



Shaping Tomorrow's  
Built Environment Today

## UTILIZING ENERGY METRICS AND BUILDING BENCHMARKING TO IMPROVE WHOLE BUILDING ENERGY PERFORMANCE

### THE ISSUE

Heating, ventilation, air conditioning, and refrigerating (HVAC&R) account for about 61% of commercial building site energy use.<sup>1</sup> While new buildings have realized improved energy performance, existing buildings represent the greatest opportunity for energy use performance improvement within the sector. Improving the energy performance of existing buildings requires the availability of a robust database of building energy data. Without understanding how a building is performing, it is impossible to improve the building's energy footprint.

To address this concern, building benchmarking has become a critical tool for quantifying and evaluating building energy use patterns in order to develop the most effective ways to reduce energy use in a city or state's building stock. In addition, better understanding of true energy performance is needed; a building may be designed as energy efficient, but its operations may prove otherwise.

### ASHRAE'S ROLE

ASHRAE disseminates credible evidence-based practices and technical information to professionals across the building sector by developing standards, guidance and educational resources informed by robust data on the actual energy performance of buildings. ASHRAE's tools and resources include:

- ASHRAE's **Building EQ** program, a building performance tool, calculates a building's energy performance in relation to other similar buildings, identifies the gap between a building's as designed potential and its actual performance in operation and provides recommendations to improve the building's energy use.<sup>2</sup> Building EQ can be used to display a building's energy use and comply with energy use disclosure requirements. Most importantly, it helps building owners and managers identify opportunities for improvement.
- **ASHRAE Standard 211** establishes consistent practices for conducting and reporting energy audits for commercial buildings.
- **ASHRAE Standard 214** provides uniformity in the building energy labeling and disclosure process and can be used in international, national, and regional legislation, policy making and regulation activities.

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<sup>1</sup> Includes water heating; *2012 Commercial Building Energy Consumption Survey: Energy Usage Summary*. U.S. Energy Information Administration, 18 March 2016, [www.eia.gov/consumption/commercial/reports/2012/energyusage/index.php](http://www.eia.gov/consumption/commercial/reports/2012/energyusage/index.php).

<sup>2</sup> For more information, see <https://www.ashrae.org/technical-resources/building-eq>



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- **ASHRAE Standard 100** sets energy use intensity (EUI) benchmarks for existing buildings in the commercial and residential sector and establishes methods for determining opportunities for improvement in EUI leading to compliance with the standard benchmarks.
- **ASHRAE Standard 105** provides a method for determining and comparing building energy performance and greenhouse gas emissions.

ASHRAE also has certification programs that were developed to meet the industry needs of today and provide value to thousands of built-environment professionals, employers and building owners. This includes the Building Commissioning Professional (BCxP) and Building Energy Assessment Professional (BEAP) certifications which have been recognized by the U.S. Department of Energy (DOE) as meeting the Better Buildings Workforce Guidelines (BBWG).

### **ASHRAE's VIEW**

Energy metrics that are widely accepted, robust and validated, are critical to achieving desired policy objectives including benchmarking, code compliance and investment decisions. Building owners and operators cannot manage what is not measured and they, along with policymakers, cannot effectively communicate goals, evaluate potential investments, and measure success if they don't all speak the same language. Therefore, ASHRAE remains dedicated to working with policymakers to find cost-effective legislative and regulatory solutions that can make building systems more energy efficient.