SINCE LONG BEFORE THE AGE OF BIM, MASTER MODEL-MAKER RICHARD TENGUERIAN HAS BEEN TURNING TWO-DIMENSIONAL DRAWINGS INTO 3-D WORKS OF ART.

Text John Cendall Portrait Matt Greenslade

MODEL CITIZEN

Richard Tenguerian (shown here, in his studio) treats architectural model-making in art form, mixing his paints and customizing unique color palettes for each client.

Richard Tenguerian’s portfolio reads like a history of architecture. Since 1975, the New York-based modelmaker has long collaborated with some of architecture’s most iconic figures, including Aldo Rossi, Bernard Tschumi, Philip Johnson, Emilio Ambasz, and Robert A.M. Stern, and with firms such as HOK, FXFowle, Kohn Pedersen Fox, and Skidmore, Owings & Merrill.

Intent on becoming an architect, the young Tenguerian quickly discovered his talent for fabricating models, picking up a job during high school making models for an architectural office. He has been doing it ever since, starting his own firm, Cubic Dimension, in 1989.

“When someone shows me a drawing, I see the finished product,” he says. “I get the vision.”

His basement office near New York’s Astor Place maintains a healthy buzz. For his interview with Architect, he suggested meeting on a Saturday morning so that the office would be without distraction. But even then—one of the last sunny days of summer—10 people could be found feverishly working. Walking through the studio, Tenguerian seamlessly shifts from the conversation to commenting on the work happening around him (“Make sure you cut that piece there,” and, “Don’t forget to replace this section”) without losing focus.

Everything he does is custom-made. From the paint—which he mixes for each project, never sharing shades between clients—to the wooden cases that house the finished models, he fabricates each part of every project individually.

He keeps between 12 and 16 people on staff, each with a particular specialty. “Every model is unique, so I bring on people who can work with specific sets of challenges—paint color, carpentry, technology, or interpreting architectural drawings.”

“I’m the conductor now,” he says. “I’m no longer in the orchestra.” But his deference belies the personal
investment he puts into each project, and he repeatedly notes what has quickly become obvious: "I put my heart into these projects." He treats each model not only as an important architectural document, but also as a work of art. Letters from clients speak of him as a "poet," a "master-builder," and an "artist." Rafael Moneo once shipped a model of Avery Fisher Hall (made by another model-maker) to New York, and when it became damaged in the process, the architect called Tenguerian to fix it. Tenguerian agreed and built a new model, later refusing payment. Flipping through a portfolio of souvenirs, he pulls out a personal check from Moneo, which he never cashed. "That project wasn't about money. It was about architecture and service."

Kenneth Drucker, senior principal and director of design at HOK, has worked with Tenguerian since 1985. "He's always been a model-maker of first choice," explains Drucker. "He's helped us win competitions, since his models are very persuasive tools in winning projects. His work is art."

The discipline of model-making, like architecture, has been completely redefined over the past few years by emerging technologies and digital practices. Models now link with interactive computer screens, light on command, and involve the challenging forms of contemporary architecture. Methods of fabrication have changed too, most notably with laser-cutting and 3-D printing. An artisan though he may be, Tenguerian is quick to incorporate emerging technologies into his craft, expanding the
Sustainable Masonry
The Total System Approach

by Christopher Bupp
Masonry and Architectural Services, Hohmann and Barnard

Masonry has long been considered one of the most sustainable and durable building materials in the construction industry. Today's cavity walls require the proper use of numerous masonry accessories to reinforce and tie together multiple wythes of masonry, plus control and expansion joints to handle movement. Flashings, air/vapor barriers, mortar collection devices, weeps & vents are designed to effectively manage moisture within the wall assembly.

For 75 years, Hohmann & Barnard has been the leading manufacturer and fabricator of all types of innovative products for the masonry world. As 21st century masonry walls become more complex with stricter code requirements, increased energy efficiency and more creative designs, the need has developed for systems or groupings of products that will function together and that have been being tested to assure their compatibility and effectiveness.

Once again, Hohmann & Barnard is leading the way with complete systems for various wall types that include all of the required accessories for the project. Our extensive field experience along with testing at our R&D lab allow us to offer complete systems of complementary and compatible products to give designers, contractors and building owners peace of mind. To find out more, or to determine a system specific to your project needs, please contact Patricia Hohmann at Hohmann and Barnard, 1-800-645-0616 or Chris Bupp, 1-717-775-4843.

