



INTERNATIONAL AIR-CONDITIONING • HEATING • REFRIGERATING EXPOSITION

AHR EXPO[®]

January 31-February 2, 2011

Las Vegas Convention Center
Las Vegas, Nevada

Co-sponsors:



Continuous Commissioning and Today's Aggressive Energy Standards

1:30 pm Monday, January 31st

David J. Branson, PE Executive Vice President
Compliance Services Group, Inc.

- Ken Sinclair Publisher/Owner

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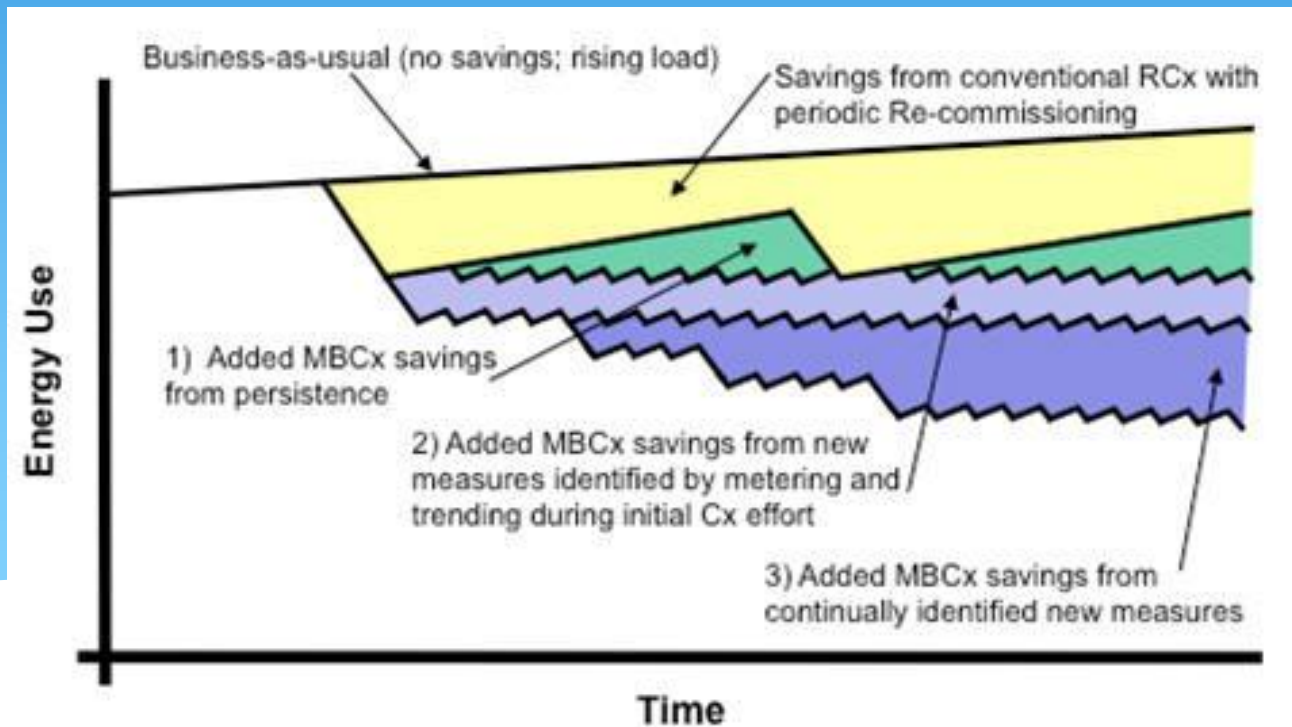
About

