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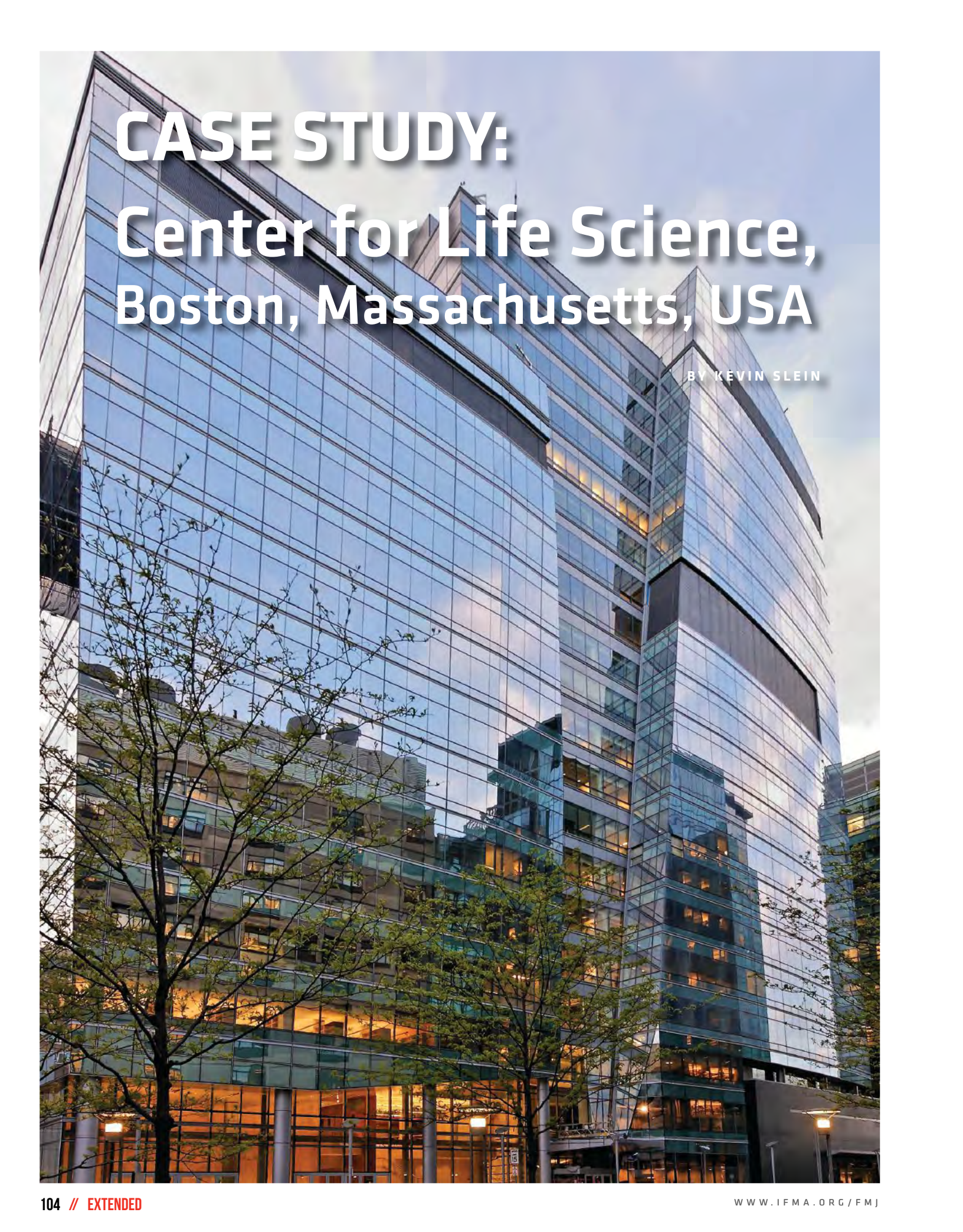


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CASE STUDY: Center for Life Science, Boston, Massachusetts, USA

BY KEVIN SLEIN

Life science buildings are high energy users, and with Boston, Massachusetts, USA, being the world's largest life sciences market, companies are searching for energy efficient solutions. The Center for Life Science | Boston is a 700,000-plus square-foot research center in the heart of Boston's Longwood Medical Area and home to Boston Children's Hospital, Harvard University and Pfizer, Inc. Late last year, the owner and manager of the building studied and installed a state-of-the-art new exhaust system as a sustainability and energy savings measure for the building and its tenants.

To reduce Boston's pollution-levels and carbon footprint and strengthen city-wide environmental protection efforts, companies like Biotech Realty that owns CLSB have been actively seeking energy efficient savings opportunities. Traditional lab by-pass exhaust systems can account for up to 30 percent of a laboratory's energy consumption. In most labs, there are typically only a few active fume hoods in the system emit-

ting limited levels of contaminants. These contaminants are significantly diluted by the relatively clean air that is connected through a manifold from other locations. In order to introduce clean air into the system without impacting performance, the exhaust fan systems constantly run at high exit velocities (e.g., 3,000 ft/min or higher). As a result, exhaust systems frequently operate at much higher total flow rates than required using significantly more energy than necessary. SmartStack reduces excess exhaust fan energy by using technology to continuously sample the air stream to control for hazards and thereby lowering energy consumption when the system does not require it.

To increase efficiency at CLSB, BioMed Realty used SmartStack technology to ensure dilution criteria are met so that concentrations of hazardous materials are at safe levels, while maximizing energy savings. The technology's active sensing system monitors the cleanliness of lab exhaust air and provides a signal to the fan controls or building automation system to index the exit velocity of the exhaust fans accordingly. As a result of the continuous monitoring technology, the fans speed up and slow down instead of taking bypass air and running the fan at a continuous speed, thereby generating tremendous energy savings by lowering the exhaust fan exit velocities when the lab exhaust air is clean.

Ahead of installation, BioMed Realty launched a technical study with an energy consultant and the local utility, leveraging energy efficiency incentives available for the project as part of the state's energy efficiency initiative. During the study, CLSB's managing team looked at the proposed savings and found SmartStack reduced energy usage in the building by 8 percent, which could be passed on directly to the tenants at CLSB.

Within the first month of installation, CLSB's electricity use dropped by 24 percent while performance remained the same. Based on the initial improvement, the expected energy cost savings is nearly US\$400,000 per year with a carbon reduction of more than 1,300 metric tons per year.

"By their very nature, life science buildings are high energy users because of significant HVAC requirements that keep

facilities operating at peak efficiency and safety," said Pete Damiano, director of facilities at BioMed Realty. "At the Center for Life Science | Boston, we have implemented a technology and a solution that is simple and low capital cost to achieve significant results. We saw immediate results, and we want to communicate across the facility management network in Boston and throughout our core markets that this technology has produced compelling results — for both energy efficiency cost savings and the environment."

Research centers similar to CLSB are currently under evaluation in the Boston/Cambridge market to determine where this technology may be applied. As public ordinances to disclose energy usage continue to evolve, such projects and undertakings are essential to keeping buildings efficient and meeting carbon neutrality.

"The goal of our efforts is to help life science buildings use innovative technology to drive significant energy savings in lab exhaust systems and to reduce their carbon footprints," said Steven Graves, president of Measured Air Performance, manufacturer of the SmartStack technology. "We were able to work the Center for Life Science | Boston to aggressively drive energy savings." **EMJ**



Kevin Slein is the senior vice president of facilities for BioMed Realty. He has been with the company since 2010, and leads efforts to upgrade BioMed's building and facilities services throughout the portfolio with a passion for eco-friendly and cost-effective solutions. Prior to joining BioMed, he served as executive director of site operations at The Kraft Group, where he was responsible for day-to-day operations of a large mixed use/sports and entertainment complex in Foxborough, Mass. From 1998 to 2004, Slein was responsible for facilities operations at Intel's Hudson, Mass. microelectronics factory. He began his engineering operations career as a licensed engineer in the U.S. Merchant Marine onboard various cargo, freight and oil tanker vessels from 1985 to 1993. He received a B.S. in Marine Engineering from Massachusetts Maritime Academy.