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BENCHMARKS IN SUSTAINABILITY

• 1992 - EPA launches Energy Star program, aimed at reducing energy consumption and greenhouse gas emissions

• 1998 - U.S. Green Building Council launches LEED Pilot Program (later renamed LEED-NC Version 1.0)

• 2000 - Green Globes for Existing Buildings launched in Canada; the Green Building Initiative (GBI) acquires the rights to distribute Green Globes in the United States four years later

• 2002 - First edition of Cradle to Cradle: Remaking the Way We Make Things, by William McDonough and Michael Braungart

• 2005 - LEED-NC Version 2.2 effective - GBI is first green building organization to be accredited as a standards developer by American National Standards Institute

• 2006 - Architecture 2030 Challenge issued - An Inconvenient Truth released

• 2007 - ASHRAE Standard 90.1 2007 released - An Inconvenient Truth wins Academy Award; Al Gore wins Nobel Peace Prize - Energy Independence and Security Act signed; requires all new and renovated federal buildings to reduce fossil fuel use by 55 percent (from 2003 levels) by 2010 and to be carbon neutral by 2030

• 2009 - LEED for New Construction and Major Renovation 2009 effective

• 2010 - Architecture 2030 goal: All new buildings and major renovations have reduced fossil fuel consumption by 50 percent

• 2018 - Al Gore's goal: 100 percent of electricity is produced from renewable energy and carbon-free sources

• 2030 - Architecture 2030 goal: All new buildings are carbon neutral
A DEEPER SHADE OF GREEN

WE ALL KNOW THAT BUILDINGS ACCOUNT FOR 40 PERCENT OF THE ENERGY CONSUMED IN THIS COUNTRY. BUT LEED BUILDINGS—SURELY THEY CAN’T BE ENERGY HOGS? THE TRUTH IS, THE EFFECT OF RATING SYSTEMS LIKE LEED ON ACTUAL PERFORMANCE HAS NOT BEEN SCIENTIFICALLY DETERMINED ... YET.
LEADING THE ACADEMY

Vivian Loftness
University Professor, Carnegie Mellon University, Pittsburgh
Age: 56
Education: B.S. and M.Arch., Massachusetts Institute of Technology

Vivian Loftness joined the Carnegie Mellon faculty in 1981. "One of the main goals of my work is proving that quality buildings have positive outcomes in terms of energy, sustainability, health, productivity," she says. Loftness headed the School of Architecture from 1994 to 2004 but stepped down to devote more time to teaching and research.

Administration started keeping records in 1942 and the highest volume of public transit use in 50 years (see page 44). Suddenly, energy conservation isn't just the rallying cry of nonprofit organizations or the subject of an indie film hit featuring a former vice president—it's part of everybody's changing daily habits.

Some architects have seen it coming for a decade or more. William McDonough, for example, cast himself as the profession's John the Baptist figure early in the 1990s. In 1993, the U.S. Green Building Council (USGBC) opened its doors as a small organization with significant input from architects. Now, it's not unusual for design firms to have more LEED-accredited professionals than licensed architects.

The profession's part of the problem is directly tied to a startling set of numbers reported by the Environmental Protection Agency (EPA). It's typical to find those involved in the building industry repeating them as a mantra: Buildings consume 12 percent of our water, account for 40 percent of our total yearly energy usage, and produce 48 percent of our total greenhouse gas (GHG) emissions.

Announced two years ago, the Architecture 2030 Challenge is rapidly gaining acceptance by building professionals. It stipulates reducing new building and renovation's GHG-emitting energy consumption 50 percent by 2010 and achieving carbon-neutral new buildings by 2030. Is this laudable goal even remotely possible? Have the steps we've taken during the past decade and a half given us the start that's required?

Therein lies our own inconvenient truth. From a marketing and political perspective, the green movement has won major battles. But the time has come for the profession to deliver the goods, and the science of sustainable building is still in its infancy.

