



ADDENDA

**ANSI/ASHRAE Addendum b to
ANSI/ASHRAE Standard 90.4-2016**

Energy Standard for Data Centers

Approved by the ASHRAE Standards Committee on January 20, 2018; by the ASHRAE Technology Council on January 24, 2018; and by the American National Standards Institute on January 25, 2018.

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FOREWORD

Addendum b cleans up redundant wording in Section 4.1.1.2 and creates a more level planning field in Section 4.2.1.2 while eliminating inappropriate text. The addendum clarifies the exception in Section 6.1.1.2 that addresses the case where existing HVAC systems and equipment serve an addition, and it adds parallel criteria to Section 8.1.3 for electrical equipment.

The exception to Section 4.2.1.2 is deleted. The exception addresses increases in floor area and increases in connected load. In terms of the first aspect, providing an exemption for an increase in area is inequitable: there is no exemption for 10% of the floor area in a new building, and some additions to existing buildings can be as large as a stand-alone new building. All new floor area should be treated the same. Further, codes in general require compliance for new construction, and this change would better align Standard 90.4 with codes. In terms of the second aspect, this is the wrong location to address most increases in connected load. A build-out or expansion of ITE within the shell of an existing building envelope is considered an alteration, not an addition. Consequently, increases in connected load are most appropriately addressed in the alterations section.

In Section 6, the base requirements for additions to existing data centers remain unchanged. The exception to Section 6.1.1.2 is revised to clarify the distinctions between the use of existing HVAC systems and equipment to serve a new addition versus the installation of new HVAC systems and equipment. The language parallels the requirements in Standard 90.1, Section 6.

Section 8 in Standard 90.4 did not specifically address additions to existing data centers. The proposed base requirements match the requirements in Standard 90.1, Section 8. The new exception to Section 8.1.3 is written to parallel the exception in Section 6 above. (Standard 90.1, Section 8, does not contain such an exception.)

This addendum only addresses additions to existing data centers. The issue of alterations to existing data centers is addressed in Addendum a.

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 b to Standard 90.4-2016

Modify the standard as follows (I-P and SI units).

4. ADMINISTRATION AND ENFORCEMENT

4.1 General

4.1.1 Scope

4.1.1.1 New Data Centers. [. . .]

4.1.1.2 Additions to Existing Data Centers. An extension or increase in the floor area or height of a *data center* outside of the existing *data center* envelope shall be considered an addition to an existing *data center* and shall comply with the standard as described in Section 4.2.

[. . .]

4.2 Compliance

4.2.1 Compliance Paths

4.2.1.1 New Data Centers. [. . .]

4.2.1.2 Additions to Existing Data Centers. Additions to existing *data centers* shall comply with the provisions of Sections 5, 7, 9, and 10 and one of the following:

- a. Sections 6 and 8 or
- b. Section 11.

Exception to 4.2.1.2: Additions that result in less than a 10% increase in area or less than a 10% increase in connected load (*kW*) are excluded.

[. . .]

6. HEATING, VENTILATING, AND AIR CONDITIONING

6.1 General

6.1.1 Scope

[. . .]

6.1.1.2 Additions to Existing Data Centers. Mechanical equipment and systems ~~being installed to serve~~ the heating, cooling, or ventilating needs of additions to existing *data centers* shall comply with the requirements of this section as described in Section 6.2 or Section 11.

Exception to 6.1.1.2: Where conditioned air HVAC is provided to a *data center* addition by using the existing HVAC systems and equipment, such existing systems and equipment shall not be required to comply with this standard.

[. . .]

8. ELECTRICAL

8.1 General

[. . .]

8.1.3 Additions to Existing Data Centers. Electrical equipment and systems installed to serve the power needs of additions to existing data centers shall comply with the requirements of Section 8 as described in Section 8.2 or Section 11.

Exception to 8.1.3: Where electrical power is provided to a *data center* addition by using the existing electrical systems and equipment, such existing systems and equipment shall not be required to comply with this standard.

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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.

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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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