

ADDENDA

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

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

Approved by ASHRAE and by the American National Standards Institute on October 31, 2025; and by the Illuminating Engineering Society on October 16, 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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FOREWORD

Addendum q added integral pad-type (wetted media) adiabatic fluid coolers along with a minimum efficiency and the Cooling Technology Institute (CTI) acceptance test code (CTI ATC-105) to Table 6.8.1-7, "Performance Requirements for Heat Rejection Equipment—Minimum Efficiency Requirements." A definition for integral pad-type adiabatic fluid coolers was also added to Section 3 for clarity, and CTI ATC-105 was added to Section 13, "Normative References."

Addendum cm further modifies the thermal rating point for integral pad-type adiabatic fluid coolers. This change is based on analyses by several heat rejection equipment manufacturers. During development of the new CTI rating standard for adiabatic fluid coolers, it was found that at the temperature conditions currently listed in Table 6.8.1-7 (as added by Addendum q), the process fluid velocity and corresponding pressure drop for many heat-exchanger configurations will be very high and beyond the typical application range for these devices. This is especially pronounced in models with a higher number of rows, fewer circuits, and/or long coil lengths. Therefore, it would not be appropriate to use a rating condition where a substantial number of models would not be able to be rated at the standard rating condition.

A new thermal duty has been selected (105°F inlet/95°F outlet/95°F dry-bulb/75°F wet-bulb) to replace the original thermal duty in Addendum q (110°F inlet/100°F outlet/95°F dry-bulb/75°F wet-bulb). This updated thermal condition is more challenging thermally and will allow the vast majority of models currently on the market to be rated for comparison purposes.

As there currently are no performance requirements for adiabatic fluid coolers, Addendum q provided a minimum efficiency along with a test code to confirm the thermal performance of integral pad-type adiabatic fluid coolers. Addendum cm simply updates the thermal condition for Table 6.8.1-7. Based on this, no cost impact is anticipated at this time, but compliance with industry performance expectations will improve relative to adiabatic fluid coolers. CTI is currently working on extending its thermal certification program to include adiabatic fluid coolers, anticipated for late 2026. Finally, adiabatic systems that result in a wetted heat exchange surface continue to be outside of the scope of the listed CTI test code and should be evaluated as closed-circuit fluid coolers.

This proposal was developed at the request of the CTI Adiabatic Certification Committee and submitted by the ASHRAE TC8.6 Subcommittee on Codes and Standards, who both unanimously support this modification to the Standard.

Informative 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 cm 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 ^h	Performance Required ^{a,b,c,f,g,i}	Test Procedure ^{d,e}
[...]				
Propeller or axial fan <i>adiabatic fluid coolers, integral pad type</i>	All	110°F 105°F entering water 100°F 95°F leaving water 95°F entering db 75°F entering wb	≥6.2 gpm/hp	CTI ATC-105 Adiabatic
[...]				

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 ^h	Performance Required ^{a,b,c,f,g,i}	Test Procedure ^{d,e}
[...]				
Propeller or axial fan <i>adiabatic fluid coolers, integral pad type</i>	All	43.3°C 40.6°C entering water 37.8°C 35.0°C leaving water 35.0°C entering db 23.9°C entering wb	≥0.52 L/(s·kW)	CTI ATC-105 Adiabatic
[...]				

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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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