

JAE

Volume Issue

60 4

May
2007

Journal of Architectural Education

Sustainability

Criticism

Design

History

Technology

Pedagogy

Practice



The *Journal of Architectural Education* has been published since 1947 for the purpose of enhancing architectural design education, theory, and practice.

It is published quarterly by Blackwell Publishing, Inc. for the Association of Collegiate Schools of Architecture, Inc. ACSA is a non-profit 501 (c) 3 corporation governed by an elected Board of Directors.

© 2007 Association of Collegiate Schools of Architecture, Inc., 15 New York Avenue, NW, Washington, DC 20006.

Phone: 1-800-704-6883
Fax: 1-202-315-1531

Volume 60, Number 4

The Publisher, the Association of Collegiate Schools of Architecture and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Publisher, Association and Editors, neither does the publication of advertisements constitute any endorsement by the Publisher, Association and Editors of the products advertised.

Cover: University of Arkansas Community Design Center, Habitat 67 project, Meadow Duplex Section perspective (2006).

Inside cover: University of Arkansas Community Design Center. Building the Social in Big Box Retail, project. Matrix developed to help local citizens develop ecologically-sensitive Wal-Mart stores (2005).

Page 2: Estudio Teddy Cruz. Living Rooms at the Border, project.

- 3 BARBARA ALLEN
Editorial: Farewell

Sustainability

- 4 VINCENT CANIZARO AND KIM TANZER
Introduction
- 15 SIMON GUY AND STEVEN A. MOORE
Sustainable Architecture and the Pluralist Imagination
- 24 KIEL MOE
Compelling Yet Unreliable Theories of Sustainability
- 31 TED SHELTON
Greening the White House: Executive Mansion as Symbol of Sustainability
- 39 PAULA LEE
François Cointeraux and the School of "Agritecture" in Eighteenth-Century France

General Article

- 48 COLEMAN A. JORDAN
Rhizomorphics of Race and Space: Ghana's Slave Castles and the Roots of African Diaspora Identity

60 Reviews

- Ten Shades of Green: Architecture and the Natural World* reviewed by LISA TILDER
- The Green House: New Directions in Sustainable Architecture and Design* and *The Green House: New Directions in Sustainable Architecture* reviewed by LORI RYKER
- Ecological Architecture: A Critical History* reviewed by STEVEN A. MOORE
- The Destruction of Memory: Architecture at War* and *Afflicted Powers: Capital and Spectacle in a New Age of War* reviewed by C. GREIG CRYSLER
- Noise Orders: Jazz, Improvisation, and Architecture* reviewed by JOSEPH HEATHCOTT
- Cities, Poverty, and the Environment* reviewed by BARBARA ALLEN

VINCENT CANIZARO
University of Texas at San Antonio

KIM TANZER
University of Florida

Introduction

Environmental Architectures and Sustainability: A Taxonomy of Tactics

The discourse of environmental architecture and sustainability is approaching a critical juncture in its development. A few years ago, the concept was a stranger in practice and academic discourse. Today, it is rapidly becoming a mainstream concern spurred on by the work of ecologically minded architects, enlightened federal bureaucrats, improved methods of quantification, and an emerging realization of its strong relationship to theories of place and region. Beyond this, many who do not identify themselves as engaging in sustainability are increasingly involved through related issues such as ecology, energy, landscape urbanism, social equity, technological development, and design style.¹

To date, this architectural discourse has been dominated by technical understanding about the construction of so-called “sustainable buildings.” The ever-expanding number of texts that deal with models of best practice and/or means of building more technically efficient or ecologically sensitive buildings attest to this.² Less is known about sustainability as a social and historical phenomenon, leaving important questions unanswered and much room for research. Is sustainability a recent concept or a key component in some ancient or traditional societies? Which specific practices or design elements result in a building or landscape capable of living up to the oft-cited Brundtland definition of sustainability as meeting “the needs of the present without compromising the ability of future generations to meet their own needs”?³ Which and whose needs have priority? How are we to determine the difference between needs and desires? And perhaps most crucially, who gets to decide?

Part of the issue is the need to determine what counts, indeed, how one can and should count something as sustainable. In our own analysis, we have determined at least five competing

definitions of sustainable, green, or ecological architecture:

1. Buildings and environments that help to establish an integrated relationship with nature.
2. Buildings and environments that preserve and/or improve local ecosystems and which focus on long-term planning and a wider geography.
3. Buildings and environments that result from civic action in which environmental quality, understood both physically and socially, is essential.
4. Buildings that satisfy a series of benchmarks (i.e., LEED) defined by experts, interested parties, and politicians.
5. Buildings and environments that save and/or conserve energy and satisfy our real and perceived needs.

With the title of this special issue, we align ourselves with the first, while acknowledging that many of our colleagues in practice and academia tend toward the latter. More importantly, even a partial list such as this is problematic. It points, depending on your point of view, toward either a healthy heterogeneity or an unfocused profession.

