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DESIGN FOR A CHANGE:
Buildings, People, Energy

A CRITIQUE OF PURE SUSTAINABILITY

TESTING GREEN IDEAS

IT TAKES MORE THAN A VILLAGE

NEW LIFE FOR A BOOMER BUILDING

A Critique of Pure Sustainability

After years of attention to sustainability, some architects are looking beyond semantics to substance and asking: What exactly are we trying to sustain?

BY BILL MILLARD

Kevin Kennon Architects-Gensun Shanghai Digital Technology Co., Ltd.

For any idea to stand the test of time, it usually has to endure a backlash. This also happens to the idea of standing the test of time.

Environmental sustainability has guided architectural practice long enough to elicit counterreactions. Some are tongue-in-cheek, some frankly hostile. Some critiques aim to hold the sustainable-design establishment to its own principles: when a few LEED buildings performed below expectations, skeptics accused the system of neglecting follow-through assessments. Even earnest advocates lament sustainability's status as a buzzword: a buzz never lasts.

"We've been at this now for 20 years," observes William Morrish, M.Arch., dean of the School of Constructed Environments at Parsons The New School for Design. "So what do we know and not know? Everybody's accepted the word, but not really interrogated what we know."

Multiple ideas, systemic scales

Sustainability can be a goal, an ideal, a common language. What it can't be is simple. It may be worthwhile to speak of *sustainabilities*, plural, rather than designate things green or non-green. The 1987 Brundtland Commission report *Our Common Future* defined sustainable development as both positive and negative practices that meet present needs without diminishing later generations' ability to meet theirs. Not all sustainabilities are environmental; economic forms inevitably constrain ecological ones. Some organizations sustain themselves by balancing solvency with environmental and social well-being, as expressed in Ove Arup's 1970 "Key Speech."

Dennis Wedlick, AIA, who designed the Hudson Passive Project in Claverack, NY, one of the first U.S. houses to observe Germany's Passivhaus standards, is disenchanted with point-based ratings, likening LEED to the IRS. "It's as complicated, and as easy to cheat," he says, defining sustainability by "thoughts of the day, as opposed to enduring principles and measurable results." He prefers houses that are precisely designed, site-specific, and tightly built, with details assessed uniformly: "Every residual, every impact of building science, translates to energy." The U.S. Passive House Institute claims a passive house uses about 15 million BTUs a year, compared with a national residential average of about 95 million. Wedlick hopes the National Association of Home Builders will promote Passivhaus standards industry-wide.

Literal sustainability implies stasis, the province of preservationists rather than ecologists. Jonathan F.P. Rose of the Jonathan Rose Companies, a devel-

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(above) Kevin Kennon Architects (design architect) and Beijing Victory Star Architectural & Civil Engineering Design Co. (architect-of-record):The Tian Fang Project of Tianjin Zhong Xin Eco-City South Subcore, China, will be a 45-story, multiuse skyscraper of bundled tubes "cracked" at intervals to create space for green atriums.

(above) Dennis Wedlick Architect. Built by Bill Stratton Building Company, with support from the New York State Energy Research Development Authority (NYSERDA), the Hudson Passive Project in Claverack, NY, is a virtually airtight 3-bedroom, 2-bath house that observes Germany's Passivhaus standards.

oper devoted to spreading smart growth and other sustainable practices, prefers the term *resilience* for its emphasis on adaptation. "'Sustainable' is a generic and imprecise term," Rose says. "It could represent extremely deep strategies and actions or trivial ones. It's as meaningful, and meaningless, as the phrase 'green.'"

Both nature and culture, Rose notes, are "living, dynamic systems that are continually evolving and unfolding. As the LEED system is evolving, even it, too, is not static. So LEED EBOM [for Existing Buildings: Operations and Maintenance] requires continuous reporting and feeding-back on the performance of one's building." Evolutionary biology suggests that when conditions change, diverse and flexible systems outlive simple, brittle ones. Current spaces, strategies, and dependencies, Rose believes, require deeper transformations. When an entire city (Detroit) can decline because of overdependence on a single industry, he cautions, that is a monoculture in both transportation and economic terms that hardly seems worth sustaining.

