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Abstract
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Disciplines
Architecture

Comments
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Sustainable Environments, Kant and Architectural Education: Reflections on an Intersection

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PROLOGUE

These quotations from Italo Calvino’s Invisible Cities and the Lester Brown definition of sustainable societal practices set the stage for this exploration of a Kantian categorical imperative for integrating sustainable design concepts into architectural education:

Clarice, the glorious city, has a tormented history. Several times it decayed, then burgeoned again, always keeping the first Clarice as an unparalleled model of every splendor, compared to which the city's present state can only cause more sighs at every fading of the stars. ... And yet, almost nothing was lost of Clarice's former splendor; it was all there, merely arranged in a different order, no less appropriate to the inhabitants' needs than it had been before. ...

The city of Leonia refashions itself every day: every morning the people wake between fresh sheets, wash with just-un-wrapped cakes of soap, wear brand-new clothing, take from the latest model refrigerator still unopened tins, listening to the last-minute jingles from the most up-to-date radio. ... On the sidewalks, encased in spotless plastic bags, the remains of yesterday's Leonia await the garbage truck. ... Nobody wonders where, each day, they carry their load of refuse. ... Leonia's rubbish little by little would invade the world, if, from beyond the final crest of its boundless rubbish heap, the street cleaners of other cities were not pressing, also pushing mountains of refuse in front of themselves. Perhaps the whole world, beyond Leonia's boundaries, is covered by craters of rubbish, each surrounding a metropolis in constant eruption.

A sustainable society is one which satisfies its needs without diminishing the prospects of future generations.?

Are we headed toward Leonia or Clarice?

Are there architectural ethical positions to be taken and choices to be made in heading toward Leonia or Clarice?

Fabricating the landscape we inhabit – from huts to farmsteads, villages, towns and cities; from paths to roads and highways, to fiber-optic networks, and the rest of the infrastructure that supports settlement – is humankind’s largest ongoing material enterprise. In contemporary society, environmental design professionals – architects, landscape architects, interior designers, planners and urban designers – are integral participants in that enterprise. Renewable resources (solar energy and its transformation) and the earth’s reservoir of stored energy, fertile soil, water and raw materials, and natural and modified ecologies enable our survival and inhabitation. Our capacity to endure through time on earth is linked to the balance between those resources we use and deplete and those which can be regenerated relative to our growing numbers and conceptions of what constitutes an acceptable quality of life on earth. The earth’s seemingly boundless capacity and our technological inventions appear to move any horizon of endangerment to life from depletion past any foreseeable future. Nonetheless, legitimate concerns are being raised about the rate at which our demands for resources are growing and our capacity to stay ahead of a critical juncture beyond which irreversible desertification may begin.

Some schools of architecture and practicing architects are increasingly examining sustainable design concepts and technologies — through courses of study, increased research and its dissemination, changes in curricula, and through professional resources such as the American Institute of Architects’ Environmental Resource Guide. Howard Itzkowitz’s paper, “Categorical and Hypothetical Imperatives: Architectural Education vs. Sustainability,” addresses the thorny question of the seamless integration of sustainable design principles in the sense articulated by Lester Brown into the architectural design curriculum. His framing of “versus” is an indication of the polarities that exist.

This paper originated as a letter response to Itzkowitz. It argues the possibility that sustainable environmental design may be a categorical imperative in Kantian terms, leading to an ethical duty to integrate sustainable design concepts into the architectural curriculum.

CONTEXT: ENVIRONMENTAL LEGACY IN ARCHITECTURAL DESIGN AND A "VERSUS"

Consideration of the manner in which environmental context, climate and site situation inform architecture has a rich history. Vitruvius, in Book I, Chapters I and II, of the Ten Books on Architecture, directly addresses this:

The architect should also have a knowledge of the study of medicine on account of the questions of climates (in Greek climata), air, the healthiness and unhealthiness of sites and the use of different waters. ... Finally, propriety will be due to natural causes if, for example, in the case of all sacred precincts we select very healthy neighborhoods with suitable springs of water in the places where the fanes are to be built.

