Addendum b to
ASHRAE Guideline 36-2021

Public Review Draft

Proposed Addendum b to Guideline 36-2021, High-Performance Sequences of Operation for HVAC Systems

First Public Review (February 2022)
(Draft shows Proposed Changes to Current Guideline)

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

FOREWORD

This addendum is to revise 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 which 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.
Addendum b to ASHRAE Guideline 36-2021, *High-Performance Sequences of Operation for HVAC Systems*
First Public Review

*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. Only these changes are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed substantive 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.