Categorical and Hypothetical Imperatives:
Architectural Education vs. Sustainability

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This paper was originally written for the ACSA West Central Regional Conference, *Counterbalance: Intellectual Knowing + Moral Doing: Scholarship in Environmental Design.*

Out of a concern that issues of sustainability are not adequately integrated into the design studio, it explores the subject in the context of architectural design theory in order to find its rightful place in architectural education and practice. Specifically, it questions the prevailing overemphasis on market and technological appraisal and seeks an inclusive balance grounded in cultural and professional values. Additionally, it recommends issues for academic investigation that will support this end.

INTRODUCTION

> A sustainable society is one which satisfies its needs without diminishing the prospects of future generations.
>
> –Lester Brown,
> Founder and President, Worldwatch Institute

Last year I introduced a seminar on issues of sustainability in large part to establish a theoretical framework for architectural practice and studio education.

Unfortunately, we generally regard sustainability as a technical subject subordinate to formal issues and consequently of collateral concern in studio. We further compound our dilemma believing that "The appeal to ecology within the discourse of architecture arouses a historic paradox, since every act of building is inherently *anti-ecological* to the degree it induces a displacement of 'natural' relationships.'"

As citizens we are guided by our own consciences. However, do we as architectural educators have a responsibility to mandate sustainability? What is the basis for (or not) doing so? If there is an imperative, is it hypothetical or categorical? Is this simply to be yet another burden on our students' nascent creativity?

While we reasonably expect that students learn to engineer the most efficient beam, column, and duct sizes, should we insist that architectural form follow the same regimen? Are we remiss if we do not include regeneration and stewardship (the next levels necessary to truly re-establish harmony in the earth's ecosystems) in our design mandates?

Some argue, that architects, who are given their briefs by others, cannot be held accountable for the results. Conversely, though we may proclaim a goal of social responsibility, short of legal requirements, actions in that direction remain strictly voluntary or pragmatic.

NAAB, for example, only requires our students to: "**be aware of** the principles and theories that deal with environmental context and the architect's responsibility with respect to global environmental issues" and "**understand** the ecological impact of buildings and their occupants." Anything more must come from us.

In *A Theory of Practice,* Bill Hubbard, Jr. depicts architectural practice as overlapping and serving three mutually exclusive domains. The Marketplace (a means for achieving economic goals), the Public (social values), and Design (architectural order) each contains different and valid perceptions, languages, and interests. I believe our role as architectural educators is to clarify the architect's unique and primary task as the "speaker for Design" in the context of these concerns. Additionally, when sustainability is seen as an underlying idea, much broader than solar collectors and embodied energy, we will reconcile our dilemma. The discipline of Design, the ordering of space and form, is at the heart of the studio because it is at the heart of the profession. We need to understand and reveal the mutual dependence it shares with sustainability.

PART 1. SUSTAINABILITY AS TECHNOPOLITICS: OUT OF BALANCE

When we talk of sustainability, we overemphasize marketplace results and public values at the expense of design order. We focus on the technical and political aspects of sustainability by almost exclusively looking at buildings as "energy efficient," "cost effective," "healthy," "humane," and "environmentally responsible." In the terms of Hubbard's para-

