

ADDENDA

**ANSI/ASHRAE/IES Addendum ae to
ANSI/ASHRAE/IES Standard 90.1-2019**

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by ASHRAE and the American National Standards Institute on August 31, 2021, and by the Illuminating Engineering Society on August 26, 2021.

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

Table 8.4.4 shows minimum efficiency requirements for low-voltage dry-type transformers that are used in commercial buildings. Federal efficiency standards were updated in 2016, and the revised values were incorporated into the table. However, the federal requirements provide information, not included in the revised table, on the efficiency levels for transformers with kVA ratings.

Addendum ae updates Table 8.4.4 to include this language in a footnote along with language needed to show there are no requirements for transformers below minimum kVA ratings or above maximum kVA ratings shown in the table.

The addendum also updates Section 8.4.4 in several places to reference the Code of Federal Regulations (CFR) rather than the Energy Policy Act of 2005 and to align the list of exceptions to distribution transformers with the current regulatory language.

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

Addendum ae to Standard 90.1-2019

Modify Section 8.4.4 as shown (I-P and SI).

8.4.4 Low-Voltage Dry-Type Distribution Transformers. Low-voltage ~~dry-type~~ dry-type distribution transformers shall comply with ~~the provisions of the Energy Policy Act of 2005, where applicable, as shown the requirements shown~~ in Table 8.4.4. Transformers that are not included in ~~the scope of the~~ definition of distribution transformers as defined in 10 CFR 431.192 ~~Energy Policy Act of 2005~~ have no performance requirements in this section and are listed for ease of reference as exceptions.

Exceptions to 8.4.4: Transformers that meet any of the following exclusions in the U.S. DOE definition of “distribution transformers” found in 10 CFR 431.192 of the Energy Policy Act of 2005 based on 10 CFR 431 definition:

- ~~1. Special purpose applications.~~
- ~~2. Not likely to be used in general purpose applications.~~
- ~~31. Transformers with tap range of 20% or more multiple voltage taps, where the highest tap is at least 20% more than the lowest tap.~~
- ~~42. Drive (isolation) transformer.~~
- ~~53. Rectifier transformer.~~
- ~~64. Auto-transformer.~~
- ~~75. Uninterruptible power supply system transformer.~~
- ~~86. Special impedance transformer.~~
- ~~97. Regulating transformer.~~
- ~~108. Sealed and nonventilating transformer.~~
- ~~119. Machine-tool (control) transformer.~~
- ~~1210. Welding transformer.~~
- ~~1311. Grounding transformer.~~
- ~~1412. Testing transformer.~~
13. Nonventilated transformer.

Table 8.4.4 Minimum Nominal *Efficiency* Levels for Low-Voltage Dry-Type Distribution Transformers^{a,b}

Single-Phase Transformers		Three-Phase Transformers	
kVA ^{b,c}	Efficiency,% ^{e,d}	kVA ^{b,c}	Efficiency,% ^{e,d}
[No changes to table contents]			

a. A low-voltage dry-type distribution *transformer* is a *transformer* that is air-cooled, does not use oil as a coolant, has an input voltage ≤ 600 V, and is rated for operation at a frequency of 60 Hz.

b. A low-voltage dry-type distribution transformer with a kVA rating not listed in the table shall have its minimum efficiency level determined by linear interpolation of the kVA and efficiency values listed in the table immediately above and below its kVA rating. Extrapolation shall not be used below the minimum values or above the maximum values shown for single-phase transformers and three-phase transformers.

^{b,c}. Kilovolt-ampere rating.

^{e,d}. Nominal efficiencies shall be established in accordance with the 10 CFR 431.193 test procedure for low-voltage ~~dry-type~~ dry-type distribution *transformers*.

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.

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