Sustainable Design Literacy: A Foundation for Transformed Practice

FEATURE ARTICLE

How well does the average designer know sustainable design? And how are the best firms supporting increased knowledge—and action?


July 10, 2017

Chances are, if you’re reading this article, you care more about and know more about sustainability than the average architect or designer. Your “sustainability literacy” is high.

Sustainable design literacy involves the ability to understand the various ways in which a project can impact—negatively or positively—environmental and human health.

But practitioners with this kind of knowledge are outnumbered. The industry has far more designers—at every level of seniority—who lack basic sustainable design knowledge or literacy.

And it shows. You, the choir, may know a lot, but we need the whole congregation working together.

We recognize many barriers to meeting that goal, but in this article we’re going to focus on one: knowledge. A significant proportion of practitioners are either not adequately equipped with the know-how they need, or they are not in an organizational structure where they can apply it in their work.

Collectively we know a lot about how to create buildings that are healthy, resilient, sustainable, and even regenerative, but we continue to see that most projects being built and renovated don’t come close to the industry’s most shared and critical sustainability goal—carbon neutrality by 2030.

“The Habits of High-Performance Firms” [3], published recently by the AIA Committee on the Environment (COTE), explains the key traits of “high-performance firms”—firms that have been awarded an AIA COTE Top Ten Award three or more times over the past 20 years. The average energy reduction on projects of the 10 firms featured in the report was 51% in 2015—not on track with 2030 Commitment levels, but far ahead of industry averages.
As we reported recently [4], most of the firms studied have instituted regular staff training to expand in-house capabilities and have a large percentage of LEED accredited staff—48%, more than twice the industry average. This level of in-house knowledge and LEED literacy corresponds with the fact that as a group, these firms actively use LEED on 92% of their projects.

But this report leaves us with more questions than answers:

- Are LEED credentials the most reliable and important barometer for sustainable design literacy? If not, what is?
- What topics or skills should the average architect have in order to engage productively with sustainable design?
- How do successful firms distribute sustainable design knowledge from individuals and groups who already understand it?
- Is architectural education preparing professionals for today's environmental and health challenges?

Why We Need to Know

What we really need is for project teams to take action toward sustainability. Is it safe to assume that sustainability literacy supports this?

According to a recent white paper, *How Age, Gender, and Education Impact Our Path Toward Carbon-Neutrality* by Heather Jauregui, Sophia Duluk Beavis, and Jerry Duluk, the more designers stay up-to-date on sustainable design concepts—specifically through research, conferences, conversations with colleagues, and webinars—the more likely they are to introduce and advocate for sustainability in client meetings and to implement it during the design process.

This white paper concludes that, “an architect’s knowledge has a strong positive impact on the probability of suggesting sustainable design to clients more often. The more you know, the more likely you are to follow through with implementation.”

Who Needs to Know

Many practitioners have told BuildingGreen that the model of having only one or a few sustainable design experts in a firm without also having in place more widespread sustainability literacy, is not effective. Often a single “sustainability director” will act as an in-house “consultant” that “floats” between projects. According to Heather Holdridge, director of sustainability at Lake|Flato, this does not work. “I couldn’t be everywhere all the time. We needed someone to make sure that sustainability performance is always part of the conversation.”

When We Don’t Know, Sustainability Suffers

A project team can’t discuss or engage with sustainable design concepts that are not even being introduced or that they do not have access to. Even if a team relies on specialized expertise, as teams do for all kinds of disciplines, they have to know what kinds of questions to ask, and when. Achieving a level of staff-wide sustainability literacy is a crucial step to building a culture of
What Every Designer Should Know

According to the National Institute of Building Sciences’ (NIBS) Whole Building Design Guide (https://www.wbdg.org/design-objectives/sustainable) [5], there are six fundamental principles that define sustainable building design:

- Optimize site potential
- Optimize energy use
- Protect and conserve water
- Optimize building space and material use
- Enhance indoor environmental quality
- Optimize operational and maintenance practices

A more comprehensive definition of sustainability—one often referenced by sustainable design leaders—would also address social and economic issues, such as social equity on the project team, and socioeconomic justice for communities affected by material extraction and manufacturing.

LEED credentials

The U.S. Green Building Council developed the LEED credentials in the early 2000s to provide assurance of an individual’s level of sustainable design competence.