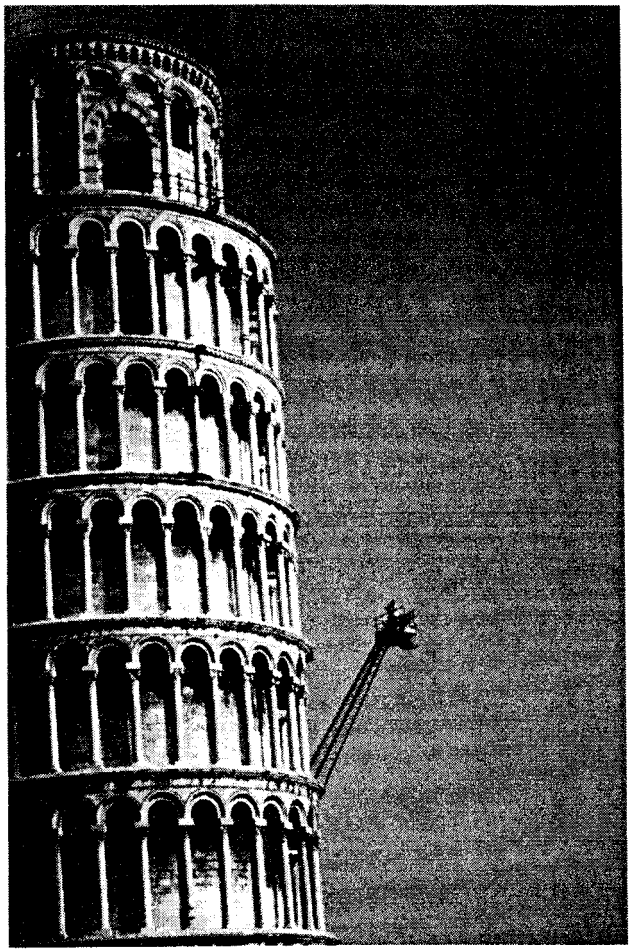

Fig. 1. The Campanile at Pisa.

digm, we emphasize marketplace results and public values. Design order is conspicuously absent from the equation because, I believe, we have not yet articulated its role.

Sustainability as the Measure of All Things

So long as we only comprehend sustainability in material terms, we will continue to believe it is measurable. Relying exclusively on that paradigm, we must not only *reduce what we take away from the environment to Zero* through conservation, we must also *undo environmental damage* through restoration, and then *guarantee perpetual balance* through environmental stewardship. Limited to evaluating designs solely on their ability to achieve ecological equilibrium, we measure expended and embodied energy and place all design value on the bottom line.

Do the Right Thing?

"In daily practice, apart from respect for and attention to the law, which is the duty of all citizens, there seem to be only three professional duties architects are expected to exercise routinely: **care, integrity,** and **conscientiousness."?**There is

Fig. 2. Temple of Poseidon, Paestum.

no unconditional obligation to produce 'sustainable' architecture

There are pragmatic reasons for reducing costs of construction and maintenance, but applying them is only amatter of prudent engineering. Nor do there appear to be voluntary (hypothetical) imperatives for sustainability that, by force of reason, are universally accepted by the profession. Even while historical attempts at social manifestos among architects have raised our consciousness, they have never gained the status of professional or political mandates. There seems to be no clear path for a concerned educator to take.

Don't Shoot the Architect

To further cloud the issue, in traditional practice, an architect's intentions and the built results aren't necessarily related. Even a conscious choice and effort does not guarantee sustainability. The act of planning and producing a building is full of potential hazards beyond the influence of the architect. Even the "best" have been plagued with budget cuts, construction disasters, legal constraints, and political events that have compromised the results of their labors.

"Sustainable Architecture" is not an Oxymoron.

We approach the natural world with a pessimism driven by our isolation fromit. "Today we survey andinventory a site's assets, then speak even more aggressively of 'environmental impacts.' Mother Nature is to be mugged, it seems, and we cold-bloodedly analyze the old lady's chances of surviving the blows.'"

It is a misconception to assume that building is inherently "anti-ecological" or destructive. Undoubtedly, as is any conscious act, to build is to intervene, but can we assume our acts to be outside of nature? We don't question that other animals build within the natural order of things, why do we doubt our own place? At what point in the evolution of homo sapiens are we supposed to have moved outside of nature? Is it because we are aware of the destruction we've wrought on the earth's ecosystems?

Fig. 3. Solar house on the campus of Cal Poly, San Luis Obispo.

Ecological Designs are not (necessarily) "Architecture"

> Ecological architecture built since the energy crisis carries the stigma of solar collectors and generally suffers from the same positivist logic of functionalist modernism, by which the complexity of architecture as an aesthetic, urban, and structural system is reduced to solving prioritized functions.[4]

Concurrent with this notion, is the idea that the only sustainable alternative to the "Hardware-Dominated" are the "Low-Road Vernaculars"; those warehouses and de-commissioned military buildings that live on forever for their cheap flexible space. The former produce a measurable economy of energy consumption, and the latter are forever adaptable because nobody really cares what you do with them. Neither, however, is a paradigm of quality architecture.

