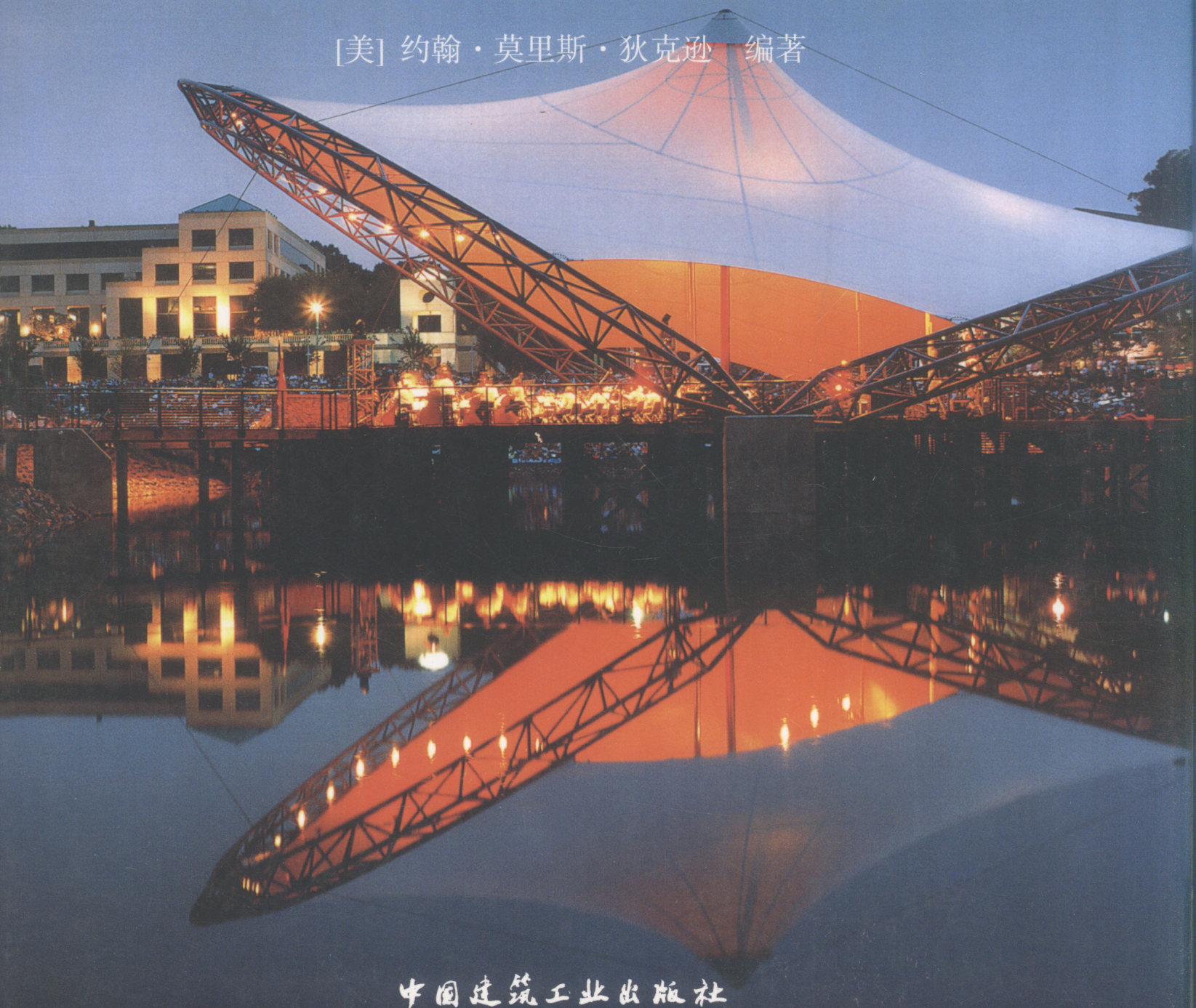


Urban Spaces No.5

Featuring Green Design Strategies

城市空间与景观设计 5

[美] 约翰·莫里斯·狄克逊 编著



中国建筑工业出版社

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城市空间与景观设计 5