Some firms have established a policy requiring all staff to earn the LEED Green Associate accreditation within six months of being hired. However, this accreditation is meant to be a non-technical introduction to basic LEED concepts and terminology and is intended for a wide audience, including non-designers. As an introductory credential based on a memorization-heavy exam, it doesn’t integrate a great deal of practical content or know-how that would, for example, support designers in implementing sustainability during design and construction.

“I struggle with [LEED Green Associate] as an indicator for anything,” says Katie Ackerly, sustainability lead at David Baker Architects. “At least it’s something. We’ve struggled to know what to do in lieu of it.”

One step up is the LEED Accredited Professional (LEED AP) credential, which involves more detailed knowledge of one of the LEED rating systems. It also requires a more technical understanding of certain sustainability concepts. Earning a LEED credential makes a designer LEED-literate—a valuable skill, especially for firms that certify many projects under the system. However, knowing everything there is to know about LEED is not the same as understanding sustainable design, or how to integrate key strategies during the design and construction process. And for firms or individuals that aren’t very LEED-centric, the LEED AP exam requires a lot of LEED-specific memorization that isn’t necessarily productive—such as what would qualify for an Innovation in Design Credit, or how to treat athletic fields when calculating water use reduction for WE credit.

Are there credentials that signal true know-how?
One approach to achieving and signifying literacy to supplement a LEED accreditation is to add more specialized professional accreditations such as the WELL Accredited Professional (WELL AP), for knowledge of the WELL Building Standard ([https://www.buildinggreen.com/well-fitwel](https://www.buildinggreen.com/well-fitwel)) [6]; and Living Future Accreditation (LFA), for the Living Building Challenge ([https://www.buildinggreen.com/living-building-challenge](https://www.buildinggreen.com/living-building-challenge)) [7] and related programs from the International Living Future Institute.

Anecdotally, designers BuildingGreen has spoken with who have earned multiple credentials like this are more likely to have already achieved considerable project experience with sustainable design, and use these credentials to signal that knowledge. Studying for and earning these credentials augments that—rather than forming the basis of it.

One accreditation does stand out. Training to become a Certified Passive House Consultant and Designer (CPHC&D) serves as a good refresher on the basics of designing passive, energy-efficient buildings. The training involves hands-on group design and calculation exercises and workshops—requiring students to apply the information learned in lectures. Katie Ackerly took the training and says it could also serve as a model for a more general course on building science concepts accessible to a wider audience of designers.

**Knowing the lingo, the tools, the rules**

Most would agree that—in addition to understanding the goals of sustainability, as outlined by NIBS—knowing the rules of the game is also essential. That includes:

- A firm grasp of the vocabulary (like energy use intensity, VOCs, daylight factor, and more) used to describe and discuss sustainability issues and solutions
- A proficiency with at least some of the basic analysis tools (the psychrometric chart, weather files, sun path diagram, and more) used to inform early climate- and site-based design decisions
- And knowledge of the baseline codes and standards (local energy code, ASHRAE standards, IgCC)

Several designers note that this basic knowledge is the type that must be used regularly in practice—integrated into a designer’s working habits and routines. Otherwise it is likely to fall away, overtaken by other information and concerns.

Jim Nicolow, AIA, director of sustainability at Lord Aeck Sargent, underlined the importance of basic knowledge in achieving higher goals. “Before really achieving high goals on the 2030 Commitment,” Nicolow says, “the firm had to take a step back and look at the bigger picture and ask, ‘How do you measure energy use? Why? Et cetera.’” The firm has created a sustainability forum to introduce staff to advanced concepts and provide in-depth information on sustainable design strategies, but feedback from staff showed that there was just as much interest in reviewing basics, such as, “What’s EUI?” (Energy use intensity, usually measured as kBtu/ft², is a building’s energy use per unit of area.)

**Familiarity with codes**
In an area like New York City where the building regulations are progressive enough, a thorough understanding of the codes and how to comply with them might serve as an effective measure of sustainable design literacy. Much of the profession’s knowledge and methods are a result of regulations. If the code requires it, designers will learn it and apply it.

