



**BSR/ASHRAE/IES Addendum v  
to ANSI/ASHRAE/IES Standard 90.1-2022**

**Public Review Draft**

# **Proposed Addendum v to Standard 90.1-2022, Energy Standard for Sites and Buildings Except Low- Rise Residential Buildings**

**First Public Review (February 2024)  
(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](http://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](http://www.ashrae.org/bookstore) or by calling 404-636-8400 or 1-800-727-4723 (for orders in the U.S. or Canada).

This standard is under continuous maintenance. To propose a change to the current standard, use the change submittal form available on the ASHRAE website, [www.ashrae.org](http://www.ashrae.org).

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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

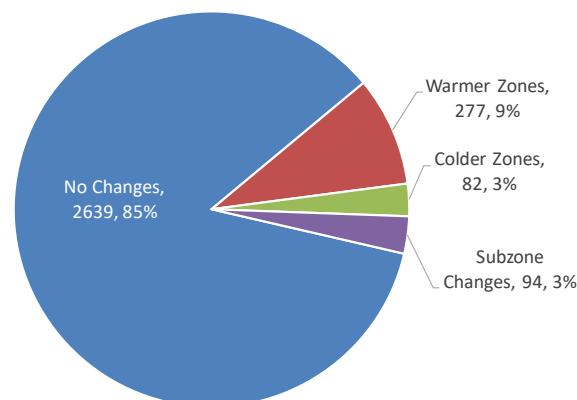
ASHRAE 90.1-2022 currently references the ASHRAE 169 -2013 “*Climate Data for Building Design Standards*” in Annex 1 as a direct extraction from the ASHRAE 169-2013 standard. ASHRAE 169 is a continuous maintenance standard that is routinely updated to align with the ASHRAE Handbook of Fundamentals Chapter 14 which is updated every 4 years. The current version of the Handbook of Fundamentals was published in 2021.

Since 2013 the ASHRAE 169-2020 and ASHRAE 169-2020 with addendum A, and ASHRAE 169-2021 have been published. The purpose of this addendum is to update the ASHRAE 90.1 to reference data climate zone data from ASHRAE 169-2021 Standard.

The data and tables in ASHRAE 169-2021 have been completely revised and updated from the ASHRAE 169-2013. The ASHRAE 169-2021 standard includes data for 9237 weather station locations throughout the world and relative to 5564 locations in ASHRAE 169-2013 for an increase of 3673.

We have conducted an analysis of the climate zones for the 3092 US counties and found the following results where some counties moved to warmer climate zones, some moved to colder, and some changed subzones.

2021 ASHRAE 169 vs 2013 US Climate Zone Changes  
(3092 Total US Counties)



The intent of this addendum is to directly extract the data in annex 1 from ASHRAE 169-2021 and this data has already been thru public review and therefore is not open for comment. Only the changes to the ASHRAE 90.1-2022 references and the used of ASHRAE 169-2021 are open for comment. The approach will be to completely replace the tables and figures in annex 1

This addendum is just a reference update and does not impact cost. Some cities may change climate zones to either warmer, cooler or subzones changes which could impact requirements in the ASHRAE 90.1 standard.

*[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard 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 changes.]*

## Addendum v to 90.1-2022

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*The following are the changes that should be made to the ASHRAE 90.1-2022 Standard*

**In Chapter 5, make the following changes to both IP and SI**

**5.1.5 Climate.** Determine the climate zone for the location. For U.S. locations, follow the procedure in Section 5.1.5.1. For international locations, follow the procedure in Section 5.1.5.2.

**5.1.5.1 United States Locations.** For locations in the United States and its territories, use ASHRAE Standard 169, Table ~~B-1~~A-4, “~~U.S. Climate Zones by State and County~~ Climate Zones for United States” to determine the assigned climate zone and, where required, the assigned climate zone letter.

Exception to 5.1.5.1: If there are recorded historical climatic data available for a construction site, they may be used to determine compliance if approved by the building official.