The situation is further complicated by the fact that achieving sustainability through ecologically informed architectural design requires more than that found within the traditional scope of architectural practice. For one, the issue of scale is tantamount, as ecologies never coincide with the traditional domain of an architectural site. Natural forces and ecologies are best understood at the scale of neighborhoods and regions, not lots. Sustainability requires the development of infrastructure along ecological lines, bringing to mind the regional planning of Benton MacKaye, Lewis Mumford, and Ian McHarg. Such work requires social and political engagement. Second, sustainability requires integration within the industrial and economic processes, which structure our globalized economies and condition our access to most goods

from dishwashers to a healthy neighborhood. William McDonough’s work with chemist Michael Braungart, as documented in *Cradle to Cradle*, is a prominent yet singular case of such an effort. It describes a role for architects that lies so much outside of our training and expertise that many are unwilling or unable to act. Taken together, these two issues present what is perhaps the greatest challenge to architecture: our profession’s refusal to acknowledge the fiction of autonomy. Environmental architecture is by nature interdisciplinary.

In response to these questions and emergent requirements, many have reasonably sought clear, verifiable answers and means to integrate our lives, industries, and economies within the natural systems upon which we all depend. This quest for certainty has led to an overreliance on technical means. In the search for the right answer and the most predictable or quantifiable approach—for a clear and exclusionary taxonomy of that which is and leads to a state of sustainability—we contend that both the discourse and practice of sustainability has suffered.

We find hope in Jorge Luis Borges’s description of “a certain Chinese encyclopedia.” About it, he writes “that the animals are divided into: (a) belonging to the Emperor, (b) embalmed, (c) trained, (d) pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in this classification, (i) trembling like crazy, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) et cetera, (m) just broke the vase, (n) from a distance look like flies.”⁴ For Michel Foucault, Borges’s “encyclopedia” served as the inspiration for his brilliant explication of neglected fields of modern knowledge in *The Order of Things*.⁵ For us, Borges describes an inclusive taxonomy—a way of knowing about heterogeneous things in terms of their possible similarities. It allows us to see seemingly disparate entities, a single-family house, for example, as a part of a hidden or obscured set of relationships, such as the ecology of the city. It helps us to question the search for a singular and universal

definition of sustainability or completely clear categories of what to do, by suggesting that each and every project and process aimed at achieving sustainability is a part of the larger goal—each is a part of our “sustainable encyclopedia” no matter how different they may appear.

So we are critical of the stubborn and persistent search for consensus—about why and what to do—that has stymied many architects who are concerned about environmental problems but are unsure how to proceed. This self-doubt has resulted in far too much resistance to even trying sustainable tactics. Some are reluctant to act on an incomplete understanding of the environment we study, others on the basis of only provisional theory. Indeed, some argue that sustainability is not a goal at all, but a merely a lens, a way of filtering and acting. However, the problem can no longer be understood as a semantic problem, an academic disagreement over the descriptive terms green, ecological, or sustainable. Instead, we must increasingly view this debate as a practice akin to fiddling while Rome burns. In these previous discussions, coming to consensus has been a prerequisite for taking action or facing the present challenges, both overt and seemingly invisible.⁶ This delay is no longer viable.

In our criticism, we continue a line of thinking presented in the February 2001 issue of the *Journal of Architectural Education*, in which Simon Guy and Graham Farmer attempted to come to terms with the plethora of rationale and actions under the rubric of sustainability. Unable to reduce it to one, they settled on nothing less than six competing “logics” that underlay sustainable practices. Rather than conclude that search for a singular logic, they suggested that the “search for consensus that has hitherto characterized sustainable design and policy making should be translated into the search for an enlarged context in which a more heterogeneous coalition of practices can be developed.”⁷ Their goal, like ours, is

inclusion. Also like them, we admire the architects that have sought answers and acted on their conclusions, however provisional, without whom we would not have come even this far. We see in their work a profusion of praiseworthy actions. Each in its own right is a tactic aimed at achieving the broader mission of sustainability.

We also find hope in the metaphor of war, in a strange twist of contemporaneity.⁸ First, we wish to borrow the military usage of the terms “mission,” “strategy,” “tactics,” and “operations” to help us frame a future trajectory of environmental architectural practice. As such, the overall *mission* is the achievement of sustainability—to be a productive and balanced part of the natural world. *Strategies*, such as energy conservation, support that overall mission but only in part (a complete list is included below). *Tactics*, on the other hand, are local means of carrying out those *strategies* in the form of “adroit devices for accomplishing an end,” such as using recycled cotton to insulate a building or configuring a building to accept natural light.⁹ Finally, any particular project can best be understood as an *operation*, a collection of *tactics*, addressing one or more *strategies*.

Reframing the argument above in these terms allows us to promote and understand how individuals can differ on specific strategies but agree on the broader mission. Sustainability as such is a war with many fronts, many tactics, and many operations. From our reading of the discourse, we find agreement that each front must be addressed using specific strategies and concomitant tactics. Further, there is little disagreement that the strategies are carried out through tactical operations in specific contexts. It is just such a specificity that might allow the war to be won, locally, and globally.