The Urban Green Council in New York City offers a course called “Conquering the Energy Code” ([http://urbangreencouncil.org/content/projects/energy-code-training-architects-and-engineers](http://urbangreencouncil.org/content/projects/energy-code-training-architects-and-engineers) [8]).” It goes well beyond providing practical guidance on the compliance process. It also provides students a better understanding of the structure of the code and the rationale behind it. In addition, the course builds better understanding of how the building envelope and the mechanical and lighting systems are interdependent, and offers instruction for improving communication and coordination with project team members in order to remove barriers to compliance.

**How to engage basic energy analysis**

The ability to conduct early performance analysis—for example, a daylight simulation or a shoebox energy model—should be a key part of a designer’s tool box, according to practitioners with expertise in sustainable design.

According to several sustainability directors—who are often tasked with leading early analysis efforts—it is important that, even if every designer in an office does not know how to use these tools on their own, they at least know enough about the process to be able to participate in discussions regarding the analysis and to engage with analysis results. For example, a designer should have enough familiarity with the concepts of early performance analysis to be able to present the person running the analysis an appropriate query—a problem or a design decision that can be analyzed—and to then evaluate the results of the analysis.

Parametric analysis tools like the Sefaira Real Time Plugin for SketchUp and Revit; DIVA for Rhino; and the Ladybug, Honeybee, and Grasshopper plugins for Rhino are all designed in such a way as to embed early analysis into the design environment. They contrast with earlier software tools like Ecotect, which required designers to export model geometry to a stand-alone analysis tool, encouraging designers to delegate this expertise.

**Building science and passive design**

A robust understanding of how buildings are constructed—with special attention paid to wall assemblies and the thermal envelope—and how buildings operate over time would greatly inform design decisions, inevitably leading to higher performance.

And yet, there is a fundamental lack of understanding about even the most basic elements of building science by practitioners—things like the building’s orientation to sun and wind, the causes and effects of thermal bridging, and the science of moisture control. Most of these concepts are taught in the construction and environmental systems courses of every design program, but there is often little opportunity for practicing architects to refresh their knowledge.

**The right questions at the right time: early decision-making**
Early design decisions disproportionately impact the ultimate performance of a building. Knowing and understanding how buildings are put together and how they work in the real world contribute to a designer’s ability to ask the right questions at the right times.

Heather Jauregui, sustainability specialist at Perkins Eastman, says sustainable design literacy means having enough knowledge to know the impact of design decisions such as building orientation.

Rand Ekman, AIA, chief sustainability officer at HKS, emphasized the importance of analytic thinking and an awareness of the connection between every design decision and an outcome. For him, sustainability literacy means having a level of knowledge, comfort, and agency to make choices that are appropriate to the project based on an assessment of its larger context and according to specific, measurable outcomes.

**Sustainable design is good design**

Designers also support sustainability when they craft environmental experiences of beauty and delight. Not only are such experiences essential to the well-being of occupants, but they also contribute to stewardship of the built environment. A building that is not beautiful—that does not compel people to love and care for it—won’t last, and the material and energy that went into constructing it will be wasted. And as long as many designers see sustainable design as an add-on and not integral to their vision for the design of a building, they won’t embrace it.

Yee Lin, partner at Amplus Operations, teaches sustainable design concepts as part of the construction technology course in the architecture program at City College of New York. “When I teach my class, I always tell my students, again and again,” says Yin, “that sustainable design is not a new topic. It’s a very old topic. Basically sustainable design is good design. You need to design beautiful architecture. You need to design comfortable spaces.”

**Generalist vs. specialist**

It’s not reasonable to expect all designers to know everything related to sustainability—from building science, to water conservation, to energy efficiency, to reading chemical inventories of products, and on and on. There will always be a need for specialists or experts who are focused on specific aspects of sustainability or building performance. These are the individuals who dive deeply into a subject area, and then teach the rest of us the important, distilled, practical aspects of what they learn. They are often also forecasters who are constantly scanning and paying attention to the cutting edge. These are the individuals who are advancing the profession bit by bit as they add information and knowledge, over time raising the bar of sustainable design literacy.

**Simplicity sings**

Sometimes sustainable design can muddle the process, according to Ekman. He pointed out that going beyond the basics can cause unnecessary complexity and act as a barrier to sustainable design. “Sometimes the sustainable design community confuses and complicates things in a way that is not helpful. It’s possible that often the basic lessons are getting lost. It might be that we should aim for simplicity.”