**Informative Note:** Annex 1 (included at the end of this document) contains an extraction from ASHRAE Standard 169, Table ~~B-1~~A-4, “~~U.S. Climate Zones by State and County~~ Climate Zones for United States”

**5.1.5.2 International Locations.** For locations in Canada that are listed in ASHRAE Standard 169, Table A-5, “~~Canada~~Canadian Stations and Climate Zones,” use this table to determine the required assigned climate zone number and, where required, the assigned climate zone letter. For locations in other international countries that are listed in ASHRAE Standard 169, Table A-6, “International Stations and Climate Zones,” use this table to determine the required climate zone number and, where required, the assigned climate zone letter. For all international locations that are not listed either in ASHRAE Standard 169, Table A-5, “~~Canada~~Canadian Stations and Climate Zones,” or ASHRAE Standard 169, Table A-6, “International Stations and Climate Zones,” use ASHRAE Standard 169, Section A3, “Climate Zone Definitions,” and Table ~~A-3~~A-2, “Thermal Climate Zone Definitions,” to determine both the climate zone number and letter.

**Informative Note:** Annex 1 (included at the end of this document) contains extractions from ASHRAE Standard 169, Table A-5, “~~Canada~~Canadian Stations and Climate Zones”; ASHRAE Standard 169, Table A-6, “International Stations and Climate Zones”; ASHRAE Standard 169, Section A3, “Climate Zone Definitions”; and Table ~~A-3~~A-2, “Thermal Climate Zone Definitions.”

**In Chapter 13 Normative References, make the following change.**

ANSI/ASHRAE Standard 169-~~2013~~2021 Climatic Data for Building Design Standards 5.1.5.1, 5.1.5.2

In informative appendix B, make the following changes.

(This appendix 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.)

## INFORMATIVE APPENDIX B (RETAINED FOR FUTURE USE)

Climatic data are no longer contained in this appendix. See Section ~~5.1.4~~[5.1.5](#) for requirements. Annex 1 of this standard contains

- a. an extraction of ASHRAE Standard 169, Table ~~B-1A-4~~, “~~U.S. Climate Zones by State and County~~ [Climate Zones for United States](#)” (which is normative for Standard 90.1),
- b. an extraction of ASHRAE Standard 169, Figure ~~B-1A-2~~, “Climate Zone for United States Counties” (which is informative for Standard 90.1),
- c. an extraction of ASHRAE Standard 169, Table A-5, “~~Canada~~[Canadian](#) Stations and Climate Zones” (which is normative for Standard 90.1),
- d. an extraction of ASHRAE Standard 169, Table A-6, “International Stations and Climate Zones” (which is normative for Standard 90.1),
- e. an extraction of ASHRAE Standard 169, Section A3, “Climate Zone Definitions” (which is normative for Standard 90.1),
- f. an extraction of ASHRAE Standard 169, Table ~~A-3A-2~~, “Thermal Climate Zone Definitions” (which is normative for Standard 90.1),
- g. an extraction of ASHRAE Standard 169, Figure A-1, “Thermal Climate Zones as a Function of Heating and Cooling Degree Days” (which is informative for Standard 90.1), and
- h. an extraction of ASHRAE Standard 169, Figure ~~C-2B-2~~, “World Climate Zones Map” (which is informative for Standard 90.1).

**In informative appendix D make the following changes.**

**(This appendix 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.)**

## **INFORMATIVE APPENDIX D**

**(RETAINED FOR FUTURE USE)**

Climatic data are no longer contained in this appendix. See Section ~~5.1.4~~ [5.1.5](#) for requirements. Annex 1 of this standard contains extracts of material from ASHRAE Standard 169.

Make the following changes to Annex 1

(This annex contains normative material from an existing ASHRAE standard that is cited in this standard. This annex is not part of this standard; its inclusion is merely informative. It is included here to facilitate use of this standard.)