PART 2. SUSTAINABILITY AS ARCHITECTURE: RESTORING A BALANCE

As architectural educators we are charged with "Architectural Order" — to transfer knowledge and stimulate discourse. Viewing sustainability through this lens permits us to paraphrase Lester Brown of the Worldwatch Institute.

If architectural order were sustainable, *we would satisfy the architectural needs of contemporary society without "diminishing the prospects for future generations."*

The "culture of architecture" is founded on the belief that order through design will improve the quality of life. The community brings its values and the market brings a demand for measurable results. All in harmony are essential for a sustainable architecture.

Architecture That is Living is Sustainable

Nothing epitomizes sustainability better than continued use, and that invariably results in preservation and adaptation. In sustainable architecture, the architect only *begins* the design process.

> It is inevitable in the life of an architect that she will see her works abandoned or changed all out of recognition.

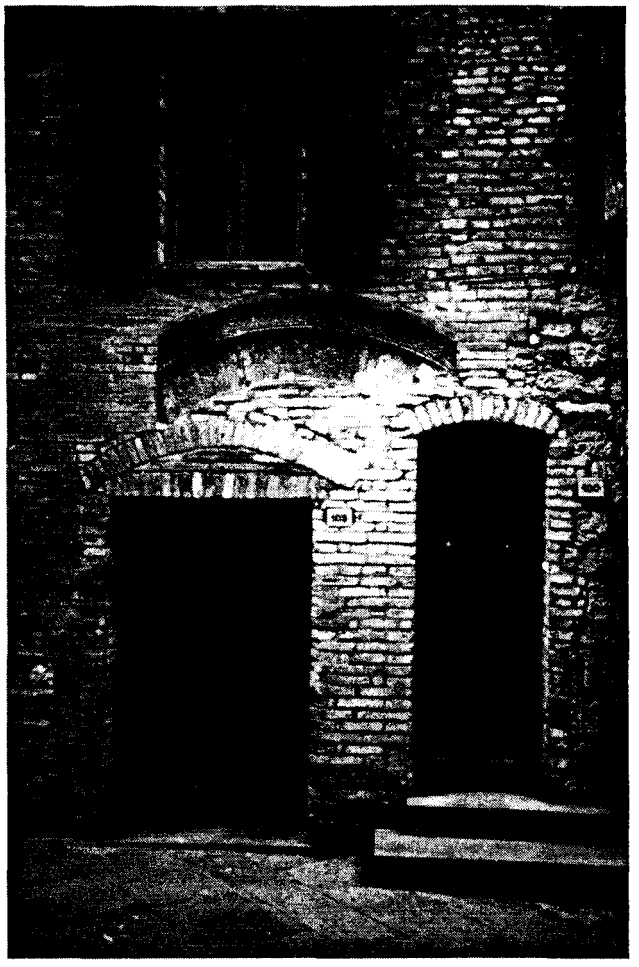

Fig. 4. A 'Living' building, Italy.

> . . [however] the goal of the architect is not the realization of the form but the achievement of fulfillment — for herself as a speaker for Design and for her transacting others as speakers for Community and the Market. . . fulfillment for those other discourses will not be based in the recorded initial state of the design, but will have to come out of the ongoing lived experience of the setting she designs. For people thinking in those other discourses, when the setting she designed no longer achieves fulfillment for their perspectives, the building will have ceased to participate in their lives. For them the setting she designed will have ceased to live.[5]

Where Do We Belong in the "Natural World"?

Theories that focus on our relationship with the natural world help us define our opportunities for producing sustainable architecture.

The term "sustainability" is intimately linked with "ecology." The discipline of "architectural order" is most closely akin to human ecology, the branch of sociology concerned with the relationships between human groups and their physical and social environments.

