The Built Environment—Sustainable Campus Planning

Participants from different points on the green-building spectrum weigh in on planning and implementing a sustainable campus environment

Participants

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In part one of a three-part series on the built environment, moderator JR Fulton leads participants in a discussion on green campus planning—from how to successfully launch a project to what the future holds for sustainable campuses.

JR Fulton: I was once told that all the really big mistakes happen in the beginning of a project—are there any principles or strategies that should be considered when beginning sustainability planning for a campus?

Jason McLennan: Something I've seen is that at the beginning of a project, people start off thinking too small. They may begin with the attitude that they cannot achieve something substantial, or they let past experiences influence their thinking too early, and they give up on possibilities that could have been quite profound—and that is a really big mistake.

It is critical that people at the beginning of a project allow themselves the freedom to consider things that perhaps are not realistic at the moment, but with the right help could be realistic. They need to think about what success would really look like for their campus. What would real success be from a holistic standpoint—environmentally, socially, culturally, and economically? Then if that is the ideal, how does the plan to reach that position unfold?

Also, people can get locked into solving problems in a very isolated manner. For example, they may be looking at a campus energy system, and so they think of the project only in terms of energy and do not think about the pedagogical impacts for the campus or how it could impact the quality of life for students or teachers.

Bill Reed: When we talk about sustainability, we have to look at what we are sustaining—which is life. If we only think about the technical aspects of buildings, we have actually missed half the story of what is required for a sustainable condition. No matter what level we are working on in terms of innovations or whole new buildings or master plans, we need to be asking ourselves how life should be functioning in a healthy way. If we are not working from that basic

strategy, then we are missing significant aspects and opportunities in sustainability. Even if we are working on renovating one building, that building could be an acupuncture point for reenergizing a campus and a community around what is required to achieve a sustainable condition.

Mitchell S. Thomashow: What we have been doing at Unity, and what I often speak about at other colleges, is focusing on nine elements of a sustainable campus for every process you are thinking about—energy, food, materials, governance, investment, wellness, curriculum, aesthetics, and interpretation—and you bring those levels in at the very beginning.

Also, with so many colleges being resource-strapped, including our own, it is easy to forget the long-term payback of sustaining life. It is important that leadership scale the project appropriately to help people understand that this is something that we want to have perennially, and that there are going to be certain things we have to think about right now to ensure the long-term resilience and vibrancy not only of our campus, but the ecosystem as well.

Heather Henriksen: I think it is very important to engage the entire community. When working on projects, you need the entire team, including the people who are going to actually use and operate the building, engaged in the process. The architects, engineers, and sustainability consultants are important, yet the building operators and occupants are the key stakeholders. That is why at Harvard we bring everyone together to participate in the process of defining what sustainability means on a particular project and at each major stage of design, the team reviews our goals and progress.

A specific example is our recently upgraded Harvard Green Building Standards. We went from focusing on a dollar value of a project (\$5M and above) to what the project's actual environmental impact would be on the campus holistically, and then set our standards based on the opportunity to best mitigate that impact and reduce our energy and other impacts.

JR Fulton

JR Fulton: The majority of us reside on existing campuses which have many established parameters. How can we best optimize our decision making to enhance sustainability as we move forward from these existing conditions?

Bill Reed: It is about determining values and principles before you decide on what the discrete activities need to be. There are many aspects to consider on existing campuses—energy, water, habitat, process, and economic issues. All of them need to be grounded in how we add value to the plan and not just how we limit the damage.

So if we can frame and ask meaningful questions and direct all activities toward these points, it doesn't matter whether we are starting on an existing campus or building from the ground up. We are making decisions that are based on meaning rather than "practicalities." Also, looking at a campus as a living entity with essence patterns is vital to understanding how life wants to work in that place and its role in the larger context that it serves.

Heather Henriksen: I think that is a good point. The other thing is, it is not just about a campus as an entity, it is about the entire community, including the region it resides in. One of the things we are focused on is working on sustainability efforts with other campuses and where appropriate, regionally. There are opportunities to share best practices for organizational change focused on reducing environmental impacts and even the potential to share resources—for instance, we are working with three other regional universities, the state of Massachusetts, and companies on a shared energy-efficient data center in Holyoke, MA.