Second, the present circumstances of the so-called “global war on terror” offer a further, though horrifying, demonstration of how *tactics*, loosely coordinated, small actions, can be a powerful means of achieving a larger mission. We all have witnessed the tactic, or tactics, of terrorism reframe

not only means of modern warfare but also the terms of victory. Similarly, we hope that the application of *any* sustainable tactics by many architects can result in global environmental change. It may just be that through the small actions of many that we will move closer to achieving a balanced integration with nature. Rather than wait to get the overall *mission* defined or even all of the *strategies* properly in place, we, along with Steven Moore and Simon Guy (after Richard Rorty), seek to get down to solving the problems of mankind.¹⁰

Widely accepted strategies articulated to date include (1) energy efficiency; (2) local and off-the-grid energy production; (3) cyclical and sustainable material use; (4) regenerative linkages to local natural forces and the local ecologies; (5) linking transit to places of inhabitation, work, and leisure; (6) water use efficiency; (7) dealing with waste productively; (8) striving to achieve local relevance, socially and physically; (9) design as a means of demonstration and education; (10) life cycle decision making regarding building performance, use of materials, embodied energy; (11) building to enhance experiences of the natural world; (12) reuse and renovation of existing buildings; (13) productively linking architecture and landscape; (14) building to last, in part by employing flexible design layouts; and (15) providing for high indoor air quality.

For us, however, it is the specific and local means of carrying out these strategies that we find hopeful and inspiring. It is such a taxonomy of tactics, containing potent examples of “adroit devices,” that follows. Rather than an exhaustive catalogue of all possible conditions, this is a Borgesian taxonomy of provocative possibilities. Each is inflected toward the common mission of dynamic global sustainability. Each addresses different strategic conditions (energy reduction, social justice, ecosystem protection). And each uses tactics customized to respond to local circumstances. Our first set of tactics can be found within the essays included in this special issue. As a set, they represent a trend with which

environmental architectural practice can be tactically supported by scholarship. Historians, by employing the tactic of mining history (Lee and Shelton), and theorists, by employing the tactical tools of criticism (Guy, Moore, and Moe), contribute to the development of future sustainable tactics and strategies, while also being descriptive of them. In addition to these, we wish to contribute to the maturing discourse by offering several further tactics, each developed by academic colleagues in practice. Taken together, they are as different from each other as the animals in Borges's encyclopedia, yet united in purpose. In compiling them, we admit they represent only a sketch of the work done by many. In organizing them, we have found inspiration in the ruthless order of war and the alternative, but very real, rationality provided by Jorge Luis Borges.

Operational Tactics

Tactic: Engage the Participation and Imagination of Those Who Have Something at Stake

Steven Moore and Simon Guy, in "Sustainable Architecture and the Pluralist Imagination," return to a theme they addressed in the *Journal of Architectural Education* (February 2001) to make the case that we know enough about environmental concerns to move beyond the search for universal solutions, arguing that there are as many sustainabilities as there are places. They ask us to focus on local applications, improving local awareness, and increasing understanding of the relevant local, social, ecological, and political circumstances that foster or impede ecological progress. For this, they fuse pluralism and pragmatism, using the case of Commerzbank tower of Frankfurt as an example of a situationally specific project that merged historic and current "public talk" (ideas held within the minds of locals) with a technologically proficient global architecture to create a unique, ecologically sound local place.

Tactic: Reject Commonly Held Assumptions to Open New Possibilities for Practice and Pedagogy

To open new avenues for thinking and practicing environmental architecture, Kiel Moe, in "Compelling yet Unreliable Theories of Sustainability," begins with a critique of the dominant claims which have served as the basis of much environmental concern. He is critical of the popular understanding of the energy crisis and excessive construction material wastage, regarding them as unsubstantiated or debilitating forms of rhetoric that blind the environmentally concerned architect to more effective means of practice. Further, in the widespread reliance on technology as the sole means of achieving sustainability, or in its counterpoint, the uncritical application of regionalist, vernacular, or indigenous responses to place, Moe finds the need for a fuller understanding and representation of context. In response, he proposes renewed and provocative approaches to the practice and pedagogy of environmental architecture.

Tactic: Use Symbolism to Motivate Widespread Social Change Regarding Reduced Energy Consumption

Ted Shelton, in "Greening the White House: Executive Mansion as Symbol of Sustainability," discusses the use of the symbolic power of the White House to promote sustainable architecture during the Carter, Reagan, Clinton, and George W. Bush presidencies. His critical and historical account shows both the strengths and weaknesses in the use of national symbols, policy, and the "bully pulpit" to advance the cause of environmental architecture. The example of the White House demonstrates a potent yet flawed carrier of environmental messages—potent in its broad public impact as the representative house of the nation showing a way to the future, yet flawed as a political reality in that it often responds to popular expectations rather than leading them.

