

BSR/ASHRAE Addendum *h*  
to ANSI/ASHRAE Standard 135-2004

# Public Review Draft

ASHRAE® Standard

## Proposed Addendum *h* to Standard 135-2004, *BACnet®—A Data Communication Protocol for Building Automation and Control Networks*

Second Public Review (**March 2008**)  
(Draft Shows Proposed Changes to  
Previous Public Review Draft)

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed addendum, use the comment form and instructions provided with this draft. The draft is subject to modification until it is approved for publication by the Board of Directors and ANSI. Until this time, the current edition of the standard (as modified by any published addenda on the ASHRAE web site) remains in effect. The current edition of any standard may be purchased from the ASHRAE Bookstore @ <http://www.ashrae.org> or by calling 404-636-8400 or 1-800-527-4723 (for orders in the U.S. or Canada).

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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 second public review draft of this addendum is to present proposed independent substantive changes 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.

135-2004*h*-1. Change Device\_Busy to Busy and apply to the Command Object type, p. 1.

135-2004*h*-5. Define COV notification service Error returns, p. 3.

135-2004*h*-8. Add even and odd day support in Dates, p. 4.

In the following document, language to be added to existing clauses of ANSI/ASHRAE 135-2004 and Addenda is indicated through the use of *italics*, while deletions are indicated by ~~striketrough~~. Where entirely new subclauses are proposed to be added, plain type is used throughout. Only this new and deleted text is open to comment as this time. All other material in this addendum is provided for context only and is not open for public review comment except as it relates to the proposed changes.

**Note to Reviewers: In this addendum, changes to the previous public review draft are indicated by showing the changed parts of both the previous and the current public review drafts (the public review 1 version followed by the public review 2 version). 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. Parts of the addendum that did not change are not shown in this public review draft.**

[Public review 1 version]

**135-2004h-1. Change Device\_Busy to Busy and apply to the Command Object type.**

**Rationale**

The Command object is required to reject a write request to its Present\_Value property when its In\_Process property has the value BUSY, but none of the currently available error codes are exactly appropriate to the situation. A similar code, DEVICE\_BUSY, is renamed to a more general name, BUSY, for this purpose.

**Addendum 135-2004h-1**

[Change 12.10, Command Object type, paragraph 3, p.174]

**12.10 Command Object type**

...

The Command object defines the relationship between a given state and those values that shall be written to a collection of different objects' properties to realize that state. Normally, a Command object is passive. Its In\_Process property is FALSE, indicating that the Command object is waiting for its Present\_Value property to be written with a value. When Present\_Value is written, the Command object shall begin a sequence of actions. The In\_Process property shall be set to TRUE, indicating that the Command object has begun processing one of a set of action sequences that is selected based on the particular value written to the Present\_Value property. If an attempt is made to write to the Present\_Value property through WriteProperty services while In\_Process is TRUE, then a Result(-) ~~shall be issued~~ shall be returned with 'error class' = OBJECT and 'error code' = BUSY, rejecting the write.

[Change 18.1.1, p.354]

**18.1.1 ~~DEVICE\_BUSY~~ BUSY** - A service request has been temporarily declined because the addressed BACnet device expects to be involved in higher priority processing for a time in excess of the usual request/confirm timeout period.

[Add new 18.2.X, p.354]

**18.2.X BUSY** - A service request has been temporarily declined because the addressed object is involved in a process that precludes execution of the service.

[Change 19.1.2.2, p.359]

**19.1.2.2 Preparation for Backup**

...

After device B responds to the ReinitializeDevice request with a 'Result(+)', the configuration File objects must exist in the device. It is a local matter as to whether device B will respond to other requests while it is in backup mode. The exception to this is that device B must accept and fulfill read requests by device A that consist of accesses to device B's Device object and/or its configuration File objects. Any services that are rejected due to an in-progress backup procedure will be rejected with an error class of DEVICE and error code of ~~DEVICE\_BUSY~~. BUSY.

[Change 21, production Error, p.406]

```
Error ::= SEQUENCE {
  ...
  error-code  ENUMERATED {
    other                (0),
    authentication-failed (1),
    busy                 (3),
    character-set-not-supported (41),
    configuration-in-progress (2),
    datatype-not-supported (47),
```



### 135-2004*h*-5 Define COV notification service Error returns.

#### Rationale

Standard 135.1 defines Error returns for the ConfirmedCOVNotification service that are not required by the current edition of Standard 135; those Error returns are specified here for Standard 135.

#### Addendum 135-2004*h*-5

##### [Public review 1 version]

[Change **Clause 21, Error** production, pp. 406-407]

[Note: A change to this production, adding enumerations 51-71, appears in proposed Addendum 135-2004*b*-11.]

Enumerations 72 was used in a prior draft of Addendum 135-2004*b* but was subsequently freed.]