Jason McLennan: In terms of the built environment, we are moving beyond a paradigm of always needing to build new, and there is going to be a greater focus on existing infrastructure and existing campuses. When you have an existing campus, there is actually a wealth of information that exists that is not well-used by most institutions to make better decisions. For example, campuses may have a lot of information on their general energy use, but they don't monitor and measure it on a building level or a faculty level, which could help them make better decisions about their infrastructure.

I find there is a lot of low-hanging fruit with existing campuses just to better understand what information they have and what the baselines are to grow from, regardless of the issue you're trying to tackle, whether it be energy, water, or anything else.

Mitchell S. Thomashow: I would like to make two points. One is that it is really important to look at the strengths of your campus. Very often we look at

the weaknesses and flaws, and all the obvious infrastructure challenges we face. But in the case of Unity, for example, we had incredible lawn space, and we decided to turn as much of that as we could into growing vegetables and having wildflower gardens. So in one very easy motion, we have really changed the look of the campus in a way that is functional and energy efficient, that grows food, that gets students involved and makes the campus much more beautiful without having to spend a great deal of money.

JR Fulton: What have you found to be the most effective methodology when influencing governing bodies to make long-term, informed, sustainable planning decisions?

Heather Henriksen: I think we are all endeavoring to use our campuses as a living lab. We want to take the best research and practices and try to prove their worth on campus to create replicable models that hopefully can help us all go farther faster in trying to reduce environmental impacts.

So at Harvard, for instance, we are implementing our greenhouse gas reduction goal across the university, including 11 different schools which are run separately from each other—no centralization of facilities and maintenance. We are now using that model to go back and look at all the other environmental impacts that we have, because now we have a foundation of how we work together most efficiently and effectively.

One of the governing bodies for that is the campus' Sustainability and Energy Management Council, which involves leadership from different core areas of the academic administration with faculty and student input university-wide. This diverse governing body allows recommendations and decisions to be made with many different perspectives in mind.

Mitchell S. Thomashow: This is something that is a real focus of mine as a college president, and it is essential that we build sustainability criteria into the mission of the organization, the curriculum, and the work of the board of trustees.

Second is that we have built sustainability indicators into performance criteria and job evaluation, so everyone who works at Unity has to come up with some way in which they are going to improve their department and work with their staff to improve sustainability efforts.

Third, it is crucial that campuses have a sustainability coordinator who reports to the president or someone with a great deal of authority in the case of larger organizations. I think one of the most important jobs of a sustainability coordinator is to not only work with facilities and all the various stakeholders, but to mobilize student bodies.

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Bill Reed

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Mitchell S. Thomashow

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Jason McLennan

It is also important that all of us are a part of the larger organizations doing this work so that we become a true movement—including the American College and University Presidents' Climate Commitment and the Association for the Advancement of Sustainability in Higher Education. It also means that we partner with other organizations and colleges that are doing this work in our region. We are all learning about this together. We are all part of a bigger movement.

JR Fulton: How can we best integrate management of our resources—energy, water, waste, transportation, etc.—at the campus scale?

Bill Reed: We always start with the larger aspect of the system, not with an individual solution. The way that we begin to integrate is to understand the principles of how water works, how energy works, how waste and flows work. But by operating from principle, we move into deciding how to measure those principles, and then we can decide what is required to indicate success.

The biggest problem that I see in our work is when architects, planners, and engineers come in with pre-assumed solutions—they hit the ground running with pencil and paper, rather than taking the time to discover the nature of relationships and interrelationships of all these systems as a whole.

Jason McLennan: I have a good example of a location that looked to integrate the management of resources. I recently visited the Omega Center's new waste sewage treatment plant in Rhinebeck, NY, which is one of the first Certified Living Building Challenge Projects on the planet. It is a campus—a nontraditional campus—that is treating the waste from several dozen buildings and lots of visitors and students. Traditionally, when you think about waste

treatment, you think about something out of sight and out of mind.