Tactics: Simultaneously Promote Economic and Environmental Sustainability Through Education; Empower the Poor to Help Themselves Using Sustainable Means

Paula Lee, in "François Cointeraux and the School of 'Agritecture' in Eighteenth-Century France," demonstrates the long roots of environmental architecture through an examination of Cointeraux's educational program, titled the "School of Agritecture." Cointeraux sought to relieve poverty and empower the French peasantry with a program of rammed earth (pisé) construction, joined with lessons in agriculture. Cointeraux's story echoes much, both good and bad, in environmental architectural practice today. His work with students—using local, sustainable means to empower, educate, and help the poor help themselves—echoes the increasingly popular humanitarian work of Sergio Palleroni, the Rural Studio, Architecture for Humanity, and others. Cointeraux's emphasis on the importance of the land and agriculture mirrors the emerging realization that environmental architecture must embrace a wider domain, namely, the environment as manifest through ecology, climate, and the cycles of industrial production and economies. Last, Cointeraux's professional challenges in gaining acceptance for his work will be familiar to many long-term advocates of sustainability in architecture.

Tactics: Experiment on Yourself, Then Demonstrate Results and Educate Others, Employ Or Invent Scientific Sustainable Building Systems; Establish the Region as the Appropriate Frame for Sustainability

Now recognized as one of the sustainability movement's founding fathers, Pliny Fisk III and his partner Gail Vittori have worked since 1975 to develop sustainable building solutions through their Center for Maximum Potential Building Systems near Austin, Texas. In 1996, they designed

built a two thousand square foot home called Green Builder Demonstration Home that incorporates a comprehensive range of sustainable strategies and tactics (Figure 1). Materials include modular, deconstructable recycled steel structural elements, straw bale infill, and locally harvested wood. Water and power needs are fulfilled by rainwater harvested on the site and collected in a cistern and electric generated using a photovoltaic system that doubles as an entry trellis. Built for \$100,000 using a combination of private and government funding, the home serves as an ongoing experiment for Fisk, of whom James White, an Environmental Protection Agency scientist says, "has given the whole [environmental] movement

...er for Maximum Potential Building Systems, Advanced Green
... Demonstration Home, Austin, Texas (1996). (Photo by Vincent
...)



a more technical bent and a less touchy-feely direction."¹¹

Tactic: Use an Architecture School to Densify and Revitalize a City

The University of Waterloo School of Architecture, faced with the traditional problem of inadequate facilities on the university's main campus, sought to address multiple issues through one visionary building project (Figure 2). Director Rick Haldenby was approached by business and community leaders in the nearby town of Cambridge and asked to consider relocating the School of Architecture to a derelict silk mill in the center of the historic industrial town center. A robust public-private fundraising effort, a design process that involved the internationally selected firm architectural firm of Stanley Saitowitz working alongside Levitt Goodman Architects of Toronto, the School's faculty and students, and the enthusiastic support of Cambridge's leaders, led to the adaptive reuse of a historic building into a state-of-the-art architecture facility. The School has stimulated revitalization in Cambridge, provided an outlet for local businesses and kept a city block's worth of local construction materials out of the local landfill while teaching a generation of architecture students by example.¹²

Tactic: Let Social Sustainability Lead Economic Sustainability

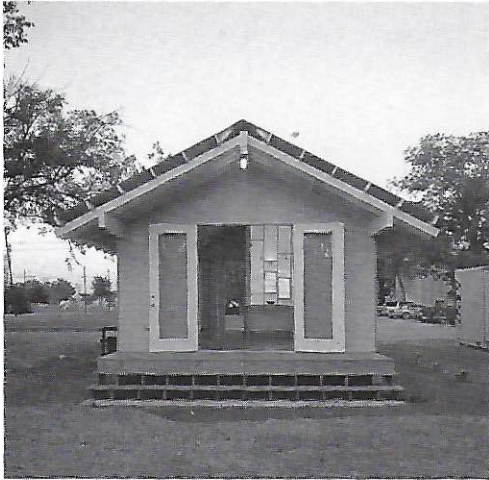
Project Row Houses, a three-block area in Houston's Third Ward, is the site of an important project directed at revitalizing an African American neighborhood first through culture, then through financial opportunities. The project, developed by Rick Lowe in 1994, began with the reuse of twenty-two row houses and adjoining vacant lots. The shotgun houses are used for art installations, performances, classes, and as art galleries. A series of installations by academic architects, curated by David Brown and William Williams and including the work of Felicia Davis, Studio SUMO (Figure,

page 2), Craig Barton Walter Hood and others, collected in the book *Row: Trajectories through the Shotgun House*, established the foundation for community revitalization through the social revitalization of collective cultural memories.¹³ The project has grown to include a series of four duplexes and an inventive small home entitled the XS House built by the Rice Building Workshop (Figures 3 and 4), microeconomic enterprises such as the Third Ward Community Bike Center, and the Row House Community Development Corporation that has expanded the project to thirty-five surrounding blocks.