[美] 约翰·莫里斯·狄克逊 编著

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Preface

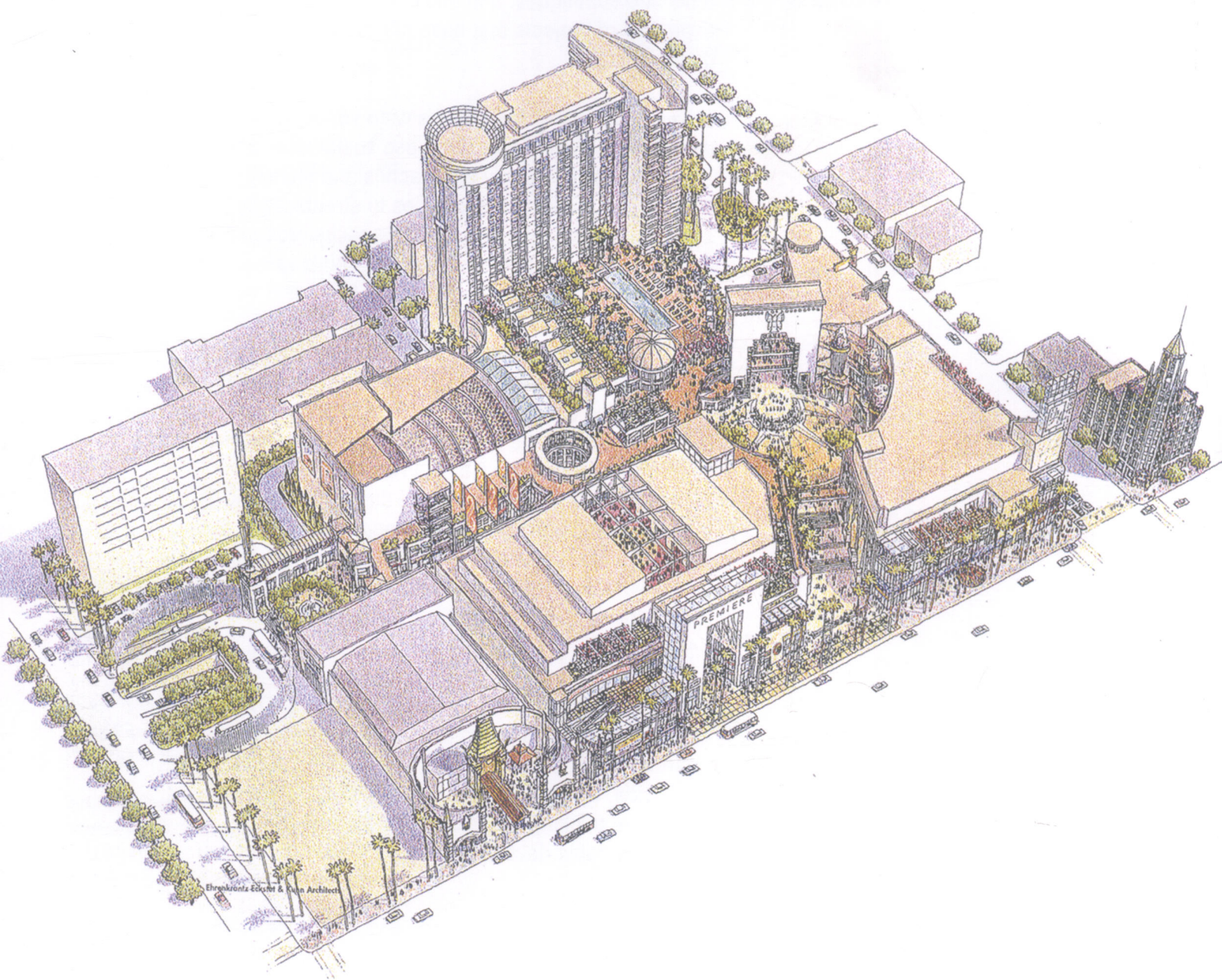
Richard M. Rosan, FAIA
President,
Urban Land Institute Worldwide

