

Energy Efficiency Assessment (2 hrs)

2018

for Ohio, Kentucky & Indiana
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2.0 contact hrs for engineers, contractors, designers and certified energy professionals

Course Description

Modern energy codes and standards require much more energy efficient equipment like HVAC and lighting in new structures and additions, also much more energy efficient building envelopes which usually reduce the needed output capacities of HVAC equipment and sometimes lighting. But when working in existing situations where energy codes do not apply, engineers, contractors and owners can sometimes benefit by assessing existing efficiencies compared to energy codes and/or other similar structures or processes.

Since structural and process energy usage are often multi-purpose and interrelated, it is often a good idea to do at least brief assessments of overall efficiencies as well as the efficiencies of particulars like heating, cooling, lighting and the building envelope. Even when a professional energy auditor or assessor is not hired, engineers, contractors and owners can learn and use simple, usually free methods and tools to do at least the basics.

When assessing overall energy usage for a building or house, utility bills can be quickly analyzed to determine the Energy Usage Index (EUI – how many kBtUs of energy are used per year per conditioned square foot of floor area). US DOE publishes data on EUIs by climate zone and structure type, making comparisons relatively easy and quick. US DOE also offers free online access to an “Energy Portfolio Manager” program so commercial buildings can be analyzed and compared by climate zone, building type and year. Similar resources are available for homeowners and residential energy professionals, including published studies in which EUIs and other energy indices are used to track and compare overall energy usage in structures over multiple years. When an existing assessment returns a much higher EUI than normal for comparable structures, added attention can be applied or recommended to determine why and how to address energy efficiency shortcomings more comprehensively.

Even when just repairing or replacing a particular energy product like lighting or HVAC, quick energy assessments can be useful. Existing lighting wattage and HVAC output capacities per square foot can be compared with values in other local structures or values stated in energy codes. If HVAC heat output per square foot is especially high, it can be better to improve insulation and airtightness in the building envelope before sizing and installing new heating equipment. If lighting watts per square foot is especially high, it can be better to improve lighting efficiency before sizing and installing new cooling equipment.

This course is designed to advise non-energy professionals how to do such quick energy assessments. It also mentions the certified energy auditing, assessing and management professionals who specialize in this kind of work, especially in projects that are complicated and/or require a certified practitioner.

Learning Objectives

- Understand the average breakdowns of energy usage in buildings and homes
- Learn about the Energy Usage Index (EUI) and the normal ranges for local structures
- Become familiar with US DOE’s Energy Portfolio Manager program for commercial buildings
- Understand how to compare HVAC output capacities per square foot of floor area
- Learn how to compare existing ceiling lighting watts per square foot to modern energy codes

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