... There will also be natural propriety in using an eastern light for bedrooms and libraries, a western light in winter for baths and winter apartments, and a northern light for picture galleries and other places where a steady light is needed.

Book I, Chapter IV is dedicated to "The Site of a City" and in it he discusses selection of a "healthy site," and supports the concept with examples of how solar orientation, wind direction, marshes and site drainage, temperate climates, mediation of heat and balance of...
fresh air, etc., contribute to well-being. And Chapter VI has a major
section on the orientation of streets and alleys relative to wind.'

About 1600 years later in The Four Books of Architecture (1570)
Andrea Palladio addresses site and building situations in the presen-
tation his of villa and country estate projects. In Book II, Chapter XI
raised "Of the SITE to be chosen for the fabrics of VILLA'S," he weaves
together design intention, climate and site disposition. An
example of his guidance from that chapter:

One ought not to build in valleys enclosed between moun-
tains; because edifices in valleys are there hid, and are
deprived of seeing at a distance, and of being seen. These are
without dignity and grandure, and also entirely contrary to
health; because the earth being impregnated by the rains that
settle there, sends forth pestiferous vapours, infecting both
the body and mind; ... and what is lodged in the granaries will
corrump through too great moisture. ... And when the winds
enter the said valleys, it will be with too much fury, as if it
were through narrow channels; and when they do not blow,
the collected air will grow gross and unhealthy.6

Horatio Greenough, writing in 1843, after praising American
shipbuilding design of sleek fast ships, remarks: "Here is the result
of the study of man upon the great deep, where Nature spake of the
laws of building, not in the feather and in the flower, but in the winds
and waves, and he bent all his mind to hear and obey," and then turns
to address the development of an American Architecture by referring
to "site" and "climate":

... let us learn principles, not copy shapes; let us imitate them
(Greek design principles) like men, and not ape them like
monkeys. ... The adaptation of the forms and magnitude of
structures to the climate they are exposed to, and the offices
for which they are intended, teaches us to study our own
varied wants in these respects. [Greenough inserts afootnote:
"... for no architecture, and especially no domestic architec-
ture, can ever be above reproach, until climate, the uses of the
edifice, and the situation, are respected as leading consider-
ations. ... Cooper's Home As Found, [1838]"

Another 125 years brings us to Reyner Banham's The Architec-
ture of the Well-tempered Environment. In that span, the industrial-
ized nations' capacities to control malaria ridden swamps, the
purification of drinking water and the disposition of sewage, the
tempering of air for comfort, using technology and readily available
relatively cheap energy, created an illusion that the environmental
concerns of Vitruvius, Palladio and Greenough had been tamed. (An
example of the expected amelioration of climate and environmental
effects via technology is richly illustrated in the south facing fully
glazed wall of LeCorbusier's Cité de Refuge [Salvation Army] of
1929-1933.4) After a brief discussion of Wright's Larkin Building
(one of the earliest air-conditioned buildings) and Kahn's Richards
Laboratory, whose powerful poetic forms and expression derive
explicitly from the environmental and service systems of the build-
ings, Banham continues:

So shallow an interest in so profound a building [Larkin] was
both inevitable and predictable however; the art of writing
and expounding the history of architecture has been allowed
— by default and academic inertia— to become narrowed to
the point where almost its only interest outside the derivation
of styles is haggling over the primacy of inventions in the field
of structures.5

Banham describes his effort as a "tiny fraction" of what needs to
be addressed in a topic that is virtually undisussed in architectural
history: the impact of environmental conditioning, passive and
mechanical, on architecture.

Then came Ian McHarg's Design With Nature, which posited an
entire design strategy based upon ecological site assessment; fol-
lowed in the '70s by the early efforts at solar energy design using
collectors and trombe walls, etc.; an AIA national convention on
'Energy'; annual issues dedicated to the environment and energy
efficient or sustainable design practices by Progressive Architec-
ture.; AIA environmental programs; and UN global conferences on
the environment in the 1990's.