The green revolution is upon us, climate change concerns are everywhere, and sustainability is now a principal issue in real estate businesses of all types. Today architects and real estate developers alike are embracing sustainable development and green building tools and techniques, and this book highlights many fine examples of projects that have successfully embraced these practices.

Urban Spaces No. 5 illustrates a wide variety of designs and project types that use sustainable and environmentally-friendly approaches and techniques. From urban mixed-use properties to streetscapes to suburban town centers, the urban spaces presented in this book represent some of the best thinking in urban and environmental design today.

The Urban Land Institute is pleased to be cooperating with the publishers of *Urban Spaces No. 5* in this effort; place making and the creation of great urban spaces is fundamental to the healthy growth and development of cities and suburbs alike. ULI has nearly 38,000 members in 90 countries around the world working to create better buildings, places, and communities. Since 1936, ULI has attracted leading thinkers, designers, developers, and real estate practitioners in land use, urban planning, design, finance, and real estate development.

With each edition, *Urban Spaces* showcases global innovation in urban design. The firms and projects in this book offer examples of best practices worldwide, and represent a rich source of ideas and innovative thinking about both good urban design and sustainable development.



Hollywood & Highland by Ehrenkrantz Eckstut & Kuhn Architects, aerial view of development.

Introduction

Green by Degrees: Buildings, Urban Spaces, Communities

by John Morris Dixon, FAIA

By now, even people with little interest in environmental issues have heard about “green buildings.” An issue that mattered only to a few zealots a decade ago, the subject of green building has expanded globally and is now the focus of countless design professionals, corporate executives,

and government authorities. Even real estate ads tout the green-ness of office buildings and condominiums, anticipating its appeal to tenants and buyers.

Several historical strands have converged to form the current green movement. There was the environmental



Seaside, Florida, by Duany Plater-Zyberk & Company. Dating from 1981, the plan of this resort community embodies principles that would later be identified with sustainable development and applied in more recent communities documented in this book, including several by Duany Plater-Zyberk.

Photo: Courtesy of DPZ.



The Robert Redford Building for the Natural Resources Defense Council (NRDC), Santa Monica, California, by Moule & Polyzoides. A small office building demonstrates cutting-edge environmental design, reworking an existing structure, using materials selected for sustainability, and generating no carbon dioxide emissions at all.

Photo: Tim Street Porter.

movement of the 1960s, when Rachel Carson warned of widespread natural destruction and regional planners led by Ian McHarg boosted the hitherto obscure word “ecology” to public consciousness. Energy conservation rose to international attention around the time of the petroleum market shocks of the 1970s, spawning lots of energy-conscious building design that now rates a second look.

Each of these movements subsided all too quickly, but today’s green movement seems to be here to stay. It combines a concern with the natural world and ecological sensitivity with responses to two overriding present and future concerns: global warming and the political/economic fallout of our abject reliance on petroleum. With the current consensus that carbon compounds produced by combustion are behind accelerating climate change, there is strong, justifiable pressure to reduce this combustion, with zero carbon emissions as the ideal goal. And, as nations continue to contend for the world’s remaining petroleum sources, it is clear that the whole world’s addiction to oil carries an immense economic and political cost.

“Sustainability” is another current term that more or less equates with “green” and is used roughly as often, but springs from a slightly different, if related, set of concerns. A sustainable environment is one that will not deplete irreplaceable resources – whether petroleum or mineral ores or forests. Sustainability also stresses saving or salvaging existing buildings and other artifacts, so that the material and energy that went into them is not squandered.

