



Enclosed please find my comments:

The following are two recommendations for a new mechanisms that address “operational carbon” for the stretch code update along with the new Opt-In Stretch code. Our recommendations apply to large office, K12 schools, lab office and science buildings. They are focused on how to keep energy usage to a minimum, while maintaining health, safety, and comfort, for the life of the building.

Point 1 – Use of Modern High-Performance Operating Strategies

As you are aware, in the past 5-10 years buildings’ mechanical systems have advanced considerably to be able to yield energy utilization (EUI) of 25 kBtu/ft² or less. While the mechanical systems have advanced markedly, the operating strategies have not. After reviewing many MEP Specs/Plans we found operating strategies being used in zero net energy (ZNE) buildings are based on 10-15 year-old approaches, not on available high-performance operating strategies. More sophisticated mechanical designs required more sophisticated sequences.

We recommend requiring the incorporation of modern operating strategies from ASHRAE Guideline 36 *High-Performance Sequences of Operation for HVAC Systems*. The first version was released in 2018 with major upgrade in 2021; it is under continuous improvement. These are the latest research-based SOO, which yield more efficient and easier to maintain buildings.

Use of the G36 High-Performance SOO will add standardization to the way buildings operate, something that doesn’t exist today. Today each MEP has their operating strategies uniquely evolved and reused over time. By standardizing on G36 every MEP, control contractor, Cx Agent and Owner will learn a common approach to building operations.

Point 2 – Capture and Use of Operating Data (Operational Data Record)

BAS systems generate an enormous amount of operating data. For a large science/lab building there are 70M data records annually (based upon point count at 15-minute intervals), for an elementary school, 30M. The industry has been throwing away this asset since the beginnings of DDC. The use of this asset is limitless, but for this discussion we have an essential element to maintaining energy use as per design for the life of the building.

The ODR is an auditable record that includes building functions to answer questions such as:

- Was each room comfortable for the occupants throughout the day, for every day the school was used?
- Was the right amount fresh air delivered to each space?
- Did the room reach the temperature required before occupancy without wasting energy?
- Did the school use free cooling instead of mechanical cooling when available?
- Did the air handlers, pumps, and primary systems run based upon demand from downstream systems?
- Are the lights turning on and off when required?
- During vacations and weekends is the school using the minimal amount of energy?



These are just a small sample of the information contained in the ODR. The MEP had to consider all these conditions in design so there should be an historical record that it actually operates that way.

The Operational Data Record is required for:

- Evidence that the owner can use to prove/disprove what was delivered met specification
- Providing feedback to MEP, Control Contractor, Commissioning Agent, ME Contractor, and owner
- Foundation for Ongoing Monitoring
- Better training curriculum as operators can train on their building

Use of this type of data is pervasive today across most industries and functions, yet within the building construction process and operations business it is a foreign concept. Once an ODR has been used people wonder what it was like not having it.

Sustainably, achieving climate goals, maintaining comfortable and ventilated building interior are now expected. Our two points are a natural evolution of the design and operation phase of modern buildings.

Incorporating these two recommendations into the Code will encourage better standardization of operating strategies along with advancing verification techniques through data. The stretch code ups the game and our recommendations are doing the same for better building operations.

We are available to review our recommendations with you and show you how they have been used to improve automation delivery quality and maintain desired operations.

Best Regards,

Bill Gnerre
CEO & Cofounder
Interval Data Systems, Inc.
617-543-5682 (primary)
781-996-4353
www.intdatsys.com
Experience Better Automation