ADDENDA

ASHRAE Addendum b to
ASHRAE Guideline 36-2021

High-Performance Sequences of Operation for HVAC Systems

Approved by ASHRAE on August 1, 2023

This addendum was approved by a Standing Guideline Project Committee (SGPC) 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 guideline. Instructions for how to submit a change can be found on the ASHRAE® website (www.ashrae.org/continuous-maintenance).

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SPECIAL NOTE

This Guideline was developed under the auspices of ASHRAE. ASHRAE Guidelines are developed under a review process, identifying a Guideline for the design, testing, application, or evaluation of a specific product, concept, or practice. As a Guideline it is not definitive but encompasses areas where there may be a variety of approaches, none of which must be precisely correct. ASHRAE Guidelines are written to assist professionals in the area of concern and expertise of ASHRAE's Technical Committees and Task Groups.

ASHRAE Guidelines are prepared by Project Committees appointed specifically for the purpose of writing Guidelines. The Project Committee Chair and Vice-Chair must be members of ASHRAE; while other committee members may or may not be ASHRAE members, all must be technically qualified in the subject area of the Guideline.

Development of ASHRAE Guidelines follows procedures similar to those for ASHRAE Standards except that (a) committee balance is desired but not required, (b) an effort is made to achieve consensus but consensus is not required, (c) Guidelines are not appealable, and (d) Guidelines are not submitted to ANSI for approval.

The Senior Manager of Standards of ASHRAE should be contacted for

a. interpretation of the contents of this Guideline,
b. participation in the next review of the Guideline,
c. offering constructive criticism for improving the Guideline, or
d. permission to reprint portions of the Guideline.

(This foreword is not part of this guideline. It is merely informative and does not contain requirements necessary for conformance to the guideline.)

FOREWORD

Addendum b revises the request-hours section to reduce nuisance alarms and to prevent the Cumulative%-Request-Hours from exceeding 100%. The current Request-Hours calculation causes the Cumulative%-Request-Hours to exceed 100% when the number of requests is greater than 1 for an extended period, as the request-hours accumulates faster than the system run hours. A %-request-hours that exceeds 100% is not intuitive to users. The revised calculation of Request-Hours ensures that the Cumulative%-Request-Hours does not exceed 100%. This addendum also adds a delay to the request-hours alarm to prevent nuisance alarms upon initial reset of the request-hours and system run-hours.

Note: In this addendum, changes to the current guideline 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 b to Guideline 36-2021

(IP and SI Units)
Revise Section 5.1.14.2 as follows:

5.1.14.2. A "request" is a call to reset a static pressure or temperature setpoint generated by downstream zones or air-handling systems. These requests are sent upstream to the plant or system that serves the zone or air handler that generated the request.

a. For each downstream zone or system, and for each type of set-point reset request listed for the zone/system, provide the following software points:

1. Importance-Multiplier (default = 1)

Importance-Multiplier is used to scale the number of requests the zone/system is generating. A value of zero causes the requests from that zone or system to be ignored. A value greater than one can be used to effectively increase the number of requests from the zone/system based on the critical nature of the spaces served.

2. Request-Hours Accumulator. Provided SystemOK (see Section 5.1.19) is TRUE for the zone/system and there is an active request, every *x* minutes (default 5 minutes), add *x* divided by 60 ~~times the current number of requests~~ to this request-hours accumulator point.

3. System Run-Hours Total. This is the number of hours the zone/system has been operating in any mode other than Unoccupied Mode.

Request-Hours accumulates the ~~integral of requests (prior to adjustment of Importance-Multiplier)~~total time when a request is generated to help identify zones/systems that are driving the reset logic. Cumulative%-Request-Hours calculates the percentage of System Run-Hours when there is an active request. Rogue zone identification is particularly critical in this context, because a single rogue zone can keep the T&R loop at maximum and prevent it from saving any energy.

4. Cumulative%-Request-Hours. This is the zone/system Request-Hours divided by the zone/system run-hours (the hours in any mode other than Unoccupied Mode) since the last reset, expressed as a percentage.

5. The Request-Hours Accumulator and System Run-Hours Total are reset to zero as follows:

i. Reset automatically for an individual zone/system when the System Run-Hours Total exceeds 400 hours.

ii. Reset manually by a global operator command. This command will simultaneously reset the Request-Hours point for all zones served by the system.

6. A Level 4 alarm is generated if the zone Importance-Multiplier is greater than zero, the zone/system Cumulative% Request Hours exceeds 70% for 1 hour continuously, and the total number of zone/system run hours exceeds 40.

b. See zone and air-handling system control sequences for logic to generate requests.

Multiply the number of requests determined from zone/system logic times the Importance-Multiplier and send to the system/plant that serves the zone/system. See system/plant logic to see how requests are used in T&R logic.

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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As an industry leader in research, standards writing, publishing, certification, and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

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8/23