LEED Standards for Green Design

Along with the spread of green-consciousness has come wide use of the acronym LEED – for Leadership in Energy and Environmental Design. LEED certification, in its vividly termed gradations of Silver, Gold, and Platinum, is much sought after and widely boasted about by building owners.



10th and Hoyt Apartments, Portland, Oregon, by Ankrom Moisan Architects. One of 14 projects by the firm contributing to the mixed-use, mixed-income revival of the city’s Pearl District, this building features a green roof over parking below, with downspouts channeling rainwater through detention basins into a cistern.

Photo: Koch Landscape Architects.



X|O, 1712 South Prairie Avenue, Chicago, Illinois, by Lucien Lagrange Architects. Supporting neighborhood revival with two apartment towers, plus townhouses and retail at street level, this development has been designed for LEED certification, with proximity to public transportation, a small on-site park, and a planted roof over its garage.

Promulgated by the U.S. Green Building Council, LEED certification is primarily an American standard, with different green-rating systems prevailing in some other countries.

There is every reason to celebrate individual green buildings – structures that require significantly reduced energy for heating, cooling, ventilation, and lighting, that make maximum use of recycled and recyclable materials, that have minimal construction waste, that meet high standards of indoor environmental quality.

Tapping non-polluting sources of energy, such as geothermal, is obviously worthy of LEED points, as is re-use of rainwater and waste water. The use of materials produced nearby can reduce energy consumed in transporting them, and factory production of major parts of a building can sharply reduce waste of materials. (It has been reported that at a typical construction site, 30 percent of the material ends up at the dump.) Re-use of existing construction and building components is also praiseworthy and earns LEED credits.

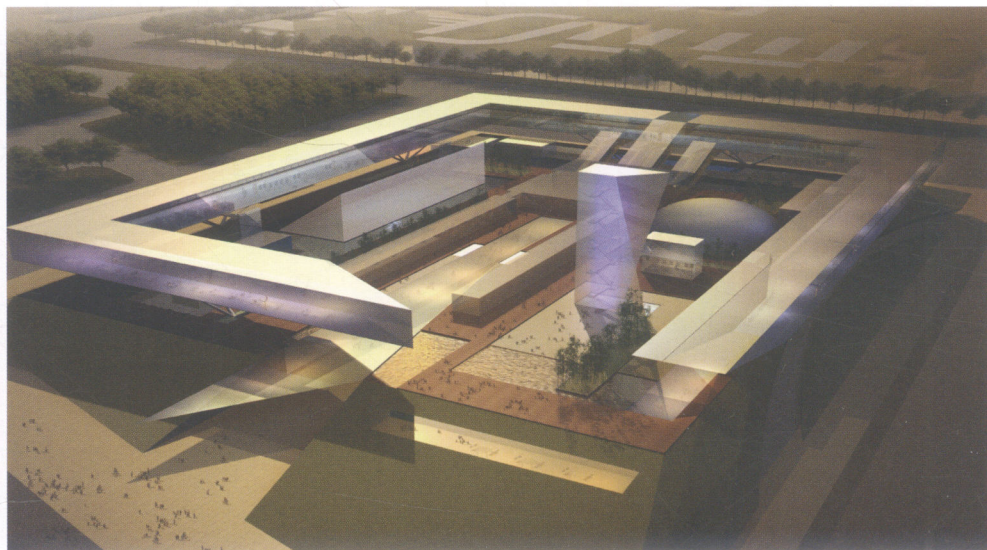
It is especially hard to quantify the value of a building's shape and orientation, the factors most attributable to the architects, although their effect is reflected in its measurable energy, lighting, and ventilation requirements. Some LEED points for buildings involve their location, with credits granted for brownfield redevelopment and for access to public transportation. Certain locations actually rule out obtaining LEED certification: sites on prime agricultural land, for instance, on flood plains, or where construction threatens wetlands or endangered species.