Architecture is defined by juxtaposing it with the natural

Fig. 5. Menhirs, Camac, Brittany.

Fig. 6. Downtown Richland Center, Wisconsin.

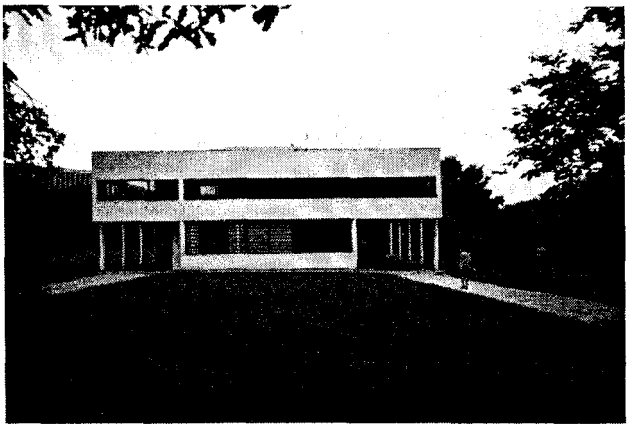

Fig. 7. Villa Savoye, Poissy, France, by Le Corbusier.

world. We use it to illuminate and share our understandings, beliefs, and feelings.

Making nature visible is also the fifth principle in Ecological Design. Van der Ryn and Cowan observe that "In a de-natured place we are likely to develop de-natured imaginations. . . As aature has receded *from* our daily lives, it has recededfrom our ethics. . . Design transforms awareness. . . It is central to the concept of design to embody and mirror the dreams that create it. . . Our current environments speak louder than words."[6]

Architectural theory must acknowledge the significant role of culture in our individual and collective perceptions of an 'ideal' balance between the human world and nature.'

The Architecture of the Well-Intentioned Imperatives

Conceptually integrated climatic response, lighting, structure, and materials applied with effective engineering are fundamental to sustainability. "The idea that architecture belongs in one place and technology in another is comparatively new inhistory,anditseffect onarchitecture, whichshouldbe the most complete of the arts of mankind, has been crippling."[8]

Reyner Banham's call to arms in The Architecture of the Well-tempered Environment echoes the modern movement's oft-times fascination, post-modernism's denial, and "sustainable" architecture's most recent fixation, with technical expression. His call for a "complete" art indicates the danger of an out-of-balance formal emphasis, echoed by Ingersoll above, and feared by most design faculty who would otherwise admit "sustainability" into the studio. Nevertheless, our tendency to dis-integrate their relationship through exclusion is not a viable alternative.

Opportunities

The Audubon House renovation by the Croxton Collaborative demonstrates the durability of a century-old building to support continuing cultural, functional and technological changes. Although painstakingly documented and promoted as a technical achievement, its primary virtues lie in its contextual and historical significance. "Audubon's decision to move to an existing building within New York City rather than to relocate elsewhere or to construct a new building is another fundamental environmental feature of the building. Implicit in this decision are a respect for the urban environment and an acknowledgment of its increasing importance as an environmental issue."[9]

In How Buildings Learn, Stewart Brand observes that "preservation has become the best carrier of that moral force architecture needs if it is to have value beyond shelter. Preservation is capable of projecting a vision of new possibilities. . ."[10]

Because the cultural as well as the environmental penalties for replacing a building far exceed the efforts required to renovate it, it is clear that preservation and its indispensable affiliate, adaptive reuse, are manifestations of continued viability and positively reflect architectural success. Design order that synthesizes and integrates cultural, economic, and formal issues deserves a place in design studies.

The forces that inspire a lay person to defend a building from the bulldozer are more critical to sustainability than the efficiency of any climate control system.