Continuous Connected Commissioning

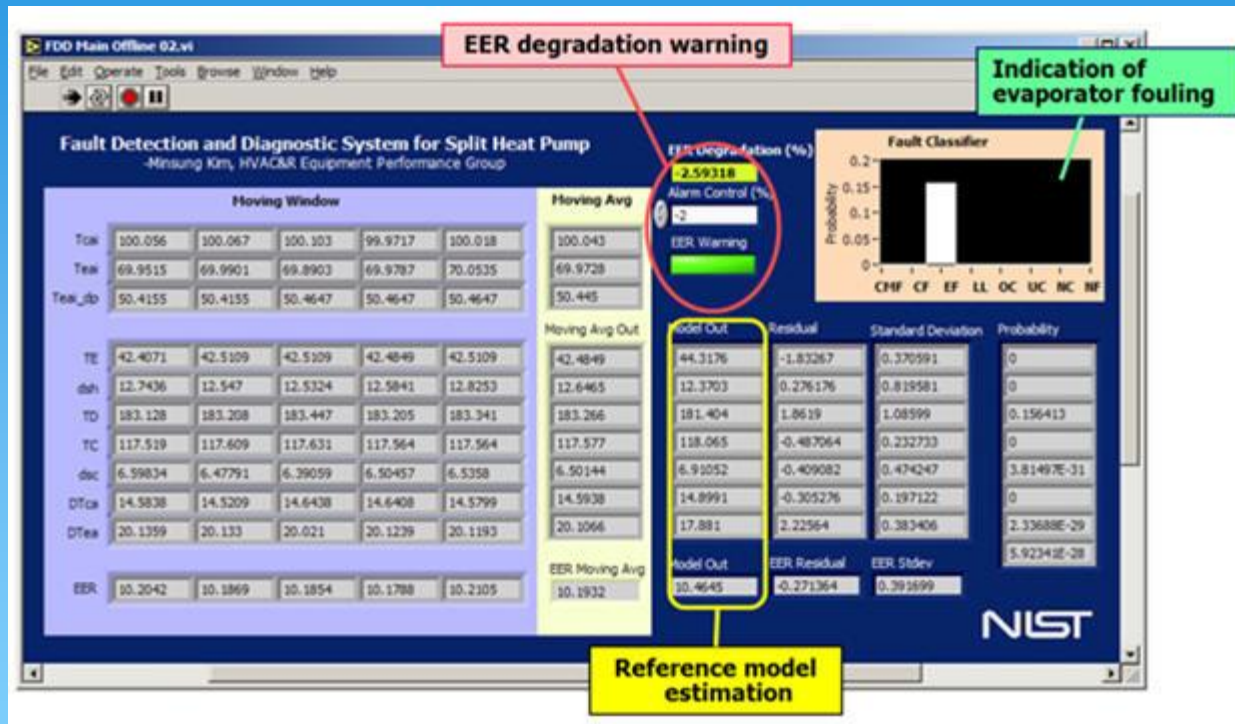
- * Persistent monitoring and diagnostics of system operations directly impacts sustainable energy efficiency in commercial buildings.
- * CCC uses access to the existing Building Automation System (BAS) for this new class of analysis. The data is then used to create performance models of each piece of equipment to track actual (vs. design) operation.
- * New modeling techniques have emerged to create models that persistently **predict** actual performance
- * By leveraging these models, building operators and facility managers have a powerful means to diagnose and control component and system faults and anomalies.

continuous commissioning

Source: “Building Commissioning: A Golden Opportunity for Reducing Energy Costs and Greenhouse Gas Emissions”, Evan Mills, Lawrence Berkeley National Laboratory, July 2009



continuous commissioning



one of the best documentations of our Building Automation Industry's role in Green Building Design

Using an integrated, building systems perspective, it gives you the need-to-know information on what to do, where to turn, what to suggest, and how to interact with other members of the design team in a productive way.



