



**BSR/ASHRAE/IES Addendum bi
to ANSI/ASHRAE/IES Standard 90.1-2016**

Public Review Draft

**Proposed Addendum bi to
Standard 90.1-2016, Energy Standard
for Buildings Except Low-Rise
Residential Buildings**

**First Public Review (November 2018)
(Draft Shows Proposed Changes to Current Standard)**

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed standard, go to the ASHRAE website at www.ashrae.org/standards-research--technology/public-review-drafts and access the online comment database. The draft is subject to modification until it is approved for publication by the Board of Directors and ANSI. Until this time, the current edition of the standard (as modified by any published addenda on the ASHRAE website) remains in effect. The current edition of any standard may be purchased from the ASHRAE Online Store at www.ashrae.org/bookstore or by calling 404-636-8400 or 1-800-727-4723 (for orders in the U.S. or Canada).

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(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

The addendum updates the reference year for Standard 140 in Sections 11 and 12 as well as Appendix C and G. ANSI/ASHRAE Standard 140-2017 adds test cases for building energy simulation models of airside HVAC mechanical equipment, provided with new Sections 5.5 and 6.5 of Standard 140. These test cases are added to the existing test cases of Standard 140-2014, which are also included in Standard 140-2017. The new test cases were adapted from Airside HVAC BESTEST: Adaptation of ASHRAE RP 865 Airside HVAC Equipment Modeling Test Cases for ASHRAE Standard 140, Volume 1 Cases AE101 – AE445, developed by the National Renewable Energy Laboratory in collaboration with ASHRAE SSPC 140 and several international software developers.

In addition, the addendum adds more specific requirements about what Standard 140 test results are to be provided and how the engineer provides the results. The informative note clarifies that no pass or fail criteria are established in either Standard 140 or in 90.1.

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 to Reviewers: 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. Only these changes are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed substantive changes.

Addendum bi to 90.1-2016

Revise the Standard as follows (IP/SI Units)

11.4 Simulation General Requirements

11.4.1 Simulation Program

11.4.1.4 The *simulation program* shall be tested according to ASHRAE Standard 140, except for Sections 7 and 8 of Standard 140, ~~and the results shall be furnished by the software provider. The test results and modeler reports shall be posted on a publicly available website and shall include the test results of the simulation program alongside the results of the other simulation programs included in~~ ASHRAE Standard 140 Annexes B8 and B16. The modeler report in Standard 140 Annex A2

Attachment A2.7 shall be completed for results exceeding the maximum or falling below the minimum of the reference values or for missing results.

Informative note: There are no pass/fail criteria established by this requirement.

11.7 Documentation Requirements

f. The version of the software and the link to the website that contains the ASHRAE Standard 140 results for the version used in accordance with Section 11.4.1.4.

12 Normative References

ANSI/ASHRAE Standard 140-2014~~2017~~ Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs

C2 Output Requirements

C2.9 The version of the software and the link to the website that contains the ASHRAE Standard 140 results for the version used in accordance with Section C3.1.4.

C3 SIMULATION GENERAL REQUIREMENTS

C3.1 Simulation Program

C3.1.4 The *simulation program* shall be tested according to ASHRAE Standard 140, except for Sections 7 and 8 of Standard 140, ~~and the results shall be furnished by the software provider. The test results and modeler reports shall be posted on a publicly available website and shall include the test results of the simulation program alongside the results of the other simulation programs included in ASHRAE Standard 140 Annexes B8 and B16. The modeler report in Standard 140 Annex A2 Attachment A2.7 shall be completed for results exceeding the maximum or falling below the minimum of the reference values or for missing results.~~

Informative note: There are no pass/fail criteria established by this requirement.

G1.3 Documentation Requirements

q. The version of the software and the link to the website that contains the ASHRAE Standard 140 results for the version used in accordance with Section G2.2.4.

G2 SIMULATION GENERAL REQUIREMENTS

G2.2 Simulation Program

G2.2.4 The *simulation program* shall be tested according to ASHRAE Standard 140, except for Sections 7 and 8 of Standard 140, ~~and the results shall be furnished by the software provider.~~ The test results and modeler reports shall be posted on a publicly available website and shall include the test results of the simulation program alongside the results of the other simulation programs included in ASHRAE Standard 140 Annexes B8 and B16. The modeler report in Standard 140 Annex A2 Attachment A2.7 shall be completed for results exceeding the maximum or falling below the minimum of the reference values or for missing results.

Informative note: There are no pass/fail criteria established by this requirement.

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Section 11.7 and G1.3 are also modified by addendum O which is not yet published. If addendum O and this addendum are published, the section will be appear as follows. Text that did not appear in addendum O or in the previous sections of this draft, are shown below in strikethrough/underline:

11.7.2 Permit Application Documentation

f. The version of the software and the link to the website that contains the ASHRAE Standard 140 results for the version used in accordance with Section 11.4.1.4.

G1.3.2 Application Documentation

q. The version of the software and the link to the website that contains the ASHRAE Standard 140 results for the version used in accordance with Section G2.2.4.