Tactic: Engage Powerful Corporations to Encourage Global Stewardship

Wal-Mart is considered by many to be the antithesis of social and economic sustainability. With its energy intensive, worldwide supply chain, regionally unflected big box building and site development strategies, suspect employment practices, and predatory competitiveness within and between local markets, Wal-Mart is arguably the antithesis of a sustainable business. Most academic architects make sport of decrying all things Wal-Mart. Not so the University of Arkansas Community Design Center (UACDC). The UACDC, directed by Stephen Luoni, perhaps because of its proximity to the Wal-Mart corporate headquarters, has sought to engage Wal-Mart's business practices, and to find points of accord, which might be useful in influencing the corporate giant. Their project, "Finding the Social in Big Box Retail," winner of a 2005 NCARB (National Council of Architecture Registration Board) Prize and an AIA (American Institute of Architects) Education Honor Award, proposed a matrix of ecotones to affect every aspect of the Wal-Mart phenomenon, from retailing strategies to parking and stormwater (Figure 5 and inside front cover). They sought to reframe the Wal-Mart experience as a new kind of community commercial center and suggested opportunities for multiple retail partners along with strategies for the reduction of energy usage.

4. Rice Building Workshop, XS House, exterior (2003). (Photo courtesy of the Rice Building Workshop.)

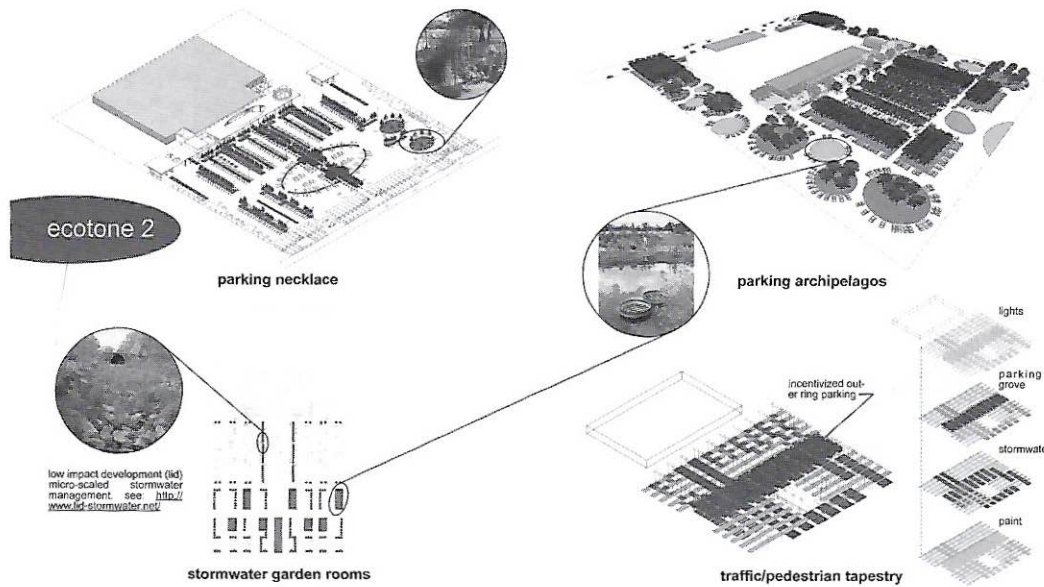


approach is the Colorado Court housing complex in Santa Monica, California, designed by Pugh + Scarpa (Figure 9). The project, forty-four units of affordable housing set in a community where the average cost of a home is quite high, relies on

6. Estudio Teddy Cruz, Living Rooms at the Border, project. Illustration shows housing with and without local markets. (Illustration Courtesy of Teddy Cruz)



5. University of Arkansas Community Design Center, Finding the Social in Big Box Retail, project (2005).



inventive financing and energy strategies to bridge the gap between typical and affordable construction and maintenance costs. The project was developed by Pugh + Scarpa (Lawrence Scarpa, Partner in Charge and Angela Brooks, Project Architect) in partnership with the Community Corporation of Santa Monica. Together they advocate for changes in the California Public Utilities Commission requirements for individually metered units to encourage energy conservation and to allow excess energy production to be returned to the power grid for credit. A cogeneration plant on the roof, along with a façade of solar panels, and suitable building siting to minimize solar gain and maximize sea breezes, together generate and save power on site to make the project profitable. Stormwater is retained beneath the courtyard for continued landscape irrigation. The individual rooms in the single-room occupancy project are

7. Frank Harmon and Associates, Taylor House Scotland Cay, Bahamas. The inverted roof captures the rainwater while shutters and sliding doors provide shade and protection from hurricanes (2001). (Photo by James West.)



Painted with low VOC paints, and thoughtfully daylight. The project has been recognized nationally and was named one of ten AIA Green Buildings of 2003.