Instead, they approached the project with the idea that they would look for multiple positive results when solving the challenge of greening their waste treatment plant. What they ended up with is a facility that treats their waste water very effectively—it is a net zero energy waste treatment facility.

And now they encourage people to breathe deeply in the waste treatment plant. It became the first point of contact for visitors to the campus. Imagine taking people to your sewage treatment plant as the first introduction to your campus, because it is so beautiful and so interesting.

They made an investment that could have been an isolated project, and they tied it more holistically to the impact it could have on people, on education, on a whole host of issues in addition to the fact that it needs to treat sewage.

JR Fulton: What do you see for the future of sustainable campuses?

Mitchell S. Thomashow: This is one of the most extraordinary moments of my lifetime for how we can move forward with ecological awareness and sustainable solutions. The number of new programs that are coming up around the country in sustainability, whether it is food and agriculture or energy and materials or design and business, is staggering. It is really wonderful to see.

I think the future of the campus is as a learning laboratory, as a community center, where people come together—researchers, teachers, business people, community leaders—to lead the way in terms of sustainability and how we live in a community and live on the planet.

The Omega Center for Sustainable Living (OCSL) in Rhinebeck, NY and the Tyson Living Learning Center in Eureka, MO, are the first buildings in the world to have achieved full certification under the Living Building Challenge. The OCSL is the first green building in the United States to receive both LEED Platinum and Living Building Challenge certification.

The OCSL is an environmental education center and natural water reclamation facility on Omega Institute's Rhinebeck, NY campus. The OCSL was recently selected for the American Institute of Architects Committee on the Environment (AIA/COTE) Top 10 Green Projects.

That is why I think that campuses should really focus on interpretation. Every single building and project or process that happens ought to have really great signage. There are some LEED buildings where you would not even know they were LEED buildings because there was no signage, or there was nothing interactive. There was no way you would even know that you were in a building that was making real efforts.

The future campus is one that takes this mission so seriously that it entertains every visitor that comes there with interesting and challenging notions. That is why we built the Unity House at Unity College. I live in a zero carbon Platinum LEED house in remote rural Maine, which does not get a lot of sunshine. We have been net positive the past couple of years, and every time we have campus events there, we want to let people see and understand how we live. The parents—mostly lower-middle- and middle-class families who come to Unity—all come through the house and they look at it and say, “This is a modest home. How can I do this?” That is what all of our campuses need to do, not just in presidents’ residences, but in every building; we want all the constituencies to come and say, “How can I make this part of my life and my community as well?”

Jason McLennan: What Mitch is describing is what we’re trying to do with the Living Building Challenge. It is encouraging to see that it is the educational sector that is the quickest to adopt our challenge, and we have several, from K-12 through higher education—a growing number of living building challenge projects. This includes having net

zero energy, net zero water, and adhere to a whole host of other issues, including urban agriculture.

Heather Henriksen: It gets back to the way we work and live, and sustainability has to be integrated into our mission and our operations. One of the big things that we have been working on the last two and a half years is really communicating this. We even have a tagline, “Green is the new crimson,” and we have very clear, identifiable messaging across campus so that when people see our green shield and see that tagline, they immediately know, “I need to do something, or I am going to learn something about what Harvard is doing about sustainability in my environment.”

Even more critically, you need an engagement plan or strategy of how we effectively engage the community in caring about these issues. So one is communicating and marketing, and that is important, but the real engagement piece is essential. The future really depends on integrating sustainability into how people think, work, and live.

I see higher ed institutions working really well among themselves, and even reaching out to municipalities and communities, yet we have not been as engaged with the private sector to learn from their successes. So, another area of opportunity is to have the confluence of all of these entities working together to address these challenges. It is just too complicated and large to tackle without collaboration and cooperation and everyone working together to solve the environmental challenges facing us.

The future really depends on integrating sustainability into how people think, work, and live.

Heather Henriksen

The Three-Part Roundtable Series on the Built Environment

To come...

- Part Two: Eco Districts (April 2011)
- Part Three: Residence Halls (June 2011)