Randolph R. Croxton, FAIA, LEED AP, principal of Croxton Collaborative Architects, believes that "current patterns of growth and development, here and globally, are grossly destructive of natural systems." Croxton views sustainability as a systemic organizing concept – "the underlying process necessary to assure the viability of the human community through the integration of built and natural systems." Along with the conventional focus on efficiency in energy and materials, he would like to see mitigation of environmental problems, and design that restores natural systems as "subsets or tools by which real sustainability could be achieved." He offers a kind of categorical imperative. For him, sustainability is a "filter" that lets architects assess the "generalizability" of decisions affecting energy and resource consumption. With unprecedented global pressure on resources, both renewable (forests, fisheries, agricultural lands) and nonrenewable (water, oil, copper, rare earths, to name a few), he asks, "If all nations continue to proceed in that manner, do you ultimately undermine and have a collapse, or a partial collapse, of human society?"

Describing isolated projects, practices, or communities as sustainable, even if they deserve admiration, is thinking on the wrong level. "It's meaningless to say the United States is being sustainable," Croxton contends. "Sustainability can only be realized at the global scale by nations acting in concert and within the Earth's carrying capacity. Consensus metrics supporting the ongoing balance of built and natural systems must be implemented globally. We are at the elementary-school stage of trying to come to grips with that large idea."

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Send that hair-shirt to the recyclers

One widespread belief equates sustainability with tiresomely virtuous sacrifice. This hair-shirt model frames all economic activity as invasive – cultural historian Leo Marx's "machine in the garden." Ever since "Jimmy Carter wore the sweater in the White House in 1976 and turned down his thermostat," laments Robin Guenther, FAIA, a design leader at Perkins+Will, "there's been a mindset that sustainability is associated with deprivation."

Sustainable design, says Kevin Kennon, AIA, too often becomes a search for lowest common denominators, not harmony with nature. "I find it sort of cynical," he comments, warning of "the trap of *appearing* to be green" with largely symbolic fixes. While acknowledging LEED's achievements, he disdains checklists as mere damage control and sees sustainability as a minimal precondition for practices that "utilize technology to create or build upon the natural affinities we have with life systems, light, and air."

The developing world, Kennon says, needs "the freedom of thought that technology allows you to have" and can often look to its not-yet-vanished traditions for "a symbiotic relation between man and his environment." China's polluted air is not only "an indication of the rapidity of industrialization, but of how far they've distanced themselves from the roots of their culture," he says. "Merely 'sustaining' isn't appealing if you're experiencing phenomenal growth. A connection to nature is embedded in Chinese culture, and I hope realizing what they are losing will make a difference." He identifies "positive steps that we as architects need to propagate – a therapeutic model, as opposed to [LEED's] 'Don't do this, don't do that' model, and 'if you do all the things we tell you, you'll get a nice award.'"

In Tianjin Eco-City, a Chinese-Singaporean joint project, Kennon is working on the 200-meter multiuse Tian Fang skyscraper that puts a structure of Sears Tower-style bundled tubes in familiar visual terms: a gathering of bamboo stalks. Its structure helps reduce dependence on mechanical HVAC apparatus, forming a ventilating chimney effect that uses natural convection, aided by chilled beams and thermally insulated glass units with solar-guided louvers. The tower reconnects with its surroundings, "cracking" the tubes at staggered intervals to invite daylight into green atriums. This machinery doesn't invade a garden – it supports gardens.