Tactic: Refigure an Accepted Industrial Process

Jennifer Siegal, founder of the Office of Mobile Design, has chosen as her preferred design medium manufactured housing. Beginning with single-family homes, she has now designed and installed her own prefabricated storefront office in Venice, California, demonstrating her commitment to the form (Figures 10 and 11). She is also recasting that late twentieth century icon of public indifference to quality education, the portable classroom, in positive light using inventive site strategies to

8. Brian Andrews and W. Jude LeBlanc, Ellis House, Windermere Island, the Bahamas, under construction (1999–2007). (Illustration courtesy of W. Jude LeBlanc.)



create campus-like quadrangles of smartly designed prefabricated buildings. In each case, the logics of industrial construction—convenience to appropriate workforces, quality control, the efficient use of materials—combine with the logic of minimal site impact to create more sustainable and surprisingly rich architectural projects.¹⁶

Tactic: Design the Context and the Buildings Will Follow

Not-for-profit organizations such as Habitat for Humanity have partnered with a number of schools of architecture in recent years, seeking new building, neighborhood, and funding models. One of the most comprehensive projects was done by the UACDC, working with a number of partners at the University of Arkansas and the Benton County Habitat for Humanity Inc. chapter, along with JKJ Architects and Shipley Engineers.¹⁷ The project team, led by Stephen Luoni, proposed a site design for seventeen homes that included three key con-

cepts: Parks, Not Pipes; Green Streets—Maximizing Ecological and Urban Services; and Porches Between House and Neighborhood¹⁸ (Figure 12 and front cover). Within this physical and conceptual framework, the team, primarily comprised of University of Arkansas students, developed a number of thoughtful prototypes which respond to ecological issues such as the preservation of open space and the clustering of social spaces to strengthen community cohesion.

Tactic: Build and Evaluate Sustainable, Affordable Homes

The “OUTin house” is the first of several built prototypes developed by ecoMOD, a community outreach program directed by John Quale of the University of Virginia (Figure 13). A two-unit condominium, it was sold by the Piedmont Housing Alliance to qualified low- to moderate-income homeowners. This project, to build prefabricated modular homes, is the result of collaboration



9. Pugh and Scarpa, Colorado Court, Santa Monica, California. View into courtyard framed by photovoltaic panels (2001). (Photo Courtesy of Pugh and Scarpa)

10. Office of Mobile Design, Abbot Kinney ShowHouse, Venice, California. View of the exterior of the Office of Mobile Design (OMD) showhouse (2006). (Photo by Benny)

11. Office of Mobile Design, Abbot Kinney ShowHouse, Venice, California. View of the ShowHouse in transit to its site (2006). (Photo Courtesy of the Office of Mobile Design)



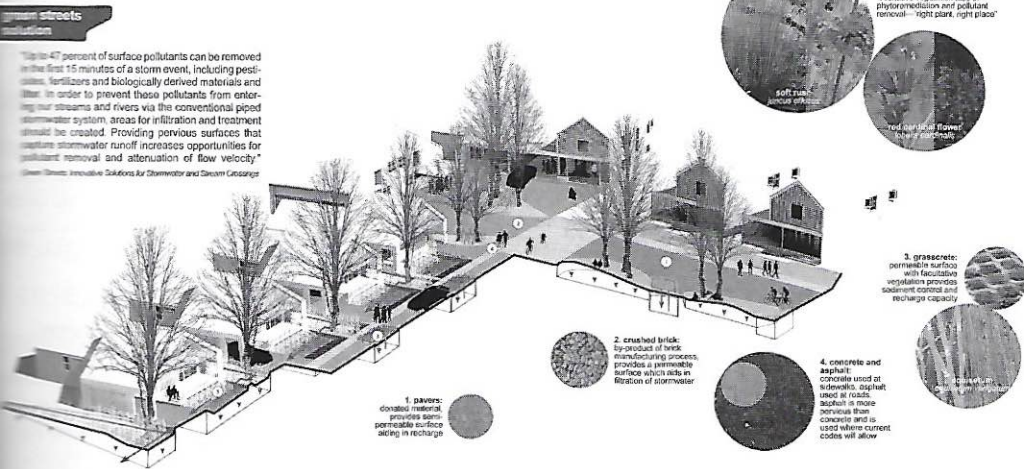
among several departments at the University of Virginia. The various ecoMOD teams, involving architecture, engineering, landscape architecture, historic preservation, planning, environmental science, and business faculty and students, are doing detailed analyses of costs and performance of the homes after they are built, contributing this knowledge back to the prefabrication industry and the academic community.¹⁹

Tactic: Marry Food Security and Environmental Sensitivity, with the Help of Students

The Juan Maria Morelos Elementary School Solar Kitchen in Colonia San Jose, Morelos, Mexico was built in the summer of 2004 by a team of students and faculty led by Sergio Palleroni. The multidisciplinary fieldwork program for service learning at the University of Washington, which supports this work is called BaSiC (Building Sustainable Communities). It was initiated by Palleroni, Steve Badanes, and David Riley. Palleroni's team designed and constructed a solar kitchen, which incorporates a number of low-tech sustainable features such as a solar oven and a graywater system to irrigate deciduous vines planted to shield the outdoor dining room from summer sun (Figure 14). It utilizes indigenous construction techniques and contemporary tectonics to create an efficient and



2. University of Arkansas Community Design Center, Habitat Trails project—Green Streets Solution (2006). Streets are “surfaced with pervious concrete parking strips and granulated stone pedestrian/parking courts minimize costly, impervious pavement while dampening motorist speeds. Ecological management solutions enhance water quality beyond the minimum detention requirements, dissipate peak flows to prevent flooding, provide erosion and sediment control, and are not prone to the systemic failures common in civil infrastructure. Collateral benefits include enhanced neighborhood aesthetics and pedestrian-oriented environments, additional passive recreation assets, and provision of wildlife habitat.” (Illustration Courtesy of the University of Arkansas Community Design Center.)