This is not only a Western tradition. Yin/ying and feng shui are a
set of powerful ecologically driven organizing design principles
much older than Vitruvius. The Imperial Palace in Beijing is a
striking late example of several key issues for design in the temper-
ate, but often harsh climate of China. Guidelines for site selection
and building groupings paraphrased from various sources include:

Selection of a site to the south and southeast off the crest of
protective hills on the north and northwest, which provide
shelter from winter winds. Arrange groups of buildings in a
"u" shaped courtyard opening to the south, reinforcing pro-
tection from the north and enabling them to capture the sun in
winter and prevailing breezes from the southeast in summer.
Wide eaves shelter the walls with shade and from rain run-off,
and covered verandas link the buildings along the inner side
of the u-shaped courtyard, enabling communal action and
passage in protection. Deciduous trees shade the courtyard in
summer, open it to the sun in winter. The ground should slope
to the south, with fresh water arriving from higher slopes and
run-off and waste downslope, etc.10

On the contemporary scene we find proponents and critics of
"sustainable design practices" (an expansion from environmentally
and site responsive design strategies for healthy lives and expressive
purposes to a larger construct of designing environments that are
ecologically benign and ensure a global future), and its presentation
as an ethics. On the "pro" side we find Pliny Fisk, III, "eco-design
pioneer," director of the Center for Maximum Potential Building
Systems; Will McDougall, past Dean at the University of Vir-
ginia; and James Wines of Site, who is quoted here:

... We are trying to give an aesthetic dimension to environ-
mental issues by expressing technological functions. ... I'm
challenging those awful buildings done by most of the
"greenies." It's bad, uninteresting design. That's the point
of the book: Philosophy, aesthetics and technology go together.
... While there is brilliant work being done today that qualifies
as sustainable, most architects' choice of visual interpretation
is still locked into time-warped 20th-century stylistic idioms
...11

On the "con" side we hear sentiments like these of Sylvia Lavin,
chair of architecture and urban design at UCLA:

Of course, no one in their right mind is unsupportive of the
environment. But she goes on to say that sustainable design
has its roots in the ecology movement of the Sixties and is an
ethos that masquerades as ethics. It is a design ideology that
is being promulgated under rubric of ethical responsibility. ...
And that's where I find the moralizing aspect starts to become
dangerous in an academic context. ...14

Speaking as if architecture were an autonomous discipline, some-
how unconnected to these issues she continues:

...schools should attempt to define "the responsibilities of an
architecture student to the discipline of architecture, to main-
tain standards for the integrity of the discipline" and to help
students acquire the mastery that will enable them to negoti-
ate "between the capacities of architecture as a discipline and
the needs of the larger social context."...15

Whatever architecture's "capacities" or the "needs of the larger
social context," they do not seem to include the reciprocal concep-
tions of ecology, form, and metaphysical aspects of meaning of place
incorporated in Vitruvius, Palladio, and yin/yang. Despite the more or less continuing discussion, sustainable design has been a back- 
ter in most architectural educational programs and in the over- 
whelming majority of architectural practices. A "versus" that 
Itzkowitz highlights.

HOWARD ITZKOWITZ: HYPOTHETICAL 
IMPERATIVES AND SUSTAINABLE DESIGN

Itzkowitz is concerned that environmental sustainability in the 
sense articulated by Lester Brown is treated at best as an elective 
ethical choice — a 'hypothetical imperative' in Kantian terms. He 
proposes that we need to move beyond the technological and 
political terms with which we address environmental sustainabil- 
ity. A path to fully integrating environmental sustainability issues 
within the architectural education curriculum through the studio is 
framed in two sections of his paper: "What then is the 'nature' of 
sustainable architecture?" (Itz, 212), and "Sustainability as Archi- 
tecture: Restoring a Balance" (Itz, 212-17). He contends that archi- 
tectural design studio resistance to meaningful incorporation of 
sustainable design values and concepts is problematic:

... the role of the architectural studio, where faculty often see 
sustainability as a technical subject subordinate to formal 
issues, has come into question. The discipline of Design,... 
is at the heart of the studio because it is at the heart of the 
profession. What is needed is to understand and reveal the 
moral dependence it shares with sustainability. (Itz, 2(10)