The design of the site around the building is also significant, with points awarded for providing open space, efficient use of water resources, reducing the heat-island effect, reducing light pollution, and managing storm water runoff. Individual projects are also rewarded for steps to reduce the volume of private vehicles, such as offering preferential parking for van pools and providing bicycle commuters with racks, dressing rooms, and showers.



Cook County Circuit Courthouse, Chicago, Illinois, by Booth Hansen. Adapted from an old warehouse, the building embodies several green strategies to qualify it for LEED Silver.

Photo: Mark Ballogg



China Science and Technology Museum, Beijing, China, by annex|5. In this structure to be located in the 2008 Olympics Park, most of the building volume will be underground to save heating and cooling energy, and aerated garden pools will serve as heat sinks for the air-conditioning system.

Hard-to-Measure Qualities

A concern that is hard to quantify is adaptability—sometimes more vividly called “loose fit.” If structures and neighborhoods can eventually be adapted to serve purposes different from their original ones, great reductions can be saved in construction materials and labor, as well as disposal of demolition products. Consider New York’s SoHo district and similar areas in other cities, where old industrial lofts have been adapted for residential and arts uses.

Advances in computers have clearly helped. Now it is possible much more readily than before to determine what structural configuration will yield the minimum demand for materials. And the energy effect of numerous internal arrangements and mechanical system designs can be computer tested to establish clearly how energy savings can be accomplished.

One negative lesson promulgated by many of the buildings from the 1970s period of energy-conscious design is that so much of it was accomplished at a

sacrifice of aesthetics. Too many of the adventurous and instructive buildings of the time looked like giant mechanism that would not fit well into their communities. This was in the period, some may recall, when President Jimmy Carter set the example by wearing cardigans to allow his thermostat to be set lower, conveying the notion that energy saving called for sacrifices.

By contrast, architects of many of today’s most sustainable buildings testify that making their buildings greener has actually enriched their designs and made them more complementary to existing and planned community development. Advances in materials have helped to make this possible: glass that admits light but rebuffs heat rays, for instance, no longer has to look mirrored or menacingly dark. Planted rooftops – usually aesthetic assets – are used more often now, and with greater confidence, than in the 1970s, in part because of more dependable materials and advances in their construction and planting techniques. In any case, it’s obvious that the added constraints of green design produce better architecture only with the kind of skill and commitment



New Jiang Wan Cultural Center, Shanghai, China, by RTKL. Developed on Shanghai’s last wetland preserve, the structure is designed to merge with its site and demonstrates many green methods and materials, including a composite wood cladding that is new to China.

Photo: Fu Xing Studios.



Visteon Village Corporate Headquarters, Van Buren Township, Michigan, by SmithGroup.

These offices form a village laid out along a lake created from a disused gravel quarry.

Photo: Laszlo Regos Photography.

that has always produced superior design.

Lurking behind any discussion of green building is the question of cost. More effective building envelopes and mechanical systems often – but not always – involve additional first costs. While actual reductions in quantities of materials usually save money, cost savings in the reuse of old buildings and the recycling of materials may turn out to be largely theoretical. Reductions in the demand for energy and water will always result in lower long-term costs, but not initial savings. So generally speaking, designing greener buildings is likely to mean spending somewhat more on construction to reduce operating expenses down the road. Considerations of the building's life-cycle costs are typically the strongest economic arguments for building green.

Other management consideration may involve the pride owners, tenants, and occupants take in the building. Owning or inhabiting a building with exemplary environmental characteristics has a value in the marketplace; it can help recruit and retain employees or to sell condos or concert subscriptions.

Like exceptional aesthetic qualities, sustainability now has strong subjective value – a relatively new value in our society.