[Note: A change to this production, adding enumerations 73-74, appears in Addendum 135-2004*d*-11.]

```
Error ::= SEQUENCE {  
  ...  
  error-code  ENUMERATED {  
    other                (0),  
    ...  
    unknown-property    (32),  
    unknown-subscription (75),  
    -- this enumeration was removed (33),  
    unknown-vt-class    (34),  
    ...  
    -- see unknown-subscription (75),  
    ...
```

##### [Public review 2 version]

[Change **Clause 21, Error** production, pp. 406-407]

[Note: A change to this production, adding enumerations 51-72, appears in proposed Addendum 135-2004*b*-11.]

[Note: A change to this production, adding enumerations 73-74, appears in Addendum 135-2004*d*-11.]

```
Error ::= SEQUENCE {  
  ...  
  error-code  ENUMERATED {  
    other                (0),  
    ...  
    unknown-property    (32),  
    unknown-subscription (79),  
    -- this enumeration was removed (33),  
    unknown-vt-class    (34),  
    ...  
    -- see unknown-subscription (79),
```

**135-2004h-8. Add even and odd day support in Dates.**

**Rationale**  
Resource conservation sometimes requires schedules to be able to turn on automated watering systems on either even- or odd-numbered days of the month. Adding enumerations to support this would facilitate automated scheduling of such operations.

**Addendum 135-2004h-8**

[Public review 1 version]

[Change clause 20.2.12, p. 383]

**20.2.12 Encoding of a Date Value**

The encoding of a date value shall be primitive, with four contents octets.

Date values shall be encoded in the contents octets as four binary integers. The first ~~contents~~ octet shall represent the year minus 1900; the second octet shall represent the month, with January = 1; the third octet shall represent the day of the month; and the fourth octet shall represent the day of the week, with Monday = 1. *A value of 13 in the second octet shall indicate odd months. A value of 14 in the second octet shall indicate even months. A value of 32 in the third octet shall indicate the last day of the month. A value of 33 in the third octet shall indicate odd days of the month. A value of 34 in the third octet shall indicate even days of the month.* A value of X'FF' = D'255' in any of the four octets shall indicate that the corresponding value is unspecified. If all four octets = X'FF', the corresponding date may be interpreted as "any" or "don't care."

[Change Clause 21, Date, p. 408]

```
Date ::= [APPLICATION 10] OCTET STRING (SIZE(4)) -- see 20.2.12
-- first octet   year minus 1900           X'FF' = unspecified
-- second octet  month (1..14)             1 = January
--                                     13 = odd months
--                                     14 = even months
--                                     X'FF' = unspecified
-- third octet   day of month (1..3234),
--                                     32 = last day of month
--                                     33 = odd days of month
--                                     34 = even days of month
--                                     X'FF' = unspecified
-- fourth octet  day of week (1..7)        1 = Monday
--                                     7 = Sunday
--                                     X'FF' = unspecified
```

[Public review 2 version]

[Change clause 20.2.12, p. 383]

**20.2.12 Encoding of a Date Value**

The encoding of a date value shall be primitive, with four contents octets.

Date values shall be encoded in the contents octets as four binary integers. The first ~~contents~~ octet shall represent the year minus 1900; the second octet shall represent the month, with January = 1; the third octet shall represent the day of the month; and the fourth octet shall represent the day of the week, with Monday = 1. A value of X'FF' = D'255'

in any of the four octets shall indicate that the corresponding value is unspecified. If all four octets = X'FF', the corresponding date may be interpreted as "any" or "don't care."

*A number of special values for the month and day octets have been defined for use in BACnetCalendarEntry. The following special values shall not be used when conveying an actual time value, such as the Local\_Date property of the Device object, or in a TimeSynchronization-Request. A value of 13 in the second octet shall indicate odd months. A value of 14 in the second octet shall indicate even months. A value of 32 in the third octet shall indicate the last day of the month. A value of 33 in the third octet shall indicate odd days of the month. A value of 34 in the third octet shall indicate even days of the month.*

[Change **Clause 21, Date**, p. 408]

**Date** ::= [APPLICATION 10] OCTET STRING (SIZE(4)) -- see 20.2.12

-- first octet    year minus 1900            X'FF' = unspecified  
-- second octet   month (1..14)            1 = January  
--    13 = odd months<sup>1</sup>  
--    14 = even months<sup>1</sup>  
--    X'FF' = unspecified  
-- third octet    day of month (1..~~32~~34),  
--    32 = last day of month<sup>1</sup>  
--    33 = odd days of month<sup>1</sup>  
--    34 = even days of month<sup>1</sup>  
--    X'FF' = unspecified  
-- fourth octet   day of week (1..7)        1 = Monday  
--    7 = Sunday  
--    X'FF' = unspecified  
-- <sup>1</sup> This value may be used only in the date choice of BACnetCalendarEntry.