LEED'S FIRST REPORT CARD

Despite its growing ubiquity, the USGBC's LEED program still touches on only a small percentage of buildings in the United States. As of September 2008, there were 1,705 LEED certified buildings, with 13,741 registered in the LEED certification process. (USGBC estimates that LEED represents 5 percent to 6 percent of all new commercial construction.) In March 2008, the nine-year-old labeling system got its first report card. Titled "Energy Performance of LEED for New Construction Buildings," the report was commissioned by the USGBC and conducted by the New Buildings Institute (NBI). Its results raise questions about the profession's awareness of the building sci-
ence issues that will be central to solving our side of the global warming equation.

"The study started from a discussion about how we make the rating system better if we don't know what's wrong with it now," says the USGBC's vice president for technical development, Brendan Owens. Mark Frankel, the NBI's technical director and a co-author of the report, notes that one of the most shocking results was not the data itself, but the meager quantity available. The NBI asked the owners and operators of 532 LEED-certified buildings (as many as existed when the study began) to participate. About half—250—were willing, but only 121 of that group could supply the data necessary.

Since one common complaint of the LEED process is the onerous paperwork required to achieve certification, it seems odd that the owners and operators of these lauded buildings would balk at providing the uncomplicated data requested—i.e., recent energy bills.

Carnegie Mellon professor and architect Vivian Loftness, an expert on building performance, characterizes the report's conclusions as, "Predominantly, we're doing pretty well." On average, the 121 buildings in the survey are showing better energy performance than a model code baseline building. Of course, an average is just that. In fact, a number of buildings are performing much better, while a similar number are faring worse. This disconnect—between actual building performance and design-phase energy modeling—offers the most important and challenging lesson for the USGBC, architects, engineers, owners, and other building professionals.

Frankel explains that more than a third of the included buildings had achieved LEED M&V credits, which require a measurement and verification plan that extends at least one year into building occupancy. "I thought we'd get a lot of M&V reports," says Frankel. "We got four." Three of those four were from a single firm that has a reputation for good follow-up. The fourth was a real cause for concern: The NBI's analysts crunched the numbers and assigned it an approximate Energy Star score—which was shockingly low. Convinced that the data were incorrect, the NBI contacted the owners, who verified the numbers.

"They had no idea their M&V report was telling them their building was a dog," says Frankel. "There was no context." Within a day, that building owner had their design team on the phone and they set about discovering what wasn't operating properly. Within a few months, they had reduced their energy use by 30 percent.

While just a single anecdote involving one participant in the study, it demonstrates the fundamental disconnect—between predicted and quantifiable performance—that still pervades the industry.

The USGBC is continuing the study with the NBI, seeking the reasons behind
RUNNING THE BUILDINGS

Larry Bridge
Workplace and Infrastructure Solutions Manager, Procter & Gamble, Cincinnati
Age: 42
Education: B.S., Michigan State University

Trained as a mechanical engineer, Larry Bridge has worked in facilities and real estate for Procter & Gamble (P&G) for 22 years. He’s currently in charge of some 1.5 million gross square feet of general office space that accommodates 4,200 people. The company’s headquarters complex in Cincinnati recently gained Energy Star certification for its increasingly sophisticated set of energy-efficient controls and practices.

All of P&G’s green upgrades have been made as part of a standard maintenance program. They include better daylighting, through open office layouts, and automated systems that more tightly control everything from bathroom and conference room lighting to office temperatures, which can be tweaked a bit warmer in the summer and cooler in the winter. “You’ve got acceptance from employees for automation and controls,” he says. “They’re bothered if they don’t see it.” Bridge views both renewable energy and better materials as places for a lot more improvement. But it’s all part of a continuing process—for him and P&G.

“You build it, make sure it’s working the way it was designed, then you have to continually validate that it’s operating the way it should,” he says.

both over- and underperforming buildings in the LEED program. “We’re trying to pin down specifics,” says Owens. “There are lessons both ways.” Loftness concludes, “There’s a major handoff problem between engineering excellence and construction, and management excellence.”

PLUSES AND MINUSES
While only about half his firm’s clients choose to participate in LEED, Stephen Kieran, a partner of KieranTimberlake Associates in Philadelphia, finds that the decision increases their aspirations in a verifiable way. Two of the firm’s recent buildings—one for Sidwell Friends School in Washington, D.C., and the other for Yale University—achieved a platinum rating. “Yale wanted a silver building, but we were able to get it [to platinum] without a lot of extra money,” he says. But Kieran doesn’t applaud the additive nature of the LEED system. “You get points by adding additional features to the building,” he says, whereas Kieran-Timberlake prefers a holistic process, looking carefully at orientation, shading, and sophisticated envelopes. To achieve energy efficiency, “We build [it] into the form of the building without adding horsepower or material,” Kieran says.

