ADDENDA

ANSI/ASHRAE Addendum bt to
ANSI/ASHRAE Standard 135-2016

A Data Communication Protocol for Building Automation and Control Networks

Approved by ASHRAE and by the American National Standards Institute on August 26, 2019.

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. Instructions for how to submit a change can be found on the ASHRAE® website (https://www.ashrae.org/continuous-maintenance).

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[This foreword and the "rationales" on the following pages are not part of this standard. They are merely informative and do not contain requirements necessary for conformance to the standard.]

FOREWORD

The purpose of this addendum is to present a proposed change for public review. These modifications are the result of change proposals made pursuant to the ASHRAE continuous maintenance procedures and of deliberations within Standing Standard Project Committee 135. The proposed changes are summarized below.

In the following document, language to be added to existing clauses of ANSI/ASHRAE 135-2016 and Addenda is indicated through the use of *italics*, while deletions are indicated by ~~strikethrough~~. Where entirely new subclauses are proposed to be added, plain type is used throughout. Only this new and deleted text is open to comment at this time. All other material in this document is provided for context only and is not open for public review comment except as it relates to the proposed changes.

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135-2016*bt*-1. Add re-alert transitions to the CHANGE_OF_LIFE_SAFETY event algorithm.

Rationale

In some life safety applications, regulations demand that particular conditions, when being present for e.g. too long time, need to be re-notified if not handled by acknowledgement, reset, or other procedures.

This proposed change extends the CHANGE_OF_LIFE_SAFETY event algorithm to allow indication of a transition to the same event state even if the monitored values do not change, based on determinations internal to the device. This results in event notifications being sent again as for any other transition indicated by the algorithm.

[Change **Clause 13.3.8**, p. 488]

...

The conditions evaluated by this event algorithm are:

...

. . .

(k) If pCurrentState is LIFE_SAFETY_ALARM, and pMode changes, then indicate a transition to the LIFE_SAFETY_ALARM event state.

(l) If pCurrentState is OFFNORMAL, and current conditions require a re-alert, then indicate a transition to the OFFNORMAL event state. The conditions requiring a re-alert are a local matter. For example, the authority having jurisdiction requires re-alert for an OFFNORMAL condition.

(m) If pCurrentState is LIFE_SAFETY_ALARM, and current conditions require a re-alert, then indicate a transition to the LIFE_SAFETY_ALARM event state. The conditions requiring a re-alert are a local matter. For example, the authority having jurisdiction requires re-alert for a LIFE_SAFETY_ALARM condition.

If any of the optional conditions are supported, then all optional conditions shall be supported.

Figure 13-16 depicts those transitions of Figure 13-3 that this event algorithm may indicate:

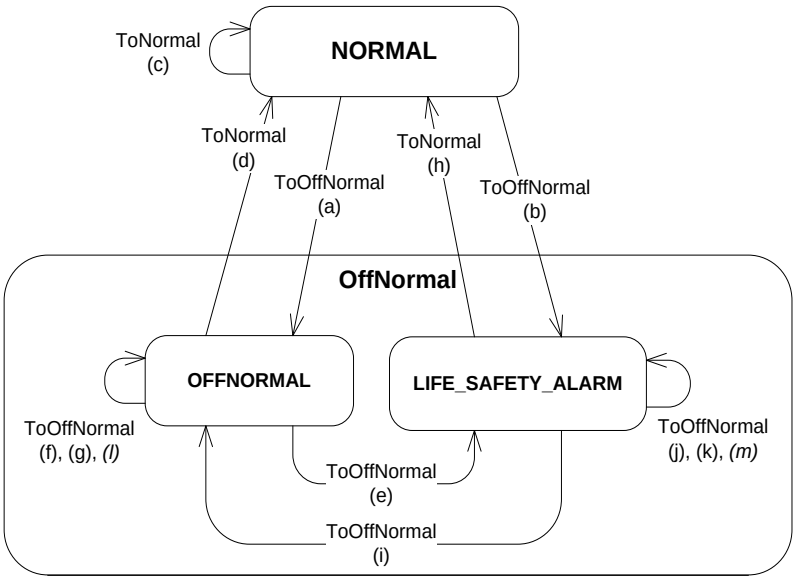

Figure 13-16. Transitions indicated by CHANGE_OF_LIFE_SAFETY algorithm

...

