Method for Determining Building Energy Performance from Energy Management Data
BSU File Reference #117

Abstract

As building designers and occupants become more concerned about energy efficiency, devices to measure all aspects of building performance are proliferating. While these systems generate a large amount of data, they provide little useful information.

Boise State University has developed an algorithm that extracts meaningful efficiency information by analyzing temperature fluctuations and system activation to investigate building efficiency. Heating, Ventilation, and Air Conditioning (HVAC) management systems are already in place in most homes and offices. HVAC management systems collect data; modern systems collect data by the minute or even the second. Using this new algorithm, this data can now give insight into the overall energy efficiency of the building. This algorithm can produce readouts of the overall energy efficiency of a building envelope and can also be refined to analyze more complex structures that contain multiple heating and cooling zones.

Advantages:

- Utility companies could analyze users’ building efficiency helping reduce demand during peak energy hours.
- Utility companies could weigh costs to subsidize insulation in houses against building a new power plant.
- A web-based model for owners use could give insight into HVAC (such as building envelope efficiency) or building (such as an open window) efficiency problems.
- The algorithm could be implemented into existing HVAC building management systems giving insight into HVAC or building efficiency problems.

Boise State is looking for a Licensee, sponsor or development partner for this technology.

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