David Bragdon, director of the Mayor's Office of Long-Term Planning and Sustainability, contrasts the shades of green here with Portland, OR, where as Metro Council president he frequently heard sustainability "equated to no growth, zero impact." Frustrated with hair-shirtism, he is heartened that "New Yorkers are pro-growth and pro-sustainability at the same time." The data-driven Bloomberg Administration, he says, favors measures that generate cost-effective "co-benefits." Stormwater management through plantings, porous pavement, and wetlands reclamation also helps cool neighborhoods, preserve wildlife habitats, add visual appeal, and reduce harbor contamination. "From a regulatory standpoint, a green infrastructure approach is harder to quantify in advance," Bragdon says. Bioswales and retention ponds have different costs and operational requirements than pipes and huge centralized treatment plants, and "that's what makes regulators nervous about it." The city is measuring outcomes, he says, and those are the real indicators of a sound civic investment.

Unlike its 2007 predecessor, PlaNYC 2.0, due this spring, will appear in a difficult fiscal climate. "Some policy proposals will actually help the city to avoid costs," he says. "We know a recession is actually a good time to be investing in some things." Education, job growth, and green building codes are strong priorities for the plan; dramatic changes are not. PlaNYC reflects the recognition that, as Bragdon says, "everything gets paid for, one way or another," and some apparent savings amount to "offloading externalities" – environmental and other costs not incorporated into economic mechanisms – "onto society, the taxpayer, or future generations."

Learning from what *wasn't* sustained

Catastrophes dramatically reveal systemic flaws, notes Parsons' Morrish. Hurricane Katrina overpowered not only New Orleans's levees but an entire cultural ecology. The built environment indicated inattention to infrastructural resilience (through wetland development), economic diversity (through industrial decay and overdependence on tourism), and social balance (through many citizens' exclusion from basic services, including evacuation). New Orleans learned a hard lesson in how unsustainable it had become. It was "the first city in modern U.S. history to suffer a sweeping catastrophe due in large measure to public sector myopia and basic human denial," Morrish wrote in the journal *Social Research*.

Would a better-planned community collapse New Orleans-style in a climate crisis? Structural engineer Guy Nordenson, PE, SE, has explored disaster scenarios as a FEMA planner and developer of the NYC's Seismic Code. "Let's say you accept that your flood protection is likely to be overwhelmed in an extreme event," he says. "So there'll be water. You need to decide how you're going to deal with it. Some parts of the city will be uninhabitable, so where do those people go? To Houston or Baton Rouge? Or close to their homes, to emergency housing?" Preparing for the latter entails decisions about building stock, public health, security, transportation, and myriad other variables.

"Civic gumbo"

"The lesson for me from Katrina," Nordenson says, "is this idea of soft infrastructure – that you marry ecology and landscape with infrastructure." But that's only one aspect. When outsiders suggested abandoning the Ninth Ward, "all hell broke loose, for good reason, because no one was prepared to accept that." Cultural attachments outweighed risk assessment, just as they did in much of the rebuilding planning for Lower Manhattan after 9/11. Nordenson and Morrish suggest that urban sustainability isn't just about buildings, plantings, supply chains, or hydrologic engineering, but what Morrish calls the entire "civic gumbo" linking the local with the global, infrastructure with culture, quality of life with contingency plans.

"We're allergic to planning in this country; it's 'socialist,'" Nordenson laments. "The disaster issue is different and more compelling, as a way to try to instigate larger-scale planning." His seismic research influenced New York City codes only after quakes at Loma Prieta (1989) and Northridge (1994) convinced city officials it could also happen here. "Eight years were spent getting prepared for the crisis, and then *boom*. In my experience, that's all it takes."

Ultimately, sustainability expresses a timeless idea. "Sustainability is the glue that holds the Vitruvian triangle together," comments AIANY Executive Director Rick Bell, FAIA, "combining the resilience of *firmitas*, the functionality of *utilitas*, and the design focus of *venustas*." Extending Vitruvian principles to urban systems strengthens the chance that communities on all scales will earn the description from William Faulkner's Nobel Prize address: They will not merely endure, but prevail. ■

Bill Millard is a freelance writer and editor whose work has appeared in *Oculus*, *Architect*, *Icon*, *Content*, *The Architect's Newspaper*, *LEAF Review*, and other publications.