Beyond the Individual Building

The environmental gain in constructing even the greenest building, however, means little if it can only be reached by private vehicles. (Alternative fuels would help, but we're at least decades away from zero-carbon ones.) To really accomplish a green or sustainable environment, we need to think and plan on a community scale – even a regional scale – as well. We need to plan so that the public can circulate on foot or by shared circulation, rather than relying on private vehicles. We need to plan for full utilization of public utilities and public transportation facilities that already exist – retaining the investment already made in them. And we must



Technology Square, Georgia Institute of Technology, Atlanta, Georgia, by TVS. Connecting Georgia Tech with midtown Atlanta, this multi-block mixed-use development includes the College of Management, the 14th building in the nation to earn a LEED Silver rating for its environmental features.

Photo: Brian Gassel/TVS.



New Jersey Urban Parks Master Plan Competition, Trenton, New Jersey, by Sasaki Associates, Inc. One of five finalists in a master plan competition for the state capital's parks, this scheme would restore natural systems along the Delaware River and provide for recreation and environmental education.

do our best to ensure that our immense investment in existing buildings is not thrown away.

Recognizing this need, the U.S. Green Building Council has been developing a rating system for "Neighborhood Development." A pilot version of this system was made public in February of 2007 and will be applied to some control projects to test its effectiveness as a measure of sustainability. It is the latest in a growing series of LEED rating documents. Starting with the granddaddy LEED for New Construction and Major Renovation – latest version issued October 2005 – they include versions tailored for core-and-shell buildings, commercial interiors, schools, and others – some of them still in draft form.

The Neighborhood LEED rating program has taken longer to develop than some others because the measurement of sustainability for whole communities is inherently more complicated than for single buildings. It is conceptually easier to judge reductions in energy demand or storm water runoff – whether for one building or a whole community – than it is to decide what reduction in private car use can be

attributed to any neighborhood or urban plan. And how can an inner-city infill development be compared environmentally with a planned neighborhood on the urban fringe?

Reflecting the complexity of judging some desirable "neighborhood" characteristics, the pilot rating system allows for much latitude in interpretation. Out of 106 possible total points, it allows 2 to 10 points for "reduced automobile dependence," perhaps the least predictable outcome, and 1 to 7 points for "compact development," a characteristic that could obviously vary widely depending on the situation.

Other items on the checklist that can earn more than one point include: brownfield redevelopment, proximity to housing and jobs, diversity of uses, inclusion of affordable rental housing, reduced parking footprint, walkable streets, transportation demand management, storm water management, plus up to 12 points for the sustainability characteristics of the buildings included in the neighborhood. LEED certification under this program requires a minimum of 40 points, with LEED Silver 50, Gold 60, and Platinum 80.



Culinary Institute of America Anton Plaza, Hyde Park, New York, by Derck & Edson Associates. Parking for an existing complex has been provided in a garage notched into the steep site, topped with a formal landscape that provides required filtering for storm water entering the Hudson River.

Photo: Nathan Cox Photography.



Salishan, Tacoma, Washington, by Torti Gallas and Partners. A mixed-use program transformed this former public housing site on a sensitive watershed into a 1,180-unit neighborhood sustainable in all its aspects – social, economic, environmental, and cultural.

Photo: Steve Hall @ Hedrich Blessing

As Green Design Evolves

While many projects in this book are being considered for LEED certification, there are good reasons why few of them have earned it yet. Even at the scale of the single building, where LEED standards are well-established, buildings have to be completed before the certification process can take place. And the outcome will depend in part on provisions for maintenance that doesn't jeopardize their green characteristics.

For multi-building complexes and neighborhoods, LEED standards have not yet been firmly established. And for complete new communities, they may be somewhere in the future. Many of the works cited in this book are, in effect, setting the standards for future LEED programs. Increasingly, sustainability standards are being required for construction projects by government organizations, such as the General Services Administration, the federal government largest builder, and for the projects built by or partially supported by

many national, state, and municipal agencies. As this is written, the U.S. Congress is considering a Carbon-Neutral Act, which would mandate staged reductions of the use of greenhouse gases for Federal projects, with the goal of zero carbon-based emissions by 2050. Many corporations and institutions are also mandating green design. And we are now beginning to see sustainability factors incorporated into municipal building codes that control all construction within their borders.