ANNEX 1  
REFERENCE STANDARD REPRODUCTION—ASHRAE STANDARD 169

Annex 1 contains extractions of the following material from ASHRAE Standard 169 in the following order:

ASHRAE Standard 169 Material
Table Annex1-1: Table <del>B-1</del> , <del>A-4 U.S.</del> Climate Zones <del>by State and County</del> <a href="#">for United States</a>
Figure Annex1-1: Figure <del>B-1</del> <a href="#">A-2</a> , Climate zones for United States counties.
Table Annex1-2: Table A-5, <del>Canada</del> <a href="#">Canadian</a> Stations and Climate Zones
Figure Annex1-3: Table A-6, International Stations and Climate Zones
Section Annex1-1: Section A3, Climate Zone Definitions
Table Annex1-4: Table <del>A-3</del> <a href="#">A-2</a> , Thermal Climate Zone Definitions
Figure Annex1-2: Figure A-1, Thermal climate zones as a function of heating and cooling degree-days.
Figure Annex1-3: Figure <del>C-2</del> <a href="#">B-2</a> , World climate zones map.
Section Annex1-2: Section 4, Climatic Design Data and Climate Zones

**Informative Note:** Section references that appear in this annex are references to sections or appendices in ANSI/ASHRAE Standard 169.

Make the following tables and figures replacements to Annex 1. Note these are extractions and are not open for public review and comment.

Delete table Annex 1-1 Table B-1 U.S. Climate Zone by State and County contents and replace with ASHRAE 169-2021 A-4, Climate Zones for United States.

- See ASHRAE 90.1-2022 Annex 1 (from 169-2013) extraction section for the current table.
- See ASHRAE 169-2021 extraction at the end of this document for the replacement table.

Delete Figure Annex1-1: Figure B-1, Climate zones for United States counties and replace with ASHRAE 169-2021 figure A-2, Climate zones for United States counties.

- See ASHRAE 90.1-2022 Annex 1 (from 169-2013) extraction section for the current table.
- See ASHRAE 169-2021 extraction at the end of this document for the replacement table.

Delete Table Annex 1-2: Table A-5, Canada Stations and Climate Zones and replace with ASHRAE 169-2021 table A-5, Canadian Stations, and Climate Zones

- See ASHRAE 90.1-2022 Annex 1 (from 169-2013) extraction section for the current table.
- See ASHRAE 169-2021 extraction at the end of this document for the replacement table.

Delete Figure Annex1-3: Table A-6, International Stations and Climate Zones and replace with ASHRAE 1692-2021 Table A6 International Stations and Climate Zones.

- See ASHRAE 90.1-2022 Annex 1 (from 169-2013) extraction section for the current table.
- See ASHRAE 169-2021 extraction at the end of this document for the replacement table.

Delete Section Annex1-1: Section A3, Climate Zone Definitions and replace with ASHRAE 169-2021 Section A3 Climate Zone Definitions.

- See ASHRAE 90.1-2022 Annex 1 (from 169-2013) extraction section for the current table.
- See ASHRAE 169-2021 extraction at the end of this document for the replacement table.

Delete Table Annex1-4: Table A-3A-2, Thermal Climate Zone Definitions and replace with ASHRAE 169-2021 Thermal Climate Zone Definitions

- See ASHRAE 90.1-2022 Annex 1 (from 169-2013) extraction section for the current table.
- See ASHRAE 169-2021 extraction at the end of this document for the replacement table.

Delete Figure Annex1-2: Figure A-1, Thermal climate zones as a function of heating and cooling degree-days and replace with ASHRAE 169-2021 Thermal climate zones as a function of heating and cooling degree-days.

- See ASHRAE 90.1-2022 Annex 1 (from 169-2013) extraction section for the current table.
- See ASHRAE 169-2021 extraction at the end of this document for the replacement table.

Delete Figure Annex1-3: Figure C-2, World climate zones map and replace with ASHRAE 169-2021 figure B-2 World climate zones map.

- See ASHRAE 90.1-2022 Annex 1 (from 169-2013) extraction section for the current table.
- See ASHRAE 169-2021 extraction at the end of this document for the replacement table.

Delete section Annex1-2: Section 4, Climatic Design Data and Climate Zones and replace with ASHRAE 169-2021 Section 4 Climatic Design Data and Climate Zones

- See ASHRAE 90.1-2022 Annex 1 (from 169-2013) extraction section for the current table.
- See ASHRAE 169-2021 extraction at the end of this document for the replacement table.

## **ASHRAE 90.1-2022 Annex 1 (169-2013) Extraction**

**[Link to read-only file](#)**

(Shown for Reference)



## **ASHRAE 169-2021 Extraction**

**[Link to read-only file](#)**

(Shown for Reference, not open for comment)