An example of this would be the difference between knowing all the details of how a material’s chemical properties are assessed, and knowing basic principles about product and material selection, like those shown in BuildingGreen’s [12 Product Rules infographic](https://www.buildinggreen.com/infographic/12-product-rules) [9]. Simple but important lessons—like “if you’re buying more than a ton of it, know its carbon footprint” and “minimize exposure to the worst substances”—are easy to learn and remember, and can have a significant impact on design decisions.
This represents the kind of basic knowledge that all designers can and should have—as compared to the idea of every designer trying to learn and remember all the details of different toxic chemicals, how they interact, and what the particular health risks and exposure paths are.

### Distributing Knowledge: Firm Structure and Culture

Some firms develop their own specific, “institutional” definition of sustainable design based on their strategic plan, mission, or the types of projects they work on.

Dee Spiro, director of sustainability at Bergmeyer, told BuildingGreen that, due to the firm’s size, project load, and production pace, they’ve had to be strategic about where advanced sustainable design approaches are implemented. “Because we have so many projects going at any one time, we really have to target our efforts to where we feel we can make a difference.”

Bergmeyer has developed a “sustainability checklist” that is used by the project design teams as a guide to efficiently incorporating sustainable design whenever possible, and also provides staff with a clear basis of what the firm informally defines as sustainable design literacy.

Rick Carter, FAIA, who leads the Integrative Design Team at LHB, says his firm’s “Thrive” approach can help establish performance goals and outcomes for projects the firm designs. A kind of performance scorecard, it will be used to grade each project based on categories the firm has established as priorities. The scores range from “degenerative” (the worst score), to “sustainable” (neutral), to “regenerative” (the ideal). This system makes clear to design staff the value placed on performance while providing a clear template for goal-setting and strategies to be referenced throughout the design process. It is also a tool for educating clients on the potential impacts and opportunities of a project, and is a way to record and organize lessons learned.

### Each project is a learning experience

Jauregui notes that often particular issues that come up on ambitious or challenging projects are what drive the research at her firm. The firm’s definition of sustainable design literacy evolves as project teams learn new information or techniques in order to solve distinct problems, and then share that knowledge with the rest of the firm.

Jauregui shares that the team that worked on the Dr. Martin Luther King, Jr. School learned important lessons after finding that insulation had been incorrectly installed on the project. Had the issue not been corrected it would have prevented the project from achieving its high level of performance. The team shared with the firm what they learned about the need for increased oversight during construction administration—including the education of sub-contractors and regular checks of the envelope. The team’s experience on the project also served as a model for how the typical design process might have to be restructured to meet the specific high performance goals of a project. “Stories like this shared across our firm help others begin to understand what it takes to implement high-performance in their work,” Jauregui says.

### The “why” of sustainable design
Rand Ekman told BuildingGreen, “At HKS we try to understand what’s the right set of issues to address—not how, but what. So we do research to get to an answer. Once we put the information in front of a team, it’s easy to understand how to design in response. So, as a first pass on literacy—it’s not so much how to do it, but on why it’s important.”

**Educating the client is a critical skill**

It is a crucial skill for designers to be able to effectively educate the client on the why, what, and how of sustainable design.

“Something I hear a lot is ‘my client doesn’t care about sustainability, so we’re not doing it,’” says Jauregui. She adds that one of the main challenges at her firm is that people don’t know enough about sustainability to make their clients interested in it. She’s observed that designers who don’t have a certain level of confidence with a topic won’t introduce it.

Sustainable design literacy might mean having enough knowledge to be able to guide a client through all relevant aspects of sustainable design, including, especially, the impacts on schedule, cost, and long-term value.

Jauregui also stressed the need for firms to be proactive rather than reactive when it comes to pursuing sustainable design goals and knowledge. “We’re only educating based on what our clients ask for, but what we need to be doing is educating our clients.”

**Achieving Sustainable Design Literacy**

How do we achieve literacy? Do recent graduates have what it takes?

It might seem that the most recently educated designers will be the most knowledgeable about green building, but that’s not true, according to the white paper by Jauregui.

“The most recent generation of graduates believes that education around sustainability is our single biggest challenge as an industry,” the report found. “They seem to recognize that the education they received had not adequately prepared them.”

