

## Aircuity case study

# Beth Israel Deaconess Medical Center

Teams with Aircuity and Wins “Best Research Facility Energy Project in New England”

**BETH ISRAEL DEACONESS MEDICAL CENTER (BIDMC)** is a teaching hospital of Harvard Medical School, located in Boston, Massachusetts, with a history dating back to 1896. Today, it is best known for its excellence in patient care, dedication to biomedical research, and strong teaching and community service programs. As one of the leading facilities in a city with a rich history of medical and technological innovation, BIDMC had been looking for ways to lower its energy use, reduce its carbon footprint and become a more efficient, sustainable organization.

BIDMC learned of Aircuity and its OptiNet® system, a comprehensive suite of intelligent ventilation measurement and optimization technologies, and decided to install the system in the research laboratories at The Center for Life Science | Boston, where it is the anchor tenant. The state-of-the-art life science building is owned and operated by BioMed Realty Trust, Inc., a life science real estate company committed to providing the highest grade environments with a focus on continually improving efficiency and cost.

The industry standard approach for laboratory ventilation is to provide a fixed or constant number of air changes (using 100% outdoor air) to dilute any potential buildup of contaminants within the lab,

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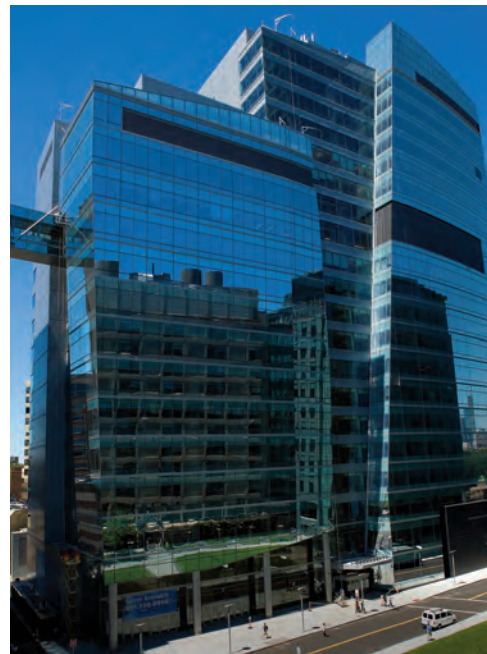
**“We were thrilled that BIDMC was recognized as the best research facility energy project by the New England Association of Energy Engineers.”**

**Mark Lukitsch – Utilities and Energy Manager  
Beth Israel Deaconess Medical Center**

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ensuring the safety of the researchers. This approach can lead to wasted energy, however, by providing too much ventilation when indoor conditions are clean.

Aircuity’s OptiNet system allows for a variable air change rate, giving BIDMC the assurance that the ventilation rates could be lowered by real time



measurement of the laboratory environment, and increased if contaminants were sensed, thus providing a safer and more energy efficient operation for their laboratories.

With the promise of safer, more efficient ventilation in its labs, and a rebate incentive available from BIDMC’s electric and gas utility provider, it

made sense for BIDMC to get a jump start on its sustainability initiative by tackling the ventilation in its facilities.

### A TURNKEY SOLUTION DELIVERED BY AIRCUITY

BIDMC decided to implement the project in two phases: phase one would entail installing Aircuity’s technology on floors 4, 6 and 7. Phase two included additional systems installed on floors 5, 9 and 10.

Aircuity was hired to do more than simply provide the technology for the energy efficiency project – it was given the responsibility to deliver a turnkey energy conservation project – from proposal to contracting to implementation and use. Acting as the prime contractor, the company was able to provide BIDMC with a comprehensive energy efficiency solution for its research and lab facilities.

“BIDMC partnered with Aircuity,” said Mark Lukitsch, Utilities and Energy Manager at BIDMC. “They managed most of the project for BIDMC, and as a result of the work done on the ventilation system, BIDMC was able to realize significant savings within the first three months of completing phase one of the project.”

#### LAB DCV LEADS TO A DOUBLE BENEFIT

The Aircuity system’s Lab Demand Control Ventilation (Lab DCV) technology continually senses and analyzes laboratory environments and provides ventilation inputs to adjust the air changes per hour (ACH) in those facilities as needed, moving away from a model of constant or fixed ventilation rates.

By reducing the air changes when lab conditions are determined to be clean, and increasing the ventilation only when needed, Lab DCV helps to maintain safe and energy-efficient ventilation in the hospital’s research and lab facilities. In addition, OptiNet’s continuous monitoring provides BIDMC lab managers with critical information about their airflow and any particulates in the air that can then be used to analyze and improve lab procedures.

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**“Optimizing the ventilation in BIDMC’s research and lab facilities resulted in an annual savings of \$640,000 and a return on investment of less than one year.”**

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After implementing OptiNet on those first three floors, BIDMC quickly began to realize lower energy costs and a safer indoor environment for its staff.

#### FROM START TO FINISH TO PAYBACK IN LESS THAN ONE YEAR

Phase one of BIDMC’s project resulted in an annual savings of \$270,000; after completing phase two the total annual savings totaled \$640,000, with a return on investment of less than one year. The actual savings were within 1% of the Aircuity estimated figures calculated prior to the beginning of this project.

BIDMC’s Center for Life Sciences has become a shining example for energy efficiency projects in research facilities. The New England Association of Energy Engineers has recognized BIDMC as “Best Research Facility Energy Project in 2011”, and the project has been nominated for national recognition. “We were thrilled that BIDMC was recognized as the best research facility energy project by the New England Association of Energy Engineers”, exclaimed Lukitsch. “This has been a real success for us and we look forward to examining other opportunities like this with Aircuity.”

#### ABOUT BETH ISRAEL DEACONESS MEDICAL CENTER

A teaching hospital of Harvard Medical School, Beth Israel Deaconess Medical Center is renowned for excellence in patient care, biomedical research, teaching and community service. Located in the heart of Boston’s medical community, it hosts nearly three quarters of a million patient visits annually in and around Boston. The medical center is renowned for excellence in surgery (including general, cardiovascular, thoracic, gastrointestinal, solid organ transplant and vascular surgery), with minimally invasive approaches to many procedures. BIDMC is also known for treatment of cardiac conditions, cancer and pulmonary and thoracic disorders; and for their expertise in neurosciences, gastroenterology and liver disease, obstetrics and women’s health, podiatry and emergency and trauma medicine. BIDMC is the official hospital of the Boston Red Sox. For more information, please visit: <http://www.bidmc.org>.

#### ABOUT AIRCUITY

Aircuity is the smart airside efficiency company providing building owners with sustained energy savings through its intelligent measurement solutions. By combining real-time sensing and continuous analysis of indoor environments, the company has helped commercial, institutional and lab building owners lower operating costs, improve safety and become more energy efficient. Founded in 2000 and headquartered in Newton, MA, Aircuity’s solutions have benefited organizations such as the University of Pennsylvania, Eli Lilly, Masdar City, the Bank of America Tower and the University of California-Irvine. For additional information on the company and its solutions, please visit: <http://www.aircuity.com>.