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135-2016*bt*-2. Add specific error codes for LifeSafetyOperation error situations

Rationale

The LifeSafetyOperation Service does not include defined error situations and respective error codes. For improved handling of error situations by clients, defined error situations and their respective error class and error code are needed.

In addition, the service procedure is extended to address the case of an unsupported character set in the 'Requesting Source' parameter.

[Change **Clause 13.13.1.3.1**, p. 656]

13.13.1.3.1 Error Type

This parameter consists of two component parameters: (1) the 'Error Class' and (2) the 'Error Code'. See Clause 18.

The 'Error Class' and 'Error Code' to be returned for specific situations are as follows:

Situation	*Error Class*	*Error Code*
Specified object does not exist	*OBJECT*	*UNKNOWN_OBJECT*
The object does not support LifeSafetyOperation service requests.	*OBJECT*	*OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED*
The object does not support the operation specified in the 'Request' parameter.	*OBJECT*	*VALUE_OUT_OF_RANGE*
The requesting BACnet device does not have appropriate authorization for the operation specified in the 'Request' parameter.	*SERVICES*	*SERVICE_REQUEST_DENIED*
The operation specified in the 'Request' parameter is invalid in the current state of the selected object.	*OBJECT*	*INVALID_OPERATION_IN_THIS_STATE*

[Change **Clause 13.13.2**, p. ?]

13.13.2 Service Procedure

The responding BACnet-user shall first verify the validity of the 'Object Identifier' parameter and return a 'Result(-)' response with the appropriate error class and code if the 'Request' is invalid or if the 'Object Identifier' parameter is present and specifies an object that is either unknown or does not represent an appropriate request for this object ~~type~~ .

If the 'Object Identifier' parameter is not present, then the responding BACnet-user shall attempt to operate all applicable objects in the device based on the 'Request' parameter, *and a Result(+) primitive shall be issued*.

If the 'Object Identifier' parameter is present, the responding BACnet-user shall attempt to ~~silence or reset~~ *execute the requested operation on* the object specified in the 'Object Identifier' parameter based on the 'Request' parameter. ~~In either case~~ *If the operation is executed successfully,* the responding BACnet-user shall issue a Result(+) primitive.

If the 'Request' parameter conveys a value which is inappropriate for the current state of the object specified in the 'Object Identifier' parameter, e.g., a RESET operation is requested but the object is not ready to be reset or is already reset, then a Result(-) shall be issued.

A device shall not fail to process, or issue a Result(-), upon receiving a LifeSafetyOperation service request containing a 'Requesting Source' parameter in an unsupported character set. In this case, it is a local matter whether the 'Requesting

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Source' parameter is used as provided or whether a character string, in a supported character set, of length 0 is used in its place.

[Insert new entry in **Clause 18.2**, p. 735]

18.2 Error Class - OBJECT

...

INVALID_OPERATION_IN_THIS_STATE *- The operation specified in a service parameter is invalid in the current state of the object.*

...

[Change **Error** production in **Clause 21**, p. 798]

Error ::= SEQUENCE {
-- NOTE: The valid combinations of error-class and error-code are defined in Clause 18.
error-class ENUMERATED {
. . .
}

error-code ENUMERATED { -- see below for numerical order
...

[Insert the new error code as added in the numerical order list below into the alphabetical order list, maintaining the alphabetical order]

...
-- numerical order reference
...
-- see invalid-value-in-this-state (138),
-- *see invalid-operation-in-this-state* *(139),*
...
}
-- Enumerated values 0-255 are reserved for definition by ASHRAE. Enumerated values
-- 256-65535 may be used by others subject to the procedures and constraints described
-- in Clause 23.
}

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135-2016*bt*-3. Add support for elevator based occupant evacuation (OEO) to the life safety objects.

Rationale

Rationale

Occupant Evacuation Operation (OEO) of elevators requires fire alarm systems (FAS) to provide fire alarm related evacuation information to elevator systems (ES). For fire alarm systems providing a BACnet interface based on life safety objects, dedicated and standardized OEO states are needed. In addition, for simplified engineering, the Life Safety Zone objects representing OEO evacuation zones on a floor should indicate the related floor.

The BACnetLifeSafetyState enumeration is extended with dedicated OEO states. The BACnetLifeSafetyMode enumeration is extended with dedicated OEO modes for activating particular OEO states.

