ADDENDA

ANSI/ASHRAE/IES Addendum au to
ANSI/ASHRAE/IES Standard 90.1-2013

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by the ASHRAE Standards Committee on January 23, 2016; by the ASHRAE Board of Directors on January 27, 2016; by the IES Board of Directors on December 31, 2015; and by the American National Standards Institute on January 28, 2016.

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. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE website (www.ashrae.org) or in paper form from the Senior Manager of Standards.

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FOREWORD

This addendum provides more detail for the baseline model with regard to hot-water pumps, chilled-water pumps, and heat-rejection equipment. The addendum uses previously approved 90.1-2013 Addendum ak with regard to 25% minimum flow for the hot-water pump, secondary chilled-water pump, and purchased-energy pumps. The addendum also provides guidance on pump power efficiency limits for these systems.

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

Addendum au to 90.1-2013

Modify the standard as follows (IP and SI Units).

G3.1.3.5 Hot-Water Pumps. The baseline building design hot-water pump power shall be 19 W/gpm (301 kW/1000 L/s). The pumping system shall be modeled as primary-only with continuous variable flow and a minimum of 25% of the design flow rate. Hot-water systems serving 120,000 ft^2 (1291 m^2) or more shall be modeled with variable-speed drives, and systems serving less than 120,000 ft^2 (1291 m^2) shall be modeled as riding the pump curve.
Exception: The pump power for systems using purchased heat shall be 14 W/gpm (222 kW/1000 L/s).

G3.1.3.10 Chilled-Water Pumps ~~(Systems 7, 8, and 11).~~ ~~The baseline building design pump power shall be 22 W/gpm.~~ Chilled-water systems ~~with a cooling capacity of 300 tons or more~~ shall be modeled as primary/secondary systems with constant flow primary loop and variable flow secondary loop. For systems with a cooling capacity of 300 tons (1055 kW) or more, the secondary pump shall be modeled with variable-speed drive~~s on the secondary pumping loop~~ and a minimum flow of 25% of the design flow rate. ~~Chilled-water pumps in~~ For systems ~~serving~~ with less than 300 tons (1055 kW) cooling capacity ~~shall be modeled as a primary/secondary systems with~~ the secondary pump shall be modeled as riding the pump curve. The baseline building constant-volume primary pump power shall be modeled as 9 W/gpm (143 kW/1000 L/s) and the variable-flow secondary pump power shall be modeled as 13 W/gpm (206 kW/1000 L/s) at design conditions. For computer room systems using System 11 with an integrated water-side economizer, the baseline building design primary chilled-water pump power shall be increased by ~~5~~3 W/gpm (48 kW/1000 L/s) for flow associated with the water-side economizer.
Exception: ~~The pump power for~~ For systems using purchased chilled water, the building distribution pump shall be modeled with variable-speed drive, a minimum flow of 25% of the design flow rate, and a pump power of ~~shall be~~ 16 W/gpm (254 kW/1000 L/s).

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G3.1.3.11 Heat Rejection (Systems 7, 8, 11, and 12).

…

The tower shall be controlled to maintain a 70°F (21°C) leaving water temperature where weather permits, floating up to leaving water temperature at design conditions. The baseline building design condenser-water pump power shall be 19 W/gpm (301 kW/1000 L/s). For computer room systems using System 11 with an integrated water-side economizer, the baseline building design condenser water-pump power shall be increased ~~5~~3 W/gpm (48 kW/1000 L/s) for flow associated with the water-side economizer. Each chiller shall be modeled with separate condenser water and chilled-water pumps interlocked to operate with the associated chiller.

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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