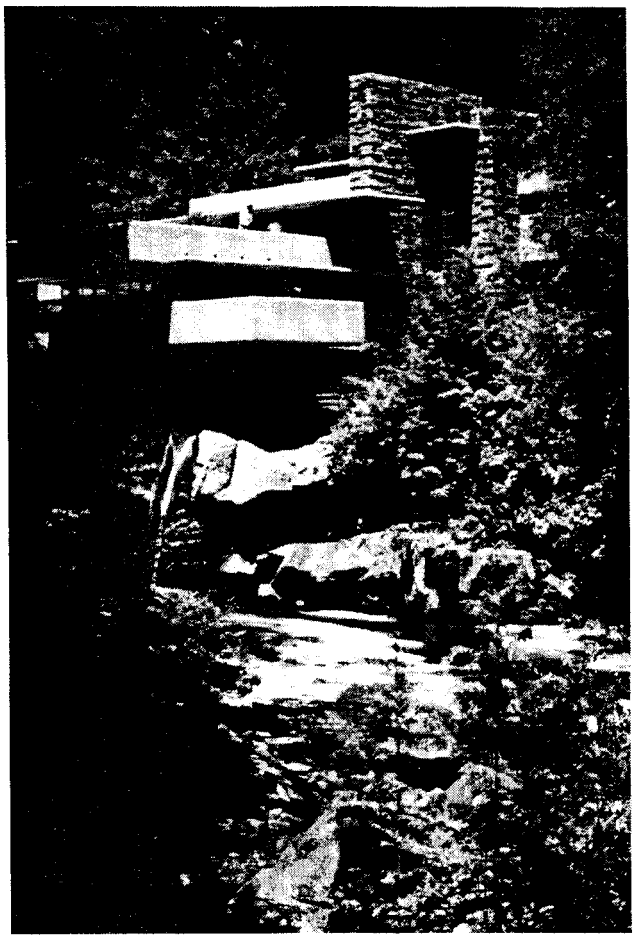

Fig. 8. "Fallingwater," Bear Run, Pennsylvania, by Frank Lloyd Wright.

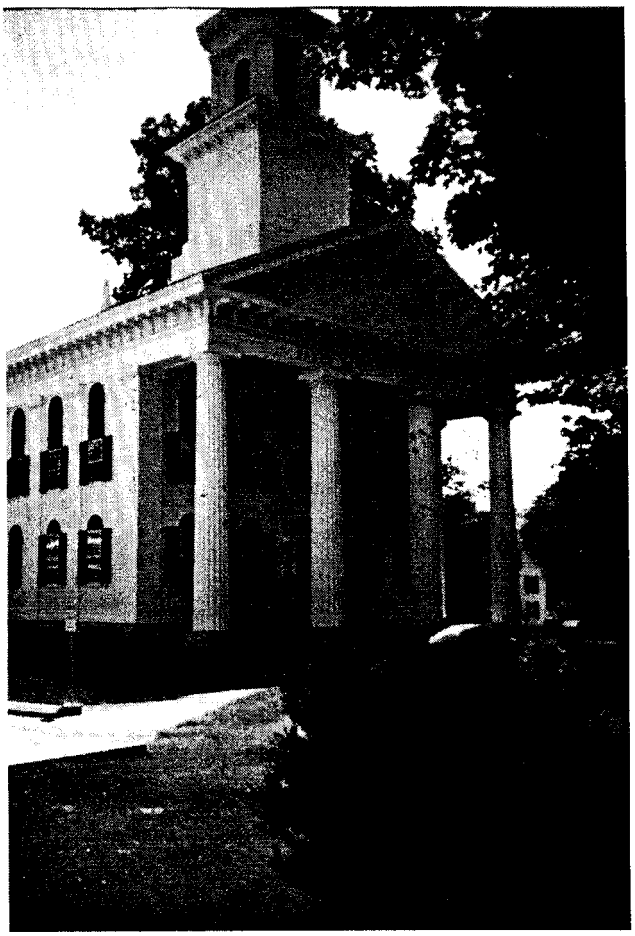

Fig. 9. Courthouse, New England.

CONCLUSION

> The work we do in the [design] discourse is to look for patterns in the charge to the architect, and what we are trying to accomplish is to match the patterns with paradigms of order. We know we are successful when our design has narrative continuity with the histories of our practice as revealed by criticism."

