

# STANDARD

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

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

Approved by ASHRAE and the American National Standards Institute on September 30, 2024, and by the Illuminating Engineering Society on September 18, 2024.

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.

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

- interpretation of the contents of this Standard,
- participation in the next review of the Standard,
- offering constructive criticism for improving the Standard, or
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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**

*Increasing the minimum efficiency of axial fan open-circuit cooling towers will save energy, and the new level will match the mandatory level in California Title 24. This efficiency increase is not expected to result in any meaningful market shift from water-cooled systems to alternative cooling solutions.*

*This change will impact a relatively small segment of the market that is currently below the 42.1 gpm/hp efficiency level, increasing cost slightly for these selections. As a typical example, an axial fan counterflow cooling tower selection was examined that required an additional layer of fill (heat transfer surface) but reduced the fan horsepower from 30 to 25 hp. This increased the height of the unit by 16 in. but resulted in an estimated simple payback of 1.5 years based on the additional cost (unit, taller screen wall, etc.) offset by the yearly energy savings of the smaller motor, exceeding the scalar ratio limit (SRL) calculated based on a 20-year life for axial fan, open-circuit cooling towers.*

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

**Addendum bb to Standard 90.1-2022**

*Modify Table 6.8.1-7 as shown (I-P).*

**Table 6.8.1-7 Performance Requirements for Heat Rejection Equipment—Minimum Efficiency Requirements**

Equipment Type	Total System Heat-Rejection Capacity at Rated Conditions	Subcategory or Rating Condition <sup>h</sup>	Performance Required <sup>a,b,c,f,g</sup>	Test Procedure <sup>d,e</sup>
Propeller or axial fan open-circuit cooling towers	All	95°F entering water 85°F leaving water 75°F entering wb	<del>≥40.2</del> <u>42.1</u> gpm/hp	CTI ATC-105 and CTI STD-201 RS
[ . . . ]				

*Modify Table 6.8.1-7 as shown (SI).*

**Table 6.8.1-7 Performance Requirements for Heat Rejection Equipment—Minimum Efficiency Requirements**

Equipment Type	Total System Heat-Rejection Capacity at Rated Conditions	Subcategory or Rating Condition <sup>h</sup>	Performance Required <sup>a,b,c,f,g</sup>	Test Procedure <sup>d,e</sup>
Propeller or axial fan open-circuit cooling towers	All	35.0°C entering water 29.4°C leaving water 23.9°C entering wb	<del>≥3.40</del> <u>3.56</u> L/(s·kW)	CTI ATC-105 and CTI STD-201 RS
[ . . . ]				

## **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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Founded in 1894, ASHRAE is a global professional society committed to serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration, and their allied fields.

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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