One problem is that the National Architectural Accrediting Board (NAAB) recently removed specific sustainability criteria from their accreditation requirements (see [Class of 2030: Groups Agitate for Sustainability in Architecture Schools](https://www.buildinggreen.com/news-analysis/class-2030-groups-agitate-sustainability-architecture-schools) [10]).

Yee Lin describes the shift that is currently taking place in architectural education, noting that there is a lag between the current state of sustainable design and what is being taught in most programs. “When we were in school we were taught how to make these systems work,” recalls Lin. “But not how to make them environmentally friendly. Now we teach the same topic, but we are teaching how to make the systems work to reduce energy consumption. The approach is different. All the teachers need to keep updating their knowledge.”

Lin adds that the problem is not so much that the goals of design have changed, but the strategies the industry uses to achieve performance goals have evolved quickly.

Teaching sustainability as a priority
Christian Volkmann, associate professor of architecture at City College, says students are actually “more literate than ever before, coming out of school, but they are not using the knowledge because they don’t value it.” They don’t understand how it integrates with all other aspects of design, like form making.

Volkmann explains that applied learning opportunities are essential. “It’s not enough for them to learn the theory. They need to understand how it is applied in practice; this will make it meaningful for them.”

Volkmann believes that providing students with hands-on, multi-sensory, interdisciplinary design opportunities that also engage the larger community will make sustainable design “come alive” for them. One such design-build program is Rural Studio (http://www.ruralstudio.org) at Auburn University. It provides students the opportunity to experience the impacts of sustainable strategies from the construction process all the way through to occupancy.

**Sustainable design and licensing**

The Architect Registration Exam (ARE), required for architectural licensing, “assesses aspects of architectural practice that affect the integrity, soundness, and health impact of a building,” according to the National Council of Architectural Registration Boards (NCARB). Ideally the ARE would provide a backstop for any shortfalls or inconsistencies in architectural education, including those related to sustainability.

However, though each division of the ARE includes questions related to sustainable design, it generally covers sustainability only to the extent that sustainability concepts have become part of the legal codes that govern the construction of buildings. The questions focus more on general, big-picture aspects of sustainability and do not get into specifics of advanced design strategies.

The profession may eventually integrate more advanced sustainable design concepts—such as those related to the design of carbon-neutral buildings—into the requirements of the ARE and the Intern Development Program (IDP). At that point, we may be able to say that a license to practice architecture is equivalent to an adequate level of sustainable design literacy.

**Revolutionizing design education**

Sustainable design leaders have advocated for the inclusion of specific skills as criteria for accreditation.

A recent discussion on the Society of Building Science Educators (http://www.sbse.org) listserv started with the question: "What will it take to make every graduating architect competent to design energy-neutral buildings (without ignoring the traditional values embodied in excellent architecture)?"

The discussion resulted in several suggestions for criteria that NAAB should include in its accreditation requirements:

- Knowledge of how to apply ASHRAE Standard 189 or the IgCC to student design projects
- Integration of solar thermal, passive solar, and photovoltaics
- Knowledge of the life-cycle economics of net-zero buildings
- Knowledge of how to measure the performance of a building and compare it against a baseline building

**Programs leading the way**

Some programs are voluntarily moving ahead to educate students beyond the minimum requirements currently described by NAAB, acting as models for the rest of the field, and advancing the definition of sustainable design literacy.

Richard Graves, AIA, is director of The Center for Sustainable Building Research (http://www.csbr.umn.edu/) at the University of Minnesota, where there is both a traditional Master of Architecture (M.Arch) degree program and an advanced Master of Science (M.S.) in Sustainable Design. He says basic sustainable design concepts, originally taught in the M.S. program,
are being migrated to the core curriculum of the M.Arch program. For example, NAAB does not require students to learn how to set and design to specific, measureable outcomes. “NAAB doesn’t set a target, whereas we’re giving them targets of net-zero—very aggressive and absolute targets,” Graves explains.

Graves also says the school is more focused on teaching integrative process compared to what is described in the NAAB requirements. “We’re trying to teach students how to collaborate with outside experts—how to bring other experts into the design process,” says Graves. “We’re trying to change the paradigm of the architect. We’re trying to teach you how to design beautiful things, but know enough to understand what these others are telling you, and then figure out the design implications.”

Deepening Literacy in Design Practice

Continuing education for professionals will always be critical in any case to both develop and maintain crucial knowledge and skills.