In addition, the Life Safety Zone object is extended with an optional property that indicates the universal floor number of the floor on which the OEO evacuation area represented by the Life Safety Zone object is present. For this, the universal floor number concept is used as introduced with the elevator objects. For use as a standardized indicator of the floor, this property is also added to the Life Safety Point object.

[Insert in alphabetic order to **Clause 3.3**, p. 7]

OEO *occupant evacuation operation*

[Change **Table 12-18**, p. 235

Table 12-18. Properties of the Life Safety Point Object Type

Property Identifier	Property Datatype	Conformance Code
Object_Identifier	BACnetObjectIdentifier	R
...	...	...
Floor_Number	*Unsigned8*	*O*
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	R
Value_Source	BACnetValueSource	O[7,8,9]
Tags	BACnetARRAY[N] of BACnetNameValue	O
Profile_Location	CharacterString	O
Profile_Name	CharacterString	O

[1] These properties are required to be writable when Out_Of_Service is TRUE.
[2] ...

[Add new **Clause 12.15.X**, p. 240]

12.15.X Floor_Number

This property, of type Unsigned8, indicates the universal floor number of the floor on which the life safety point this object represents is present.

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[Change **Table 12-19**, p. 242

Table 12-19. Properties of the Life Safety Zone Object Type

Property Identifier	Property Datatype	Conformance Code
Object_Identifier	BACnetObjectIdentifier	R
...	...	...
Floor_Number	*Unsigned8*	*O*
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	R
Value_Source	BACnetValueSource	O[6,7,8]
Tags	BACnetARRAY[N] of BACnetNameValue	O
Profile_Location	CharacterString	O
Profile_Name	CharacterString	O

[1] These properties are required to be writable when Out_Of_Service is TRUE.
[2] ...

[Add new **Clause 12.16.X**, p. 274]

12.16.X Floor_Number

This property, of type Unsigned8, indicates the universal floor number of the floor on which the life safety zone this object represents is present.

[Change **Clause 21, BACnetPropertyIdentifier** production, p. ?]

BACnetPropertyIdentifier ::= ENUMERATED { -- see below for numerical order
...
firmware-revision (44),
floor-number (506),
floor-text (464),
...
-- -numerical order reference
...
-- see represents (491),
-- *see floor-number (506),*
...
}
-- The special property identifiers all, optional, and required are reserved for use in the
-- ReadPropertyMultiple service or services not defined in this standard.
--
-- Enumerated values 0-511 are reserved for definition by ASHRAE. Enumerated values 512-4194303 may be used by
-- others subject to the procedures and constraints described in Clause 23.

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[Change **Clause 21, BACnetLifeSafetyMode** production, p. 831]

BACnetLifeSafetyMode ::= ENUMERATED {
    off (0),
...
    default (14),
    activated-oeo-alarm (15),
    activated-oeo-evacuate (16),
    activated-oeo-phase1-recall (17),
    activated-oeo-unavailable (18),
    deactivated (19),
    ...
    }
    -- Enumerated values 0-255 are reserved for definition by ASHRAE. Enumerated values
    -- 256-65535 may be used by others subject to procedures and constraints described in Clause 23.

[Change **Clause 21, BACnetLifeSafetyState** production, p. 831]

BACnetLifeSafetyState ::= ENUMERATED {
    quiet (0),
...
    test-supervisory (23),
    non-default-mode (24),
    oeo-unavailable (25),
    oeo-alarm (26),
    oeo-phase1-recall (27),
    oeo-evacuate (28),
    oeo-unaffected (29),
    test-oeo-unavailable (30),
    test-oeo-alarm (31),
    test-oeo-phase1-recall (32),
    test-oeo-evacuate (33),
    test-oeo-unaffected (34),
    ...
    }
    -- Enumerated values 0-255 are reserved for definition by ASHRAE. Enumerated values
    -- 256-65535 may be used by others subject to procedures and constraints described in Clause 23.

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[Add a new entry to **History of Revisions**, p. 1364]

HISTORY OF REVISIONS

. . .	. . .	**. . .**
1	21	**Addendum *bt* to ANSI/ASHRAE Standard 135-2016** Approved by ASHRAE and by the American National Standards Institute on August 26, 2019. 1. Add re-alert transitions to the CHANGE_OF_LIFE_SAFETY event algorithm. 2. Add specific error codes for LifeSafetyOperation error situations. 3. Add support for elevator based occupant evacuation (OEO) to the life safety objects.

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Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

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