What I wish to question, with an eye to reinforcing Itzkowitz's 
argument regarding more integrative approaches, are his observa- 
tions that "In Kantian terms morality is to do with human conduct 
rather than with outcomes of that conduct (Itz, 210), and that:

There is no unconditional moral obligation to produce sus- 
tainable architecture, only laws that dictate measurable en- 
ergy conversion and waste disposal standards. There are 
pragmatic reasons for reducing costs of construction and 
maintenance, but their application is a matter of prudent 
engineering. Nor do there seem to be voluntary (hypotheti-
ical) imperatives for sustainability, that by force of reason, are 
universally accepted by the profession. "" (Itz, 211)

A KANTIAN ARGUMENT

If a case can be constructed that moves sustainable design from the 
realm of the hypothetical imperative to that of the categorical, the 
impact of Itzkowitz's position that we need to shift from 
technopolitical solutions to integrative and poetic solutions within 
architecture (and, by extension, the other environmental design 
disciplines) has compelling force.

To begin the argument for a categorical imperative, the following 
outlines the logical implications of sustainable and non-sustainable 
environmental design practices:

A1 Humankind is dependent upon the sun and the earth's continued 
productivity of renewable and stored resources for continued 
life.

A2 To act in a way that is not sustainable depletes the earth's capacity 
to support life, our own as well as that of other persons and the 
global ecology.

A3 The ultimate outcome of a depletion process would be the 
desertification of the earth and death and extinction for humankind, 
possibly the current population included, depending upon 
the time frame and negative impact of such actions.

A4 Any social project — that of technological advance, control of 
the growth of population, a geo-political resolution of valuation 
and compensation for resources, etc. — is provisional and 
possible but not guaranteed to be absolute in outcome toward 
remedying the effects of desertification.

A5 Therefore, even though there may be short-term convenient 
results from acting toward the design and construction of the 
inhabited environment in non-sustainable ways, particularly for 
those currently empowered by wealth, ultimately, logic reveals 
the possible extinction of humankind.

A6 Thus, even though there may be a remedy available if action 
proceeded quickly enough, it is logically necessary to act as if 
remedies may not be forthcoming in order (1ensure continuation of 
ourselves and others, if only long enough for the development of 
technopolitical processes to ensure survival.

Kant distinguishes between "categorical" and "hypothetical" 
imperatives. The latter refer to actions taken with respect to desired 
outcomes. For example, the technical skill exists whereby we can 
reduce energy consumption in buildings. Thus, a case could be 
made that we ought to exercise that skill in our actions, because reducing 
energy consumption appears to be a reasonable provisional good.

This would be a hypothetical imperative of the first order, that of 
"skill." Let us go further, and speculate that we may run out of stored 
fossil fuel. If we did, we may not have an alternative energy supply 
in place, or at least, it may take a long time to develop an alternative. 
Thus, we could choose to design buildings and urban communities 
in order to conserve with regard to fossil fuel consumption.

This would constitute a hypothetical imperative of the second order, that of 
"prudence." Both of these ethical perspectives regarding hypo-
ethical imperatives, that of skill, "the technical (belonging to art)" 
and that of prudence, "the pragmatic (to welfare)" (Abbott's emph- 
asis), can be applied to the juncture of environmental sustainability 
and architecture. However, they leave the pursuit of sustainable 
design frameworks in a personal choice limbo, not categorically 
imperative. In Lavin's terms noted earlier, they are merely one of 
several competing elective form-giving ideologies.

Kant begins his discussion of the categorical imperative 
"Finally there is an imperative which commands a certain conduct immedi-
ately, without having as its condition any other purpose to be attained 
by it. This imperative is Categorical. It concerns not the matter of the 
action, or its intended result, but its form and the principle of which 
it is itself a result; and what is essentially good in it consists in the 
mental disposition, let the consequence be what it may" (A,234;E,26).

He moves on to frame the necessities of moral action in additional 
terms. "There is therefore but one categorical imperative, namely 
thus: Act only on that maxim whereby thou canst at the same time will 
that I should become a universal law" (A,236;E,30). In other words, 
any moral action we undertake must have logically consistent 
results, when universally applied, without undermining its premise.