As a first step in defining and developing sustainable design literacy, some firms evaluate their staff’s current levels of knowledge. Ackerly, at David Baker Architects, created a survey based on one from the Sustainability Performance Institute (http://www.sustainable-performance.org/for-practitioners/assessment/)[14]. The intent in this case was not to evaluate literacy, but to determine the factors that affect whether or not project teams incorporate sustainability goals into projects.

The survey invited ideas from the design staff, who identified the following things as having potential to improve their abilities to incorporate sustainability goals into every project:

- Clear direction via office standards, green project specs, and project manager protocols
- Guides for talking to and educating clients
- Dedicated non-billable time for self-directed training
- More opportunities for training on fundamentals (building science, life-cycle analysis, etc.)

The survey also asked staff to describe a problem in the field they each would like to solve, and the tools and knowledge they think they would need to solve it. The goal was to determine what obstacles are keeping design teams from more fully integrating sustainability goals into their projects. The data gathered now guides the firm as it tries to provide opportunities for staff to pursue specialized sustainable design knowledge based on specific need and interest. Surveys like this could be administered on a regular basis to identify gaps in knowledge, as well as topics that resonate with staff.

Gwen Fuertes, designer at Leddy Maytum Stacy, conducted a similar survey at her office, asking staff:

- To what extent do you feel you are able to use your sustainability knowledge? and,

- Do you feel supported in your use of it?

The survey revealed that the staff want more opportunities to conduct research and more opportunities for risk-taking.
As a way to promote and track the different varieties of sustainable design expertise in the office, some firms—including Leddy Maytum Stacy, and Bergmeyer—have begun to integrate discussions of sustainable design goals into staff performance reviews. This also gives staff the opportunity to advocate for particular sustainability goals.

### Promoting, developing, and maintaining literacy

Some firms start training staff on sustainable design concepts as soon as they are hired by using “sustainability orientations” that communicate to new staff the firm’s sustainability strategy, priorities, and goals.

Gwen Fuertes says that at Leddy Maytum Stacy, “Whenever anyone gets hired, there’s an effort to provide a system of support for them to develop sustainable design skills, and apply these on their projects.” At Perkins Eastman, there is a mandatory “Sustainability 101” course that is updated and administered yearly.

Dee Spiro says that Bergmeyer’s reputation for sustainability is a big draw that attracts a lot of young designers to the firm. But that, at times, it’s a challenge to find enough opportunities for these staff to get involved in sustainable design. Efforts to address this include involving junior staff in 2030 Commitment reporting, and getting them using BuildingGreen’s product recommendations as a way of introducing them to the basics of material selection for sustainability and health.

### Make sustainability ambient

Some firms promote awareness and sustainable thinking by making sustainability “ambient”—integrating it as much as possible into office operations and culture. Many firms have formed sustainability committees that are charged with “greening” the office’s spaces, practices, and policies. Holdridge told BuildingGreen, “To me it feels like one of the most effective things my team and I have done—making sure that we’re always involved in every aspect of how the office operates.” This helps staff learn.

### Beyond the lunch and learn

Several firms are making efforts to rethink their in-house “lunch and learn” programs to make them more useful and more focused on sustainable design concepts.

At Lake|Flato, “sustainability champions” lead regular, sustainability-focused meetings that balance information about cutting-edge technologies or concepts with project-specific updates, lessons, and issues. These meetings empower the younger designers who are eager to learn by putting them in a position to lead a discussion and ask questions, says Holdridge. “It’s about going from knowing to doing,” she says. “It’s important to have a group of people talking about what they’re actually doing and empowering them to do more in between the meetings.”

At Leddy Maytum Stacy, teams present projects in design during design pin-ups. Each project team is expected to “tell the story” of sustainable strategies on the project.
Leddy Maytum Stacy also does "post-mortem" discussions among project teams as a way to learn and then share the knowledge gained on each project. The firm also does informal post-occupancy evaluations of each project. The design team will do a one-year walk-through and produce a report detailing what was successful and what was not. This has allowed the firm to create a library of knowledge and experience that all project teams can reference and learn from.

Mentorship: top-down and bottom-up

Many firms are recognizing that mentorship is an effective way to share knowledge and information.