...lightful community structure. For this effort, among others, Palleroni was given the 2005 Special Commendation Award by the National Design Awards jury of the Cooper Hewitt National Design Museum.²⁰

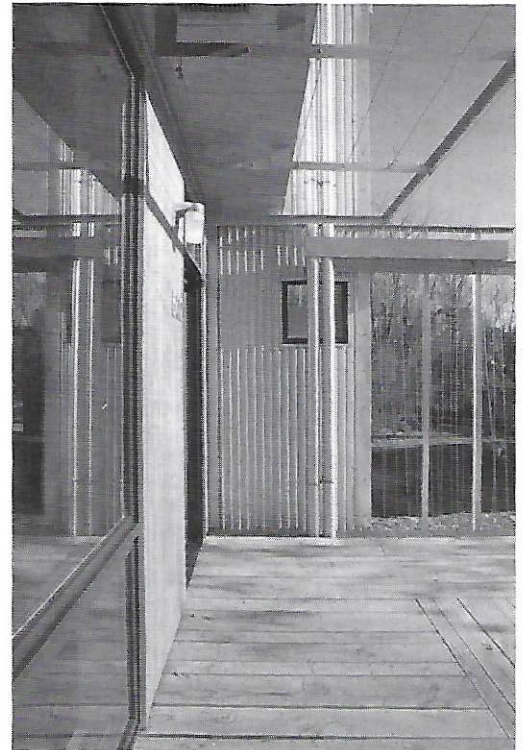
The Strategy is Tactics—Doing Less Harm Means Doing More Good is perhaps due to the academics’ traditional reluctance to intervene—to serve as historians of the war for planetary survival rather than as warriors—that the mantra “being less bad is no good” is so quickly taken hold. This slogan, the title of a chapter in McDonough and Braungart’s *Cradle to Cradle*, while setting a laudable goal of radically changed thinking and action, has also had the effect of justifying inaction in the meantime. The essays included in this issue, and the design projects cited above, reject this admonition. They are predicated on the assumption that doing less harm does *more* good, perhaps much more good. We further assert that if we wait until the field of sustainability is fully mapped before taking action—all strategies defined and agreement about goals reached—the world may well be over.

In 1987, with the publication of *Chaos: Making a New Science*, the concept of “sensitive dependence to initial conditions,” also known as

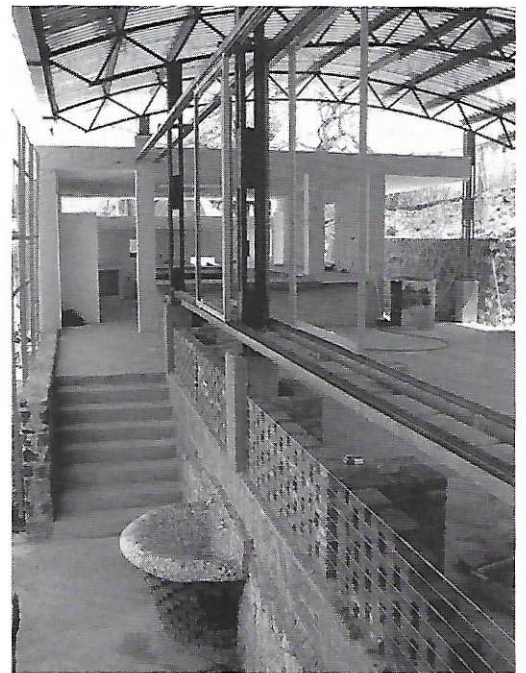
the “butterfly effect,” entered popular discourse. The book’s author, James Gleick, recounted the research of meteorologist Edward Lorenz, who found that slightly different initial conditions, such as changes in local temperature or wind speed, could radically alter the outcome of weather systems over time. He cited the example of a butterfly that by “stirring the air today in Peking can transform storm systems next month in New York.”²¹ Anthropologist Pierre Bourdieu, in *Outline of a Theory of Practice*, described a similar phenomenon two decades earlier.²² He argued that social behaviors, when successful, are naturally repeated—that trial and error behaviors favor early actions because, once success has been achieved, the actors have no incentive to try additional behaviors. In life, he observed, we do not attempt to catalogue all possible outcomes of all possible behaviors—we go with what works. This principle of preference for early adopters is also recognized in the behavior of the Internet. Here, sites that attract early visitors and generate networks of linkages are more likely, as a result, to generate even more “hits.”²³ These varied sources confirm the important principle of feedback articulated by systems theorists a half century ago.