Next is the premise that "man and generally any rational being 
exist as end in himself, not merely as a means to an end" (A,239;E,35).

He continues "The practical imperative would be as follows: So as to act to treat humanity, whether in 
thine own person or in that of any other, in every case as qn end, 
without, never as means only" (A,240;E,36). He follows with consider-
ation of those duties toward ourselves and others that are "necessary" 
and/or "contingent (meritorious)" (A,240;E,36-7).

This is far too brief an introduction to one of the sets of moral behavior propositions that has 
shone through the last two centuries, been debated and attacked and yet, retains convincing impact; but I think it is a sufficient basis from which 
to return to environmental sustainability:

A1 Actions that we undertake that would lead to suicide, death and 
extinction are breaches of fundamental duty, towards both our-

A2 A world in which we conduct ourselves and others. This is not a contingent or hypothetical 
concern; life is an end in itself, an a priori position. Continued 
life, both personal and for others (the continuation of the species) 
is a primary good for humanity, "the idea of humanity" being "an
end it in itself" (Abbott's emphasis, 240).

A2 Non-sustainable environmental design practices can be shown to lead to desertification of the earth and the extinction of life — ours and that of others — despite interventionist proposals that may possibly mitigate the situation at some future time. Therefore, non-sustainable environmental design is a breach of fundamental ethical duty to self and others — it being a "duty to maintain one's life" (227), and by extension "life" generally; cannot be considered a universal law because of its logical inconsistency; does not accept all humanity and rational beings as ends (some may perish or be "held down" supporting the profligate living standards of others), and thus must be rejected.

A3 There is no other response. There are no public transportation options. This is not sustainable. To change, it must be economically feasible. What would it take for us to change our patterns? $5 per gallon gasoline? $10 per gallon gasoline? I commute in a modest, fuel efficient automobile that cost almost $20,000. A value exceeding by 10 to 20 times the annual income of a substantial share if not a majority of the world's families. Who is going to work on these imbalances? Quite surely for the foreseeable future, my colleagues and I are not going to leave our automobiles home, nor are we going to forgo the resource-rich lives we lead. Nor will those departing this ACSA national conference via jet planes.

A4 The obverse becomes the categorical imperative for moral action, to act, to design the environment in a sustainable manner, however unknown the particular methods and means.

While it is true that Kant is a deontologist, predicating ethics and moral action from reasoning and a priori premises of what ought to be done, it is not strictly true that consequences are not considered. They are not insofar as means are directed toward objects or conditions of desire; they are insofar outcomes from an ethical choice can be reasoned to be logically consistent or inconsistent with regard to a categorical premise — for us, the primary condition of existence. Given the risk to life, the proposition that there is no categorical imperative to design in sustainable ways is not a supportable position. The implication for architectural education is clear: conceptions of sustainability ought to be intrinsic to design education. Itzkowitz's proposed path to break down the technopolitical framework and to imbue sustainable design with poetic potential from within architectural design is given categorical rather than hypothetical ethical force. Why is this important?

IMPLICATIONS FOR ARCHITECTURAL EDUCATION

The intuitive scientific optimism of Buckminster Fuller's Operating Manual for Spaceship Earth has come and gone. So, too, have the warnings of the Club of Rome's Limits to Growth; along with the oil embargo (a breakdown in geopolitical systemic control over oil); and the American Institute of Architects' Energy Program of the early 1980's, When Lake Erie nearly died, Canada and the U.S. got together and with a combination of technology and government mandate, cleaned it up. When a hole in the ozone layer appeared, a massive international effort involving multiple nations suspended chlorofluorocarbons. Nevertheless, the United States called for more fuel efficient cleaner cars (without changing transportation or settlement policies). People do not believe there is an environmental crisis; they believe if and when one occurs, we will resolve it through technological innovation, imbalances with regard to monetary wealth and quality of life, etc., are still avoidable by most people in the U.S.

