

What Campuses Can Teach Us About Sustainability

BY RIVES TAYLOR, FAIA

Educational institutions were slow to embrace sustainable design, but the problems they faced—often of their own making—made them true believers. That conversion reflects a growing interest in “stewardship,” preserving and restoring the quality of campus life, but it also reflects a careful analysis of the paybacks that sustainable design affords.

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ALMA MATER. You look at those ivy walls and assume that our universities, colleges, and high schools *have* to have longer horizons than the rest of us. Looking back—I led the building programs at the University of Texas Health Science Center for the last decade—I would have to say that for a long, long time, these institutions were mostly asleep at the wheel, making some very shortsighted decisions about their facilities.

What woke them up? They found themselves with buildings, developed from the 1960s through the 1990s, that were “old before their time.” This was true from an operational standpoint—exacerbated by soaring energy costs and plummeting budgets for renovation and maintenance—and in terms of supporting current methods of teaching and research. Inflexible and badly designed, these buildings are invariably an “albatross” for the campuses involved.

This led to a sea change in how they approach their buildings and settings. First, they remade the connection between the quality of the campus environment and the health and productivity of the community it supports and sustains. Second, they shifted their outlook, recognizing that universities and colleges are long-lived institutions.

The Dollars-and-Cents of Sustainable Campus Development

What’s an appropriate timeframe for a campus building? Our cities are filled with office and commercial buildings that have provided decades of useful service. (There are plenty of exceptions, of course.) For a campus, fifty or even a hundred years is realistic for a building with the “good bones” to accommodate new uses and users readily. So we began to look at new buildings and building renovations from a longer-term perspective.

Lifecycle costing was the method used. Focusing on net present value lets you weigh the “first costs” of capital investment against the long-term gains of improvements to building performance. What we found is that a slightly higher initial investment—two percent at the most, in our experience—paid for an array of measures that would result (our analysis showed) in specific improvements to how the building performed over time. How long? At first, we set the payback period at five to ten years. When we saw how these sustainable buildings actually performed, we reduced it to three to five years.

Net present value has its equivalent in private sector rules-of-thumb like “1:20:200”—that every dollar invested in them should provide a \$20 savings in operating costs and a \$200 gain in organizational productivity over the useful life of the building.

What Sustainable Measures Achieve This Payback?

One of the truisms of “green” design is that an integrated design approach, using several measures in tandem, delivers a bigger payoff than if you consider each one in isolation. Regional variation in performance also needs to be considered, but one can still point to two types of sustainable design measures that generally add substantial value:

The first is about **connecting to nature**—accessible daylight and improved air quality with better delivery of ventilation and thermal comfort. This usually results in improved energy performance, and provides a higher quality work setting.

The second relates to **flexibility**—minimizing the churn cost of the provided spaces by maximizing their flexibility. Research buildings are leading the way in this respect, opting for loft-like work settings that can be easily reconfigured and that provide a more “universal” fit for research teams that are often interdisciplinary and project-based.

Moving Campus Buildings Toward a “Looser Fit”

One of the problems with the previous generation of campus buildings was their over-tailored and inflexible design. On this issue, campuses borrowed from the private sector, which—focused on exit strategies and the need to manage workplace churn—has pushed relentlessly for buildings that are more flexible and accommodating. “Loose fit, long life” is how campuses interpreted this.

The future of even the academic mission of most universities and colleges is far less certain now than it was in the past, so the space configuration and infrastructure of academic and research buildings need to be as flexible as possible. These institutions have their own version of churn—and the same

necessity as most businesses to match the provision of space—for offices, teaching, and research—to their actual patterns of use.

Using Sustainability to Reinforce the Brand

Just like a company, every academic institution has a “brand” to uphold, and its campus settings are a big part of it. A healthy and productive learning environment is crucial to its ability to recruit and retain top faculty and help them attract the best and brightest research teams and students. This is especially true for public research universities, which can’t always match the salaries and benefits of their more richly endowed private rivals.

Sustainability has become a visible part of the academic brand. One of the traditions of academia, something it borrowed from religion, is to steep its buildings in the lore and values of the particular discipline being housed. We find quotes from the classics, busts of writers, artists, philosophers, mathematicians, and scientists, friezes or bas-relief of the great works and events of the past. Sustainable buildings embody this impulse to teach. Increasingly, they “explain” how they work, and a curriculum is emerging that points to what they have to teach. Most encouragingly, this is also finding its way into K-12 schools.

Making Sustainability Part of Campus Life

How people use the campus and its buildings has a big impact on their sustainability. To make them more aware of how their behavior affects building performance and environmental quality, universities and colleges are turning to change management, working through faculty and staff roundtables, student organizations, and orientation programs to help people develop good habits and practices.

Knowing how sustainable buildings work helps people use them comfortably and productively, while supporting campus goals for energy efficiency and health. Knowing how they affect the environment leads people to walk, bike, or take public transit to campus. That helps reduce energy use, air pollution, traffic congestion, and the need for parking.

Campuses are extending their sustainable agenda to the towns, cities, and regions they call home. The higher education sector buys billions of dollars worth of goods and services every year. Like some public agencies, universities and colleges have started to use their purchasing power to expand the market for sustainable products and practices. They are also partnering with their communities to address specific environmental issues, from traffic impacts to water conservation and the managing of wastewater and run-off.

Finally, these campuses are educating tomorrow's workforce—men and women who will take the need for healthy and energy-efficient buildings for granted and will expect others to share their commitment to sustainability. This may be the real lesson that campuses have to teach us. Those who take it to heart will be well positioned to attract these students as employees and consumers.

Rives Taylor, FAIA, is a senior architect with Gensler Houston. Until mid-2004, he was the university architect at the University of Texas Health Sciences Center in Houston. He teaches architecture and sustainable design at Rice University and the University of Houston. Contact him at rives_taylor@gensler.com or +1 713.356.1403.