Along with revitalizing communities and their landmarks, a host of issues need to be brought into that design discourse. Among them are: precedent analyses and transformation; factors and techniques of participatory design; contemporary cultural attitudes toward the natural world; and patterns of building use over time.

The man-made world, our second nature, is a reflection of the natural world. It is an abstraction, a construct that comes from the interaction between our intellect, our culture, and our observations.

Science is our tool, culture is our perception, and design is our discipline for ordering space and form.

The architectural design studio is the forum for synthesizing, exploring, and debating opportunities for ordering multifarious and disparate forces and elements in a balanced manner. Sustainability is both the inherent goal and the natural result of successful efforts.

Fig. 10. The Vietnam Veteran's Memorial, Washington DC, by Maya Lin.

EPILOGUE

At the risk of being labeled an ecological heretic, I'll finish with a quote from J.B. Jackson's essay "In ***Favor of Trees"***

"Like millions of other Americans I have no great liking for wilderness and forest, but like the majority of Americans I am fond of trees: individual trees, trees in rows along the street or in orchards, trees in parks. . .

"The value of trees is not only that they can be beautiful and that they give us shade and privacy and coolness in the summer; they also demand our attention and care. We are constantly interacting with trees: some of them give us fruit, others give us firewood, and all have to be thought about and even worried about when we consider the future. In brief, trees give us a sense of responsibility and sometimes a kind of parental pride; each domesticated tree calls for an individual response, a response far richer, far more rewarding than a strictly passive aesthetic or ecological response to the forest.

". . . For that is a distinction we must always make: the forest as a massive collection of trees of all varieties is seen as a resource, not as an environment. Whereas the single or planted tree is seen by most of us as a permanent, carefully tended element of the human landscape, valued as an object both of beauty and of *sustainable* exploitation."[12]

NOTES

[1] Richard Ingersoll, "Second Nature: On the Social Bond of Ecology and Architecture." *Reconstructing Architecture: Critical Discourses and Social Practices* (Minneapolis: University of Minnesota Press, 1996), pp. 119-157.

[2] Paul-Alan Johnson, *The Theory of Architecture*. (New York: Van Nostrand Reinhold, 1994), p. 221.

[3] Charles W. Moore, William J. Mitchell, and William Turnbull, Jr., *The Poetics of Gardens* (Cambridge: MIT Press, 1988), p. 1.

[4] Ingersoll, p. 138.

[5] Bill Hubbard Jr., *A Theory for Practice*. (Cambridge: MIT Press, 1995), p. 166.

[6] Sim and Cowan Van Der Ryn, Stuart, *Ecological Design:* (Washington DC: Island Press, 1996), pp. 160-171. The five "Principles of Ecological Design' espoused are as follows: First Principle: Solutions Grow from Place (a strong argument for 'regionalism'); Second Principle: Ecological Accounting Informs Design (an admonition to look at the numbers to see the patterns); Third Principle: Design with Nature (look to natural processes for precedents); Fourth Principle: Everyone is a Designer (similar to Hubbard's "Public," Alexander's "Patterns," and Brand's "participatory design") Clearly an integral part of sustainability; Fifth Principle: Make Nature Visible (roots of expressive and informative design).

[7] Norman Crowe, *Nature and the Idea of a Man-Made World:* (Cambridge: MIT Press, 1995). An important discourse articulating an architectural theory incorporating history and anthropology.

[8] Reyner Banham, *The Architecture of the Well-tempered Environment:* Second Edition (Chicago: The University of Chicago Press, 1969), p. 9.

[9] National Audubon Society, Croxton Collaborative, architects, *Audubon House: Building the Environmentally Responsible, Energy-Efficient Offices* (New York: Wiley, 1994), p. 17.

[10] Stewart Brand, *How Buildings Learn:* (New York: Viking Penguin, 1994), p. 90.

[11] Hubbard, Jr., p. 100.

[12] John Brinkerhoff Jackson, *A Sense of PLACE, a Sense of TIME* (New Haven: Yale University Press, 1994), pp. 95-99.