tracking energy utilization



Overall Campus

OVERALL CAMPUS

STUDENT UNION

PRIMARY ACADEMY

INTERMEDIATE ACADEMY

SECONDARY ACADEMY

CURRENT STANDINGS

1st

INTERMEDIATE ACADEMY

2nd

SECONDARY ACADEMY

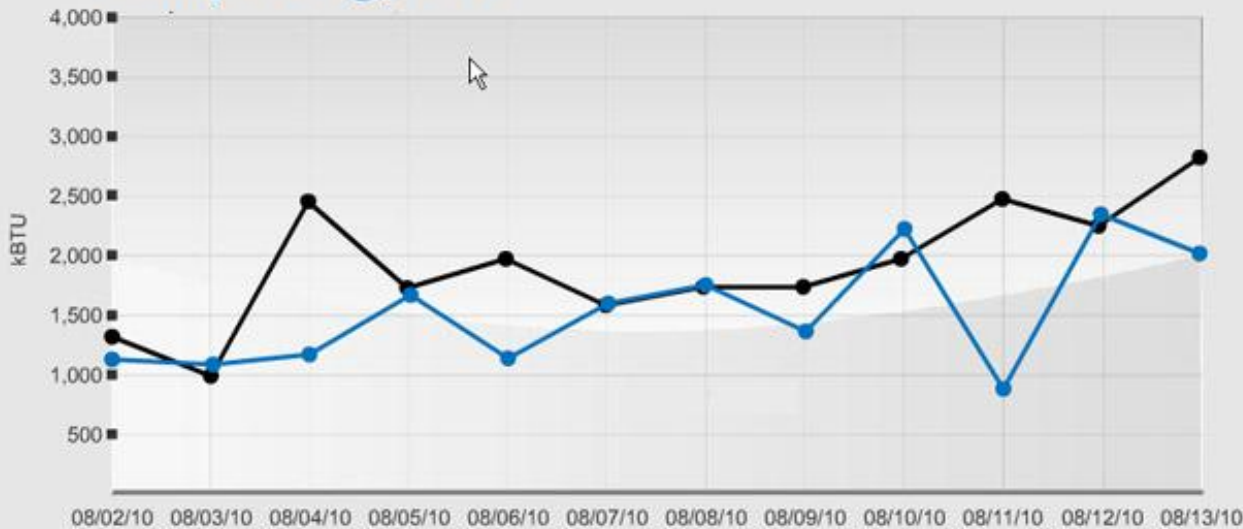
3rd

PRIMARY ACADEMY

4th

STUDENT UNION

Daily Energy Use



DAILY

WEEKLY

MONTHLY

YEARLY

LEGEND

- Baseline Data
- Current Use



Home



Monitoring



Educational



Green Features



Leaderboard



LEED Checklist

Getting benchmarks and setting goals

a variety of tools in the marketplace to use for benchmarking and monitoring

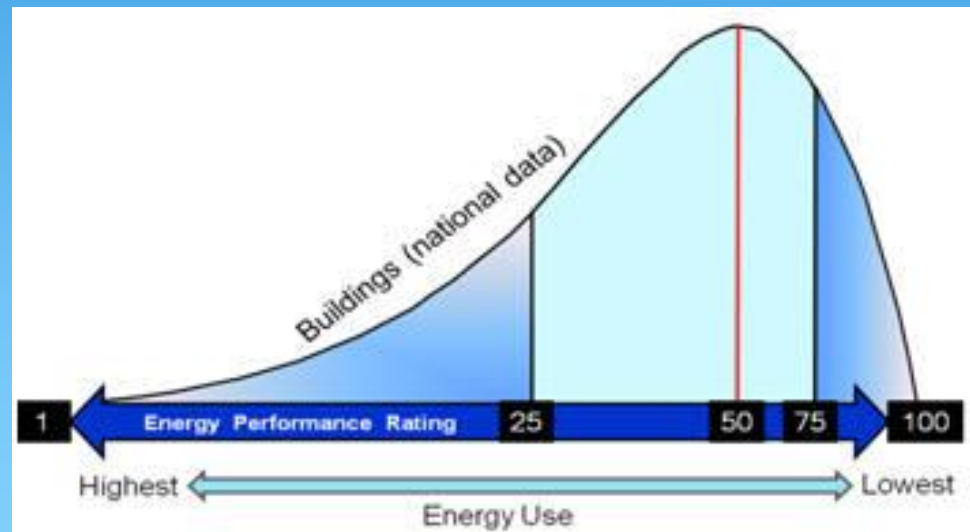


Figure 1: The 1-100 range of the ENERGY STAR Portfolio Manager scores provides an intuitive scale for interpreting a benchmark. The rating system overlays a 1 to 100 scale over national data, giving relative meaning to energy use.

continuous commissioning & Retro commissioning

Building Energy Performance - part of the due diligence?

definition

As defined by the **ESL** (Energy Systems Laboratory) –

Continuous Commissioning is an ongoing process to resolve operating problems, improve comfort, and optimize energy use

New Standards & Goals



ANSI/ASHRAE/IESNA Standard 90.1-2010
(Supersedes ANSI/ASHRAE/IESNA Standard 90.1-2007)
Includes ANSI/ASHRAE/IESNA Addenda listed in Appendix F

ASHRAE STANDARD

Energy Standard for Buildings Except Low-Rise Residential Buildings

I-P Edition

See Appendix F for approval dates by the ASHRAE Standards Committee, the ASHRAE Board of Directors, the IESNA Board of Directors, and the American National Standards Institute.

