ADDENDA

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

Energy Standard for Buildings Except Low-Rise Residential Buildings

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FOREWORD

High ”T was shown to result in optimum energy efficiency and life-cycle costs[1]. The analysis showed that the fan energy increase due to the larger coil was more than offset by the pump energy savings, and net first costs were reduced due to smaller piping and pumps, offsetting higher coil costs. So both first costs and energy costs are reduced by this requirement.

Rationale for the exceptions:

1. *This exception allows lower ”T if the coil area is near the limit of Standard 62.1•s cleanability criterion:*

> **5.11.2 Finned-Tube Coil Selection for Cleaning.** Individual finned-tube coils or multiple finned-tube coils in series without intervening access space(s) of at least 18 in. (457 mm) shall be selected to result in no more than 0.75 in. wc (187 Pa) combined dry-coil pressure drop at 500 fpm (2.54 m/s) face velocity.

   A higher ”T would require a coil that would likely violate the Standard 62.1 limit. A pressure drop of 0.7 is used (rather than 0.75) since the limit cannot always be selected right on the nose.

2. *Most small fan-coils do not have an option for 8 row coils so 15ºF (8.3ºC) ”T cannot be achieved in most applications. They are also usually limited to 4 row coils when the fan-coil also has a hot water coil.*

This addendum makes proposed changes to the current standard. These changes are indicated in the text by <u>underlining</u> (for additions) and ~~strikethrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes.

Addendum bj to 90.1-2013

Add new prescriptive requirement as follows (I-P and SI)

<u>6.5.4.7 Chilled Water Coil Selection</u><u>. Chilled-water cooling coils shall be selected to provide a 15ºF (8.3ºC) or higher temperature difference between leaving and entering water temperatures and a minimum of 57°F (14°C) leaving water temperature at design conditions.</u>

<u>Exceptions:</u> <u>The following systems are not required to comply with this section:</u>

1. <u>Chilled-water cooling coils that have an airside pressure drop exceeding 0.70 in. of water (175 Pa) when rated at 500 fpm (2.54 m/s) face velocity and dry conditions (no condensation).</u>
2. <u>Individual fan-cooling units with a design supply airflow rate 5000 cfm (2400 L/s) and less.</u>
3. <u>Constant air volume systems.</u>
4. <u>Coils selected at the maximum temperature difference allowed by the chiller.</u>
5. <u>Passive coils (no mechanically supplied airflow).</u>
6. <u>Coils with design entering chilled-water temperatures of 50ºF (10ºC) and higher.</u>
7. <u>Coils with design entering air dry-bulb temperatures of 65ºF (18ºC) and lower.</u>

[1] Taylor, S. 2011. Optimizing Design & Control of Chilled Water Plants, Part 3: Pipe Sizing and Optimizing ” T, ASHRAE Journal, December.

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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