The taxonomy of tactics outlined above, developed by academics working to simultaneously

13. EcoMOD/The OUTin House, project (2005). (Photo by Scott Smith.)



14. Sergio Palleroni and the BaSIC Initiative, Solar Kitchen, Jiutepec, Mexico. View into kitchen with Solar cooking array beyond (2004). (Photo by Sergio Palleroni.)



map the territory and win the war, offers a diverse range of hopeful projects to address what must surely be the most pressing project of our times.

Notes

1. For design style advocacy, see, for example, *Dwell Magazine* and *Metropolis*.
2. Here, we refer to many texts. Among them are Klaus Daniels, *Low-Tech, Light-Tech, High-Tech* (Basel, Switzerland: Birkhauser, 1998); Mary Guzowski, *Daylighting for Sustainable Design* (New York: McGraw-Hill, 2000); Nick Baker and Koen Steemers, *Energy and Environment in Architecture* (New York: E&FN Spon, 1999); Janis Birkeland, *Design for Sustainability* (London: Blackwell, 2002); G.Z. Brown and Mark DeKay, *Sun, Wind & Light* (New York: Wiley, 2001); Eoin O Cofaigh, *The Climatic Dwelling* (London: James & James, 1996); Baruch Givoni, *Passive and Low Energy Cooling of Buildings* (New York: Van Nostrand Reinhold, 1994); John Littler, *Sustainable Environments for the New Millennium* (New York: Spon/Routledge, 2001); Sue Roaf, Manuel Fuentes, and Stephanie Thomas, *Ecohouse: A Design Guide* (Oxford: Architectural Press, 2001); Fred Stitt, *Ecological Design Handbook* (New York: McGraw-Hill, 1999); Ken Yeang, *Designing with Nature* (New York: McGraw-Hill, 1995).
3. Gro Harlem Brundtland, ed., *Our Common Future, World Commission on the Environment* (New York: Oxford University Press, 1987), p. 8.
4. From a translation of Jorge Luis Borges, "The Analytical Language of John Wilkins," by Douglas Crockford. A side-by-side (Spanish-English) presentation of the texts can be found at <http://www.crockford.com/wrrld/wilkins.html>. Accessed December 15, 2006.
5. Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1994), p. xv.
6. Who can see the mercury in fish, or the VOCs emanating from the walls?
7. Simon Guy and Graham Farmer, "Reinterpreting Sustainable Architecture: The Place of Technology," *Journal of Architectural Education* 54, no. 3 (February 2001): p. 146.
8. While war is a dreadful and popular metaphor as we write, it has been used to describe the gaining of advantage for thousands of years. *The Art of War* is widely read in business schools as well as military academies. One translator, Philip Dunn, has argued through a recent translation entitled *The Art of Peace: Balance Over Conflict in Sun-Tzu's The Art of War* that *The Art of War* was intended as a philosophical discourse over an above its use to make violence more effective. See Thomas Cleary, translator, Sun Tzu, *The Art of War* (Boston: Shambhala Publications Inc., 1988) for a traditional translation and Philip Dunn, *The Art of Peace: Balance Over Conflict in Sun-Tzu's The Art of War* (New York: Jeremy P. Tarcher/Putnam, 2003) for the reconsidered translation described here.
9. William A. Katz and Anne A. Clifford, *Reference and Information Services: A New Reader* (Lanham, MD: Scarecrow Press, 1982), p. 279.
10. Richard Rorty, *Achieving Our Country: Leftist Thought in Twentieth-Century America* (Cambridge: Harvard University Press, 1998), p. 97.
11. Steve Lerner, *Eco-Pioneers: Practical Visionaries Solving Today's Environmental Problems* (Cambridge, MA: MIT Press, 1997), p. 20.
12. Conversation with Dean Eric Haldenby, October 26, 2007. <http://www.architecture.uwaterloo.ca/frameset/cambridge> more information about the Cambridge project. Accessed October 26, 2006.
13. David Brown and William Williams, ed., *Row: Trajectory of the Shotgun House* (Houston, TX: Rice University School of Architecture, 2004).
14. Interview by Andrew Blum with Teddy Cruz, March 2007. www.archleague.org/ev06/images/cruz_interview.mp3. Accessed February 15, 2007.
15. Ibid.
16. See www.designmobile.com, for more information. Accessed February 15, 2007.
17. See University of Arkansas Community Design Center, *Habitat for Humanity from infill house to green neighborhood* (Fayetteville: University of Arkansas Community Design Center, 2007), p. 7.
18. Ibid., p. 7.
19. See <http://www.ecomod.virginia.edu/intro.htm> and <http://www.oscar.virginia.edu/x5995.xml>, for more detail. Accessed February 15, 2007.
20. <http://ndm.si.edu/NDA/2005/award.asp?catID=sj&award=PALLERONI>. Accessed February 15, 2007.
21. James Gleick, *Chaos: Making a New Science* (New York: Doubleday, 1987), p. 8.
22. Pierre Bourdieu, *Outline of a Theory of Practice*, trans. Richard Nice (New York: Cambridge University Press, 1977).
23. Albert-László Barabási, *Linked* (New York: Plume, 2002).