Even Loftness, a USGBC board member, acknowledges that the current Ver-
sion 2.2 of LEED allows certified buildings to skirt energy performance, since only 10 of the 69 credits are what she calls "hard-nosed energy credits."

"Some poor performers have gone for other stuff—air quality, or land use, or transportation, or other good things," she says. "They may be major contributors to our drive for environmental sustainability without having hit the energy checklist." The next evolution—LEED 2009—addresses this issue by creating mandatory energy credits and increasing the percentage of energy credits within the overall framework of the rating system. (Under 2.2, 17 out of a possible 69 points are "Energy & Atmosphere" credits—that is, a little less than 25 percent. Under 2009, it’s 35 out of 110, or almost 32 percent.)

BUILDING PERFORMANCE RESEARCH
"Right now, there's a lot of emphasis on high-performance design, but we don't according to Owens. Still, it is trying to extend its reach by funding studies with matching on a greater than one-to-one basis for anything it supports.

Loftness points to another thorny problem. "We cannot baseline our buildings," she says. "It's a building science and an engineering problem." EPAct, the Energy Policy Act, mandates all federal agencies to baseline their buildings, without establishing what that baseline is.

Because energy consumption in federal buildings is often a complex brew of electricity, steam, gas, and chilled water—generally metered in different ways, across multiple buildings and/or sites—establishing a simple metric for each is extraordinarily difficult. The NBI's Frankel notes that contemporary building automation systems would seem to provide an answer, but the average system now creates as much data in 20 minutes as Shakespeare's collected works. "When was the last time your building manager had enough time to sit down and read Shakespeare?" he asks.

THE EVOLUTION OF LEED

LEED 2.2
Sustainable Sites 14 points
Water Efficiency 5
Energy & Atmosphere 17
Materials & Resources 13
Indoor Environmental Quality 15
Innovation & Design Process 5
Regional Bonus Credits 0
Total 69

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LEED 2009
Sustainable Sites 26 points
Water Efficiency 10
Energy & Atmosphere 35
Materials & Resources 14
Indoor Environmental Quality 15
Innovation & Design Process 6
Regional Bonus Credits 4
Total 110

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have a comprehensive feedback loop for evaluating that performance and learning from it," says Kieran. And at the moment, we’re not on a sustainable path to change that.

"The federal investment in building science research is impoverished," says Loftness, who notes that only 0.2 percent of the federal research budget even touches on issues like water, air, and energy as they affect the built environment. Science and medicine are funded by the federal government because they’re considered fundamental to the nation’s future. The USGBC maintains a $2 million research endowment, but primary research is not a goal of the organization.

The NBI is trying to establish key performance indicators. "What are the 10 or 20 data points that allow building operators on a daily basis to understand what’s going on?" asks Frankel.

And, more importantly for the industry, how can architects understand what their input provided, and how tenant and owner activities affect building performance in real-world situations?

In separate discussions, Frankel, Loftness, and former American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) president Kent Peterson all pointed to the buildings of the 1920s as models for energy-efficient design. These structures were designed
with daylight wells, good thermal mass, and natural cross-ventilation. "They're passive buildings," says Loftness. "You can run them easily. It's important to keep them in our portfolio."

Frankel—who has looked carefully at more LEED buildings than almost anybody—says, "If you look at the characteristics of buildings that are performing well, you don't see all these funky, cutting-edge technologies that are driving the energy." Instead, he says, what you see is really good design integration—the designers have taken a bunch of stuff they know how to do, then put it together in a sensible package that works. "Effective design is what drives energy performance," he says.