Rick Carter says that at LHB they recognize the need for “two-way mentoring” as many of the younger architects-in-training often come in with knowledge about new modeling tools and research methods, while the senior architects have years of invaluable experience to share about everything from design fundamentals, to codes, to construction administration. “Senior staff have things to teach junior staff, and junior staff have different things to teach senior staff.”

“Design direction is controlled by senior level,” says Yee Lin, but junior designers may be ahead of the curve on sustainable design concepts and tools. According to Lin, it takes intentional support to get junior staff to use them. “Senior level leadership needs to care,” he says. “They need to communicate that it is important and meaningful for the junior staff to actually use whatever sustainable design knowledge they have.”

Facilitation and commitment

Several designers told BuildingGreen that the project manager on a design team often acts as a “gatekeeper,” either frustrating or enabling the sustainable design efforts of their team. A firm’s design staff may have adequate sustainable design knowledge, but in many cases, if a project manager does not facilitate or empower their team to implement these strategies, it will not happen. It can be crucial for project managers to play a leadership role and enable team members with various sustainable design skills or knowledge sets.

Commitment is crucial to developing a sustainable practice. It can have a significant impact if every person in the company sees the value of sustainable design and personally commits to it as a mission. As Heather Holdridge says, “The top-down commitment is critical for success, but it’s also a bottom-up commitment. I think you have to have both.”

Sharing knowledge
Some firms have developed communication tools in an effort to make widely accessible the sustainable design knowledge that is constantly being accumulated. Lake|Flato created “Flakenet,” a knowledge management system for sharing data and resources. According to Holdridge, “It’s proving to be a really engaging way for people to share information. It’s creating a community around environmental issues and driving dialogue.”

Bergmeyer and other firms have implemented some form of the “sustainability champion” model as an attempt to deploy a source of sustainable design knowledge on every project team—so that, ideally, sustainability is a part of every single conversation. Bergmeyer’s Sustainability Design Advocates work across project teams and are charged with overseeing all projects—no matter size, type, or interest in sustainable design.

**Individual professional development**

In addition to office-wide education initiatives, firms can develop sustainable design literacy by providing staff with opportunities for self-education and individual learning, most commonly through personal research, conferences, or webinars.

One of the big obstacles is finding the time. At Perkins Eastman, Jauregui says the firm is developing a “multimedia and multi-level comprehensive sustainable education program that will offer staff a variety of different ways to engage.” The goal is to offer enough options for access so that all designers can adapt the education program to their own schedule.

Another obstacle is cost. Many designers report that it’s difficult to get support for attending professional development events if there is no marketing element attached. There is a danger in attaching staff development to business development if it is acting as a barrier to education. (One way for staff to advocate for support is to play the competition card. Senior leadership will often pay attention if they know the firm’s competitors are.)

Some firms also encourage staff to work on extracurricular projects—volunteering, community engagement, advocacy—as a way to develop design skills. “A lot of our staff volunteer outside work and it shows in our projects.” says Holdridge.

A number of schools—including University of Southern California, Harvard Extension School, and University of Oregon—offer “Sustainable Design Certificates” or similar credentials through which working architects can gain additional knowledge about sustainable design principles and practices. These continuing education programs are flexible, allowing busy practitioners to adapt their study around their work schedules. The Sustainable Design Institute [at Boston Architectural College—which BuildingGreen is affiliated with—offers more than 30 eight-week online courses, focused on topics ranging from daylighting, to indoor environmental quality, to building envelope. (Students are required to complete six courses to earn the Sustainable Design Certificate.)

Just Start: Learning by Doing

Eric Corey Freed, founding principal of organicARCHITECT, says that in his role as the co-author of a guide to studying for the ARE, he has been holding regular “office hours” for young professionals studying for the exam. From his vantage point, young architects know more than they give themselves credit for, and this can be true for anyone. “The issue is confidence,” he says.
“They don’t want to start until they feel comfortable, but you’re always going to feel as though you don’t know enough.”

A joke Freed likes to tell: What’s the best thing about being a fifth-grade teacher? You really only need a sixth-grade education. “I can’t wait till you feel confident,” Freed says he tells young professionals. “The world is too screwed up for that. Start somewhere, even if it’s only one aspect.”

Source URL: https://www.buildinggreen.com/feature/sustainable-design-literacy-foundation-transformed-practice

Links
[5] https://www.wbdg.org/design-objectives/sustainable