Schools of architecture and urban design are also, slowly and somewhat belatedly, adding green design education to their programs. Faculty and students who have been largely immersed in considerations of form and expression will not be converted overnight.

But most schools of design are now recognizing that one required course in mechanical engineering is not adequate to cover the complex network of concerns behind green architecture and urban design.

Meanwhile, almost every project in this book makes a contribution to sustainability. They pick up the themes



The Commons at Atlantic Station, Atlanta, Georgia, by James, Harwick + Partners. At the heart of 138-acre Atlantic Commons brownfields redevelopment, this project is laid out around a five-acre park and features sustainable strategies, including separate waste and storm water systems.

Photo: Rion Rizzo.



Ford's Landing, Alexandria, Virginia, by Studio 39 Landscape Architecture. For this eight-acre townhouse development on a former industrial site, landscape strategies included crushing and recycling concrete paving, preserving adjoining wetlands, and providing an appealing pedestrian network.

that have run through all the volumes of the Urban Spaces series: the efficient use of land, the mixing of uses to create walkable environments, the design of pedestrian-friendly streets and plazas, reduction in the need to use cars and in the space required to park them. These are also objectives advocated by the Urban Land Institute, which has cooperated with Visual Reference Publications in the entire series of Urban Spaces books.

Sustainability can also be applied to whole cultures. In some societies, for instance, people tend to add or shed layers of clothing to compensate for differences in indoor temperature, rather than insisting on the

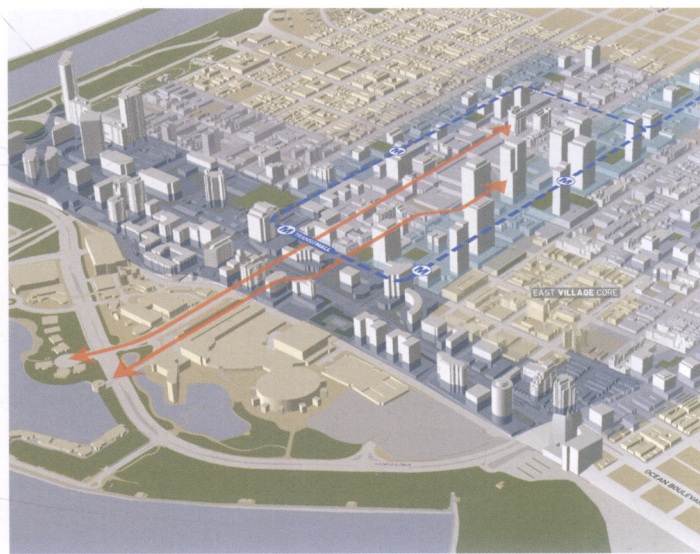
same year-round temperature. Even different cooking methods can affect use of energy. And sustainability goals can be applied to whole communities, considering ways to keep them occupied and economically viable.

Narrowly viewed, green or sustainable design is seen as primarily a technical issue. And it does involve serious technical aspects of design, construction, and operation. But the sustainability of whole communities depends ultimately on all of the political, economic, and cultural factors that keep them and their nations healthy.



North Bank Park, Columbus, Ohio, by MSI. Recycling of structural and paving materials was featured in the transformation of 14 acres of brownfields adjoining downtown Columbus into a riverfront park adjoining the 79-acre mixed-use Arena redevelopment planned by the same firm.

Photo: MSI, Feinknopf.



Downtown Long Beach Visioning, Long Beach, California, by Perkowitz+Ruth Architects/Studio One Eleven. For a 150-block area under development pressure, this study proposes zoning that recognizes solar access and view corridors, encourages public transportation, and minimizes surface parking.