GETTING TO 2030

According to the NBI report, most LEED platinum and gold buildings are already meeting the Architecture 2030 Challenge's interim target of reducing carbon emissions to 50 percent of current averages by 2010. "But LEED is still not the mainstream driver," says Loftness. "It doesn't matter how many times

CRUNCHING THE NUMBERS

Mark Frankel
Technical Director, New Buildings Institute, White Salmon, Wash. Age: 46
Education: B.A. (environmental policy), Pomona College; M.Arch., University of Utah

"Most people think I'm a mechanical engineer, but I'm not," says Frankel, a Salt Lake City native. Prior to joining the New Buildings Institute, he worked for two Seattle-based energy consulting firms and "learned more about mechanical design than any architect has a right to." At one of them, Paladino & Co., he was in charge of the firm's third-party review of the first 75 LEED projects. Since 2006, Frankel has been technical director of the NBI, where he's able to bring his expertise to national program and policy work for organizations such as the AIA, the USGBC, the Environmental Protection Agency, and the Department of Energy.

[The] NBI is about translating the information that's out there into something architects can use," Frankel says. "There's a critical need for that." As one of the authors of the recent report "Energy Performance of LEED for New Construction Buildings," he doesn't shy away from the more troubling results. Discussing some of the "scatter"—the buildings that are either underperforming or overperforming their supposedly green designs—he attributes these anomalies to the disconnect between design assumptions and the reality of buildings in operation. "If we had good feedback systems, the scatter would tighten down considerably," he says.
we tweak LEED, it’s not going to be enough unless there’s a federal focus on the whole.”

Platinum and gold buildings are still considered state-of-the-art. It’s implausible to imagine 2030’s interim goal being met on a wide scale within two years.

Although LEED may still seem to fit a boutique niche, the growth of its techniques is more widespread than the reported numbers. While only half of KieranTimberlake’s clients aim for certification, the firm designs all their projects with a similar ethic and approach. Procter & Gamble is an example of a corporate citizen that takes a similar view. “Our design standards are very consistent with LEED,” says Larry Bridge, workplace and infrastructure solutions manager for the company, which has not sought LEED on a project to date.

Tech company Integrated Environmental Solutions offers free software that can predict the energy use and carbon emissions of a building model in SketchUp or Revit. CEO Don McLean acknowledges that, while his VE-Ware is a good tool for implementing these strategies, tools alone won’t get it done. “We’ve got to get back to the fundamentals of architectural design,” he says. “It’s about looking at building mass, shape, form.”

Owens notes that the USGBC is doing everything it can to speed up the process. With LEED 2009, the existing buildings category gets more attention because it offers a quicker feedback loop for improvements (not to mention the previously noted advantages that many older buildings have over new construction). While Owens remains optimistic, he notes that the scientific community is constantly recalculating the levels of greenhouse gas that need to be met. The current level of carbon dioxide in the atmosphere is 385 parts per million (ppm); a new paper suggests that the right target level might be 235 ppm. “We’ve been shooting at 550 for the past two years, so our trajectory is all wrong to begin with,” he says.

Which gets us back to science—and specifically, building science. Our still nascent knowledge of this discipline is our inconvenient truth. For more than half a century, we’ve built with ever cheaper and thinner and slicker materials while we’ve asked our engineering colleagues to pump them full of whatever heating and cooling was necessary. In doing so, we lost a balance between buildings and nature that had been part of an architect’s repertoire since before Vitruvius.

We can take some solace in the fact that architects have stepped up in the past decade and begun to rapidly address these problems. But what we don’t know right now—what former Secretary of Defense Donald Rumsfeld once famously called the “unknown unknowns”—remains vast and is a result of decades when our educators and professionals chose to favor aesthetics and expedience over firmness and commodity.

“Sure, there’s an urgency with 2030,” says Frankel. And our responsibility to learn and change is imperative.
I know now that it would have been just as accurate if Jim had said, "Congratulations. You're the newest lumbering member of my prehistoric-reptiles-doing-battle-set," because I found out later he did epoxy a Stone-Age representation of me to his dashboard. He didn't choose a mole, however, but one of the early apes as my icon, which I took as a compliment. But even with superior intelligence and a tiny salad fork, the plasticized early cousin of the orangutan was still clearly inferior to the dinosaur that attacked it: something massive, green and orange, with big rotating eyes, armor, impecable combat instincts, and Pez falling out of its head on sharp turns.

Years later it came to me that Jim's dashboard was a pretty accurate depiction of what was going on at that company: the process of natural selection was in full swing there. The monkeylike editors, amoeba-minded sales managers, and slimy, arthropodan circulation gurus who came up with perfect adaptations for survival one month were extinct the next. Shortly after my arrival, Jim himself was permanently