ADDENDA

ANSI/ASHRAE/IBPSA Addendum c to
ANSI/ASHRAE/IBPSA Standard 209-2024

Building Performance Simulation Process

Approved by ASHRAE and the American National Standards Institute on January 30,2026, and by the International Building Performance Simulation Association on January 12, 2026.

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 (www.ashrae.org/continuous-maintenance).

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International Building Performance Simulation Association

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SPECIAL NOTE

This American National Standard (ANS) is a national voluntary consensus Standard developed under the auspices of ASHRAE. *Consensus* is defined by the American National Standards Institute (ANSI), of which ASHRAE is a member and which has approved this Standard as an ANS, as "substantial agreement reached by directly and materially affected interest categories. This signifies the concurrence of more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that an effort be made toward their resolution." Compliance with this Standard is voluntary until and unless a legal jurisdiction makes compliance mandatory through legislation.

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.

The Senior Manager of Standards of ASHRAE should be contacted for

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, or
d. permission to reprint portions of the Standard.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

Addendum c makes the following revisions to Modeling Cycle #6—Design Integration and Optimization:

a. *Updates the cycle's name to "Design Optimization," reflecting the cycle's specific intent*
b. *Revises the purpose to more clearly describe how the cycle supports the evaluation of alternatives and the identification of optimal ones*
c. *Introduces an informative note distinguishing between the cycle's minimum requirements (single-objective optimization) and cases where exceeding the minimum requirements (multi-objective optimization) can provide benefits for projects with more demanding requirements*
d. *Introduces an informative note encouraging early initiation of this cycle and its continuation as the design evolves*

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

Addendum c to Standard 209-2024

Modify Section 6.6 as shown.

6.6 Modeling Cycle #6—Design ~~Integration and~~ Optimization

6.6.1 Purpose. ~~Integrate building systems through an *optimization* process to assist in meeting one or more of the project performance goals by exploring the complex interactions of multiple variables.~~ Apply building performance simulation to explore the impact of complex interactions between *design variables* on at least one performance objective. Evaluate the trade-offs and synergies between design alternatives and their effect on building performance. Identify the design alternative or set of alternatives that optimally achieve the identified performance objective or objectives.

Informative Note: When this cycle is used to demonstrate compliance with the standard, the minimum compliance requirements can be met by performing multivariant single-objective optimization analysis. In this case, at least one fundamental performance optimization objective is identified and analyzed; for example, minimize energy use or minimize carbon emissions. However, the size, complexity, or stringent performance targets for some projects could warrant a more complex analysis. For example, multiobjective optimization can be used to help balance potentially conflicting objectives, such as balancing low energy consumption with high occupant comfort and cost-effectiveness.

6.6.2 Applicability. When this *modeling cycle* is used to show compliance with the standard, it shall be completed before the end of the *construction document phase*.

Informative Note: It is advisable to initiate the process early in the design when many parameters are not fixed, there are higher degrees of freedom, and the opportunity for impact is greatest. The process can continue into later design stages where the input to the model can be updated based on the prevailing state of the design.

6.6.3 Analysis

6.6.3.1 ~~The *energy modeler* shall~~ Identify one or more *optimization objective* for the analysis that relates to the performance goals as identified in Section 5.6.

6.6.3.2 ~~The *energy modeler* shall~~ Identify at least two *design variables* of interest for a multivariate *optimization* process.

6.6.3.3 ~~The *energy modeler* shall~~ Identify the *design constraints* or test range for each analyzed *design variable*.

6.6.3.4 Conduct an *optimization* analysis using the defined *optimization objective* or *optimization objectives*, *design variable* or *design variables*, and *design constraints*.

Informative Note: An *optimization* analysis does not guarantee that the global minimum or maximum of the *optimization objective* will be found, only a local minimum or maximum given the *design variables*, *design constraints*, initializing values, and *optimization* method.

6.6.4 Reporting. In addition to the general reporting requirements in Section 5.7.3, for each design *optimization* measure, report the following:

a. *Optimization objective or optimization objectives*
b. *Design variable* or *design variables* analyzed
c. *Design constraints* or test range for each *design variable*
d. Description of the optimization method

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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