Building Energy Management Techniques and Strategies for Engineers and Facility Managers

Feb. 19-20, 2020

This two-day course focuses on basic energy management strategies, including evaluating energy bills, establishing building energy baselines and various performance metrics; developing facility benchmarks utilizing Portfolio Manager.

The program will also examine industry accepted practices and processes for energy audits (Levels 1 through 3) and retro-commissioning (RCx). Attendees will learn how to systematically assess their facilities, identifying various energy-saving opportunities (conservation measures); then analyze them economically and rank / prioritize them based upon varying criteria.

Finally, strategies regarding budgeting and implementing energy-saving projects will be discussed; verifying their performance, and developing an ongoing commissioning program, through continuous monitoring strategies and preventative / predictive maintenance, to ensure a 'persistence of savings'. Sample problems and common calculations will be demonstrated throughout the training. A class exercise will be conducted, distributing data for a sample building and asking attendees to identify energy-saving opportunities.

Course Outline
(Note: Times are approximate)

Day 1
7:30 – 8:30 Registration – Continental Breakfast

8:30 – 9:00 Introductions and Overview – Energy Management activities and the importance of effective energy management

9:00 – 10:15 Assembling and evaluating utility data – examination of utility rate structures, and auditing bills for trends in consumption and demand

Break 10:15 – 10:30

10:30 – 12:00 Establishing energy balance (how & where energy is being consumed), Performance metrics – developing energy baseline and benchmarking the facility – examination of Portfolio Manager and bEQ

Lunch 12:00 – 1:00

1:00 – 2:00 Energy auditing and retro-commissioning – examining the steps of each process, including 'levels' of auditing, assembling the team, planning the process, and various deliverables

2:00 – 3:00 Site assessment / investigation techniques – key data collection techniques; visual observations, measurements, trend logs, etc.

Break 3:00 – 3:15

3:15 – 4:15 No Cost / Low Cost strategies for energy savings – examination of common control strategies, sequences, adjustments, BAS tips

4:15 – 5:15 Energy opportunities – common opportunities associated with building envelopes, lighting systems, and domestic hot water systems

Day 2
7:30 – 8:30 Breakfast – Review of common energy standards / guidelines

8:30 – 9:15 Energy opportunities – common opportunities associated with boilers, steam systems, and heating water systems

9:15 – 10:15 Energy opportunities – common opportunities associated with refrigeration & cooling systems (chillers, DX and CHW / CW distribution)

Break 10:15 – 10:30

10:30 – 12:00 Energy opportunities – common opportunities associated with various HVAC terminal distribution systems (AHUs, various terminal units, etc.)

Lunch 12:00 – 1:00

1:00 – 2:30 Class Exercise – Class will be divided into groups with building and utility information presented for a sample building. Example data collected from site assessments and BAS queries will be distributed and each group asked to identify potential energy-saving measures

2:30 – 3:00 Class Exercise Results – each group will briefly present their findings and be critiqued by the instructors and the other groups

Break 3:00 – 3:15

3:15 – 4:30 Evaluating energy opportunities (various measures) – calculating energy and cost savings, examination of payback and ROI, various methods for ranking and prioritizing various measures, key considerations for implementation of energy-saving measures.

4:30 – 5:15 Strategies for ensuring a persistence of savings, including various Ongoing Cx programs, monitoring strategies (sub-metering, trends, MBCx, etc.), and preventative / predictive maintenance (CMMS / FDD) programs.

For More Information:

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