 as shown below.

Table 12.5.1 Modeling Requirements for Calculating Design Energy Cost and Energy Cost Budget

Proposed Design (Column A) Design Energy Cost (DEC)	Budget Building Design (Column B) Energy Cost Budget (ECB)
[. . .]	
2. Additions and Alterations	
<p>It is acceptable to demonstrate compliance using <i>building</i> models that exclude parts of the <i>existing building</i>, provided all of the following conditions are met:</p> <ol style="list-style-type: none"> Work to be performed under the current permit application in excluded parts of the <i>building</i> shall meet the requirements of Sections 5 through 10. Excluded parts of the <i>building</i> are served by <i>HVAC systems</i> that are entirely separate from those serving parts of the <i>building</i> that are included in the <i>building</i> model. Design <i>space</i> temperature and <i>HVAC system</i> operating <i>set points</i> and schedules on either side of the boundary between included and excluded parts of the <i>building</i> are identical. If a declining block or similar utility rate is being used in the analysis and the When excluded and included parts of the <i>building</i> are on the same utility-meter, the <i>purchased energy rates</i> shall reflect the utility block or rate for the <i>building</i> plus the addition. 	<p>Same as <i>proposed design</i>.</p>
[. . .]	

Revise Section G2.1 as shown below.

G2.1 Performance Calculations. The *proposed building performance* and *baseline building performance* shall be calculated using the following:

- The same simulation program
- The same weather data
- The same *purchased energy rates*

Revise Section G2.4.2 as shown below. Note that this section includes changes made by Addendum a to Standard 90.1-2022.

G2.4.2 Annual Energy Costs:

- The *design energy cost* and *baseline energy cost* shall ~~use the applicable published~~ be determined using ~~either actual rates for purchased energy rates for the project, or state average energy prices published by U.S. DOE's Energy Information Administration (EIA) for commercial building customers, but rates from different sources may not be mixed in the same project.~~

Exceptions to (a):

- Where applicable published *purchased energy rates* are unavailable in the United States (U.S.), state average *energy prices* published by the U.S. Energy Information Administration (EIA) for commercial *building* customers or an approved alternative shall be used.
- Where applicable published *purchased energy rates* are unavailable for projects outside of the U.S., an approved alternative shall be used.
- Where the proposed design utilizes purchased hot water, steam, or chilled water, such projects shall be modeled as using purchased electricity or gas in accordance with the "Proposed Building Performance" column of Table G3.1(10)(e), G3.1(10)(f), and G3.1(11)(g).

~~Where natural gas must be modeled in the baseline following Tables G3.1.1-2 or G3.1.1-3 but is not available at the building site, the state average energy prices published by EIA shall be used for natural gas, and either the actual rates published by the utility serving the building or state average energy prices published by EIA shall be used for electricity.~~

- Where *on-site renewable energy* or *site-recovered energy* is used, the *baseline building design* shall be based on the *energy source* used as the backup *energy source*, or the *baseline system energy source* in that category if no backup *energy source* has been specified, except where the *baseline energy source* is prescribed in Tables G3.1.1-2 and G3.1.1-3.

- c. Where the *proposed design* includes *on-site electricity generation systems* other than *on-site renewable energy systems*, the baseline design shall include the same generation *systems* excluding its *site-recovered energy*.

Informative Note: The above provision allows users to gain credit for features that yield load management benefits. Where such features are not present, users can simply use state average unit prices from EIA, which are updated annually and readily available on EIA's website (www.eia.gov).

Revise Table G3.1 as shown below.

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

Proposed Building Performance	Baseline Building Performance
[. . .]	
2. Additions and Alterations	
<p>It is acceptable to predict performance using <i>building</i> models that exclude parts of the <i>existing building</i>, provided that all of the following conditions are met:</p> <ul style="list-style-type: none"> a. Work to be performed in excluded parts of the <i>building</i> shall meet the requirements of Sections 5 through 10. b. Excluded parts of the <i>building</i> are served by <i>HVAC systems</i> that are entirely separate from those serving parts of the <i>building</i> that are included in the <i>building</i> model. c. Design <i>space</i> temperature and <i>HVAC system</i> operating <i>set points</i> and schedules on either side of the boundary between included and excluded parts of the <i>building</i> are essentially the same. d. If a declining block or similar utility rate is being used in the analysis and the When excluded and included parts of the <i>building</i> are on the same utility meter, the <i>purchased energy rates</i> shall reflect the utility block or rate for the <i>building</i> plus the addition. 	<p>If the proposed <i>design</i> excludes parts of the <i>existing building</i>, the <i>baseline building design</i> shall exclude them as well.</p> <p>When modeled, unmodified <i>existing building</i> components shall follow the same rules as new and modified <i>building</i> components.</p>
[. . .]	

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.

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As an industry leader in research, standards writing, publishing, certification, and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

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