This standard is under continuous maintenance 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. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE Web site (www.ashrae.org) or in paper form from the Manager of Standards. The latest edition of an ASHRAE Standard may be purchased from the ASHRAE Web site (www.ashrae.org) or from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: orders@ashrae.org. Fax: 404-321-5478. Telephone: 404-636-8400 (worldwide), or toll free 1-800-527-4723 (for orders in US and Canada). For reprint permission, go to www.ashrae.org/permissions.

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ANSI/ASHRAE/IES 90.1-2010

- ❑ Aggressive Energy Reduction Goals
- ❑ Increased Monitoring /Verification
- ❑ Designed to Complement

New Standards & Goals



ANSI/ASHRAE Standard 62.1-2010
(Supersedes ANSI/ASHRAE Standard 62.1-2007)
Includes ANSI/ASHRAE addenda listed in Appendix J

ASHRAE STANDARD

Ventilation for Acceptable Indoor Air Quality

See Appendix J for approval dates by the ASHRAE Standards Committee the ASHRAE Board of Directors, and the American National Standards Institute.

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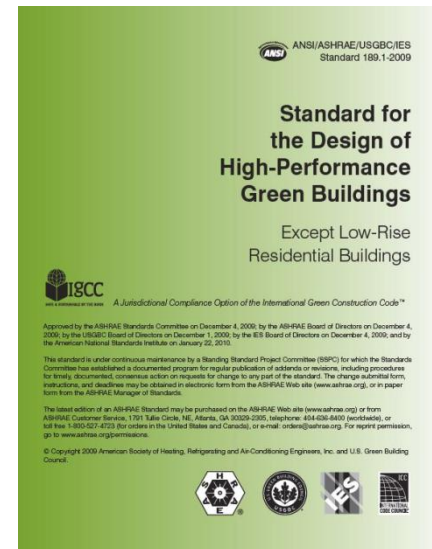
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ANSI/ASHRAE 62.1-2010

- Demand Ventilation Controls
- Continuous Monitoring of IEQ
- Designed to Complement

Related Goals Efforts

- ❖ **ANSI/ASHRAE/USGBC/IES Standard 189.1-2009**
(Standard for the Design of High-Performance Green Buildings)
- ❖ **ASHRAE AEDG**
(Advanced Energy Design Guides)
- ❖ **USGBC LEED v3.0**
(Leadership in Energy and Environmental Design)
- ❖ **US DoD UFC**
(Unified Facilities Criteria)



How is Continuous Commissioning Achieved?

- ❑ Visit site to identify and quantify potential measures and savings
- ❑ Develop performance baselines for energy and comfort
- ❑ Examine building in detail to identify operating and comfort problems, component failures or degradation, and causes of system inefficiency
- ❑ Implement Continuous Commissioning measures
- ❑ Identify changes in operating procedures for building staff, and document energy savings and comfort improvements in accordance with the International Performance Measurement and Verification Protocol (IPMVP)
- ❑ Train the building staff
- ❑ Track/verify energy & comfort performance for min. one year in accordance with IPMVP



"Smart Grid, beyond the grid"

meaning that there is a lot of opportunities outside of the traditional utility

With buildings accounting for up to 70% of electricity consumption, the reality of directly connecting building automation with the Smart Grid has tremendous value for building owners, energy suppliers and society at large. A key objective of the B2G Summit is to outline the value proposition of this opportunity to building automation and controls industry.

If you are a player in building automation and control systems, from manufacturers, integrators, contractors and consulting engineers, it is critical that you attend this Summit and hear first hand from key Smart Grid experts on business, technology and policy perspectives.

Our Education sessions; Continuously Connected Open Information for BAS - 5 AHR Expo Education sessions Las Vegas

- 1. Connecting Building Automation to Everything**
9:00 am Monday, January 31st
- 2. Continuous Commissioning and Today's Aggressive Energy Standards** - 1:30 pm Monday, January 31st
- 3. Key Technologies for our Connected Future**
9:30 am Tuesday
- 4. A Panel discussion – Incentives to Motivate and Connect our Industry**
1:30 pm Tuesday
- 5. A Panel discussion Creating Budget for Implementing Information Management** 3:00 pm Tuesday

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Gridwise Education Sessions at AHR Expo

- * **Green Buildings meet the Green Grid** 10:30-11:30am
on Monday, Jan.31
- * **Building Automation, Demand Response and Next
Frontier for Energy** 11:00 - 12 on Tuesday, Feb.1