For example, four members of the architecture faculty at Iowa State University live within eight blocks of each other on the 50th street in Des Moines. We independently commute 80 miles round trip daily to Ames because our schedules do not match well. Settlement patterns are spread out. There are no public transportation options. Gas remains cheap. What would it take for us to change our patterns? $5 per gallon gasoline? $10 per gallon gasoline? I commute in a modest, fuel efficient automobile that cost almost $20,000. A value exceeding by 10 to 20 times the annual income of a substantial share if not a majority of the world's families. Who is going to work on these imbalances? Quite surely for the foreseeable future, my colleagues and I are not going to leave our automobiles home, nor are we going to forgo the resource-rich lives we lead. Nor will those departing this ACSA national conference via jet planes.

The fact that we have been successful in the technopolitical sense is the greatest barrier to perceiving the importance of the categorical imperative with regard to sustainable environmental design practice. We still live in an era where Utility benefit-cost based ethical philosophy is relied upon to balance the interests of present convenience against those of the future with respect to the use of global resources. The path to evaluation of long- and short-term environmental options, the relative costs of each (in human and other capital and happiness), the ratio of environmental degradation risk undertaken in relation to expectations of technological progress and remedies, all fit into the cost-benefit Utilitarian calculus. Even if social contract concepts such as those of John Rawls are invoked, however those who are most and least advantaged nations or people may be defined in the global circumstance within which environmental sustainability is played out, various outcomes regarding risk and the total good can be evaluated in terms of who and how many persons are affected, what qualitative levels of human life are maintained, through what period of time, and which choice will impact one person (or least), etc. At best these options may be Kantian hypothetical imperatives of skill and prudence.

The argument attempted here is that sustainable design is not a hypothetical but a categorical imperative. The path to working on the issue is necessitated by ethical duty. The implications for architecture, landscape architecture, planning and public policy regarding human settlement and development are manifold and substantive. There are several directly applicable possibilities to invigorate architectural education with sustainable design values:

A1 Site, climate and ecological context could be studied in the design studio with respect to basic influences on architectural form in a manner that parallels structural influences on form.

A2 Building materials and assemblies courses could change focus from basic conventional systems to those that may be reusable or that use recycled material, or that are energy conserving in their creation, in their assembly, and/or in their energy effectiveness once in place.

A3 The material and constructional properties of such assemblies and their influence on form could be a part of studio work.

A4 History and theory courses could examine ecologically benign architecture and design ideologies that extend beyond the formal and traditional Western canon, broadening student understanding of precedent.

A5 Studio project programs may be issued that address settlement patterns and location choices as part of the problem.

None of these suggestions leads to a totalizing reductive "energy-based" mentality or to particular architectural imagery. None precludes the aspirational ideals that we hold for a poetic and meaningful environment. But they would inflect the values by which we analyze, conceive and judge architecture — from the elemental level, to that of the building, and to the larger communal landscape. The position is simply put: architects need to understand that architectural decisions are not neutral with respect to global resources and inhabitability, and that they require ethical choice supported by mastery of sustainable design concepts as part of the larger architectural discipline.
NOTES


Vitruvius, Bk. I, Ch. IV, 17-21, Bk.I, Ch. VI, 24-31.


8 For a brief introduction to Fisk, see Architecture (June 1998), Interview, 55.


10 Metropolis (May 1998), Interview, 77.


12 Metropolis, 121.

13 Itzkowitz, op. cit., in the section “Sustainability as Technopolitics: Out of Balance,” pp. 210-211. The parenthetical references “[Itz, 210]” indicate the Itzkowitz paper and page citation.


15 Utilitarianism holds that moral choices ought to be made in favor of options that maximize benefits in a given situation. Rawls proposes a hypothetical decision framework of fairness and justice based upon a "veil of ignorance" with respect to personal advantages in an ethical choice situation. For a concise discussion of Rawls’ position see James P. Sterba, "Toulmin to Rawls," 406-418, in Ethics in the History of Western Philosophy, ed. Robert J. Cavelier, James Gouinlock and James P. Sterba (New York: St. Martin’s Press, 1989). Both theories have had wide impact in environmental policy, particularly in planning and urban design.