

Energy-Intensive Life Sciences Labs Haven't Discovered Transparent ESG Reporting

February 15, 2023 | Patrick Sisson, Bisnow National (<https://www.bisnow.com/author/patrick-sisson-374019>) (<mailto:patrick.sisson@bisnow.com>)

Lab spaces, one of the fastest-growing classes of commercial real estate, can be energy hogs, using 10 times more than similarly sized offices. While major developers say they're trying to improve sustainability, details on those efforts are sparse.

Efforts to reduce energy usage and invest in more sustainable, energy-efficient spaces to experiment and discover are growing as the industry booms, including all-electric labs and on-site energy generation. But reporting around carbon footprints and longer-term strategies to cut emissions from existing buildings can be seen as lacking.

“The bottom-line metric is how much carbon you're putting in the atmosphere,” said Matthew Fickett, a managing principal at HDR Boston and an expert in sustainable lab construction. “If you were to buy a car, it's nice that it won a bunch of awards. It's very cool. It's got a great warranty. But you want to know how many miles per gallon it gets. To pick an absolute metric for labs, just how much carbon are you using per SF? There's no A for effort, because the climate doesn't give you an A for effort.”



Developers are putting forth good effort, Fickett said, and he doesn't believe any firm or company is dodging the issue. But lab buildings are very complicated, and it can be especially challenging to limit energy consumption in a research space.

"No one wants to be the one who wrote a regulation that makes it so you can't have labs that work anymore," he said.

BioMed Realty announced earlier this month that according to its 2022 GRESB Assessment (<https://www.gresb.com/nl-en/2022-real-estate-results/>), a global system of measuring building emissions and environmental performance, it had "exceeded peer benchmarks." Roughly 27% of the company's 15.5M SF U.S. portfolio is LEED-certified, the firm pursues LEED certification on all new projects, and it has realized \$3.74M in energy savings since 2016.

Meanwhile, Longfellow Real Estate Partners announced "its standing commitment to sustainability and Environmental, Social, Governance (ESG) as a priority within its growth strategy" across its 16.5M SF portfolio, including a number of new projects that are LEED Gold and even all-electric.

"Building environmentally conscious and socially responsible projects is critical to meeting the challenges of climate change, and the needs of innovative companies who are demanding resilient, 21st century infrastructure," Longfellow Real Estate Partners Associate Director of ESG Lauren Ballou said in a statement.

But neither of these announcements, as well as similar pronouncements from their peer companies, offer more specific emissions measurements, especially energy use per square foot, or benchmarks and concrete plans to retrofit older buildings.

While efforts to build much more energy-efficient, and even net-zero, new facilities are becoming more common and well-publicized, few if any details were provided about the extent of these portfolios' carbon footprint, as well as plans and benchmarks around retrofitting older lab buildings, which gobble up energy and release outsized emissions compared to similarly sized office buildings.



BioMed, for instance, noted in its recent disclosure that it has embarked on 175 energy-efficiency projects since 2016, including replacing HVAC cooling towers and implementing LED retrofits, which have saved more than 38.5 million kilowatt-hours of electricity.

BioMed has focused on new buildings and complying with the variety of new emissions reductions codes being adopted by municipalities such as New York City and Boston (<https://www.bisnow.com/national/news/life-sciences/city-sustainability-push-leaves-energy-hungry-lab-buildings-seeking-energy-efficiency-111563>), said the company's president of West Coast markets, Jon Bergschneider. Ground-up projects, such as the firm's new Dexter Yards project in Seattle, include features such as efficient HVAC systems, electric vehicle infrastructure and high-end air filtration systems.

Life sciences spaces are energy intensive due to the need to circulate air throughout workspaces and power an extensive array of specialized equipment. Air handling and HVAC systems can be especially expensive to power.

There's a wide range of emissions with lab properties, Fickett said. Energy usage is tracked using British thermal units, or BTU, a measure of energy, by SF and by year. A typical existing lab uses close to 500,000 BTU per SF per year, with most new ones hovering around 200,000, and exceptionally green ones around 50,000. Buildings from the 1980s and 1990s can be especially inefficient.

Compare that to office buildings, which he says typically are below 100,000 and often close to 25,000 BTU per SF per year. Considering many lab developers' portfolios range in the tens of millions of SF, and may require at least 10 times more energy than offices, that suggests outsized electricity use and emissions. It's also worth noting that net-zero lab buildings, a benchmark used by many firms, still do use substantial energy; it's just balanced out by investment in renewable power generation elsewhere.

In general, existing sustainability plans within the industry, and data released to support those plans and their goals, suggest broad efforts to build more sustainably in the future. Alexandria Real Estate Equities, for instance, has a number of showcase properties, including the under-construction 325 Binney St. in Boston. The future home of Moderna will include extensive energy-efficiency investments, as well as on-site renewable power generation. The firm also has a stated goal of hitting a 30% reduction in emissions, based on 2015 standards, by 2025. Based on Q4 reporting, the firm has already cut 19.5% of emissions.

Alexandria declined the chance to provide further data, and didn't specify what its 30% reduction goal actually represents: a total 30% reduction in overall emissions from the 2015 total — i.e. emit 30% less than in 2015 — or a 30% reduction in emissions per SF or similar measure. Longfellow said they are “still in the data collection process to help them determine the specific goals you've asked about,” while BioMed didn't offer additional data.

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Across the board, when pressed for more information including public emissions data, strategies and benchmarks around retrofitting existing buildings within their portfolios, and whether they have emissions goals for new buildings, most firms declined to offer more details.

A Healthpeak spokesperson said “we do not publicly disclose this information so we will not be able to provide the requested information.” The firm does list total emissions (<https://www.healthpeak.com/app/uploads/2022/07/Healthpeak-2021-ESG-Report.pdf>) within its sustainability and ESG reporting, but it's important to note it owns both medical and lab buildings, and didn't break down its lab-only emissions footprint.

According to Fickett, there are many ways that new and existing buildings can be designed and modified to reduce emissions. Anything that can make a building envelope more efficient, or any investment in more energy-efficient HVAC or equipment, can make a big difference in older buildings.

For example, altering the air change rate, or the rate at which air is filtered out of the lab workspace, can make a significant difference without impeding work or safety, especially with increased safety standards within labs and better ability to seal off lab and office space within a building.

Some developers, such as Taconic Partners, have begun installing heat pumps (<https://www.bisnow.com/national/news/life-sciences/city-sustainability-push-leaves-energy-hungry-lab-buildings-seeking-energy-efficiency-111563>) and other new HVAC gear. Taconic Executive Vice President of Commercial Asset Management Matthew Weir told *Bisnow* (<https://www.bisnow.com/national/news/life-sciences/city-sustainability-push-leaves-energy-hungry-lab-buildings-seeking-energy-efficiency-111563>) these kinds of retrofits offer “an advantage in leasing, and we’re seeing that in real time.”

Fickett says the industry is slow to make these changes because developers, often working on spec, want to have top-of-the-line space and believe whatever perception of extra safety is aided with more regular air exchanges can be a selling point to tenants. Building on spec “drives this overbuilding,” he said.

“There’s not enough of a push,” he said. “If there was enough of a push, they would all be at zero. Less than that isn’t enough.”

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