INTERPRETATION IC 135-2010-8 OF
ANSI/ASHRAE STANDARD 135-2010 BACnet® -
A Data Communication Protocol for Building
Automation and Control Networks

Approval Date: November 7, 2012

Request from: Duffy O'Craven (btl-manager@bacnetinternational.org), Quinda Inc., 41 St. Hilda's Av. Toronto ON M4N 2P5 CANADA.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE 135-2010, Clause 12.24.4 and 12.24.6, relating to the behavior of the property Present_Value of the Schedule object.

Background: This interpretation request originated from the BTL-WG, whilst discussing Clarification Request CR-0272.

The standard states explicitly two conflicting behaviors regarding Present_Value changes while Schedule is outside Effective_Period.

In Standard135, in Clause 12.24.6, the Present_Value of the Schedule object description states:
These calculations are such that they can be performed at any time and the correct value of Present_Value property will result. These calculations must be performed at 00:00 each day, whenever the device resets, whenever properties that can affect the results are changed, whenever the time in the device changes by an amount that may have an effect on the calculation result, and at other times, as required, to maintain the correct value of the Present_Value property through the normal passage of time.

Note that the Present_Value property will be assigned the value of the Schedule_Default property at 00:00 of any given day, unless there is an entry for 00:00 in effect for that day.

None of those statements contain any qualification indicating which, if any, do not apply while Schedule is outside Effective_Period.

In Standard 135, in Clause 12.24.6, the Effective_Period of the Schedule object description states:
This property specifies the range of dates within which the Schedule object is active. Seasonal scheduling may be achieved by defining several SCHEDULE objects with non-overlapping Effective_Periods to control the same property references.

This effectively precludes writing to members of the List_Of_Object_Property_References property while Schedule is outside Effective_Period, but does not directly preclude recalculating Present_Value while its Schedule is outside Effective_Period.

Standard 135.1-2009, in Clause 7.3.2.23.1 with Test concept: "… the Present_Value property is monitored to verify that write operations occur only within the Effective_Period." has step 7:
7. VERIFY Present_Value = V2
This is perhaps an error, since BTL revised the test. The revised test BTL -7.3.2.23.1 states:

7. VERIFY Present_Value = V~~2~~*1*
Test BTL – 7.3.2.23.1 is executed if and only if the IUT is prior to protocol revision 4.

There is another BTL test which is executed if and only if the IUT is protocol revision 4 or higher, with Test concept: "…a property referenced by the List_Of_Object_Property_References property is monitored to verify that write operations occur only within the Effective_Period." That test, in the applicable corresponding step, expresses a different approach. BTL - 7.3.2.23.X.1 at step 7 states:
7. VERIFY "referenced property" = V1

Interpretation: Though writes to the members of the List_Of_Object_Property_References property while Schedule is outside Effective_Period are precluded, the standard does not prohibit recalculating Present_Value while its Schedule is outside Effective_Period.

Question: Is this interpretation correct?

Answer: No

Comments: The first sentence of 12.24.6 says "… range of dates within which the Schedule object is active." It is therefore not expected that the schedule object will be re-calculating its Present_Value when it is not "active." Since Present_Value is not changing, writes to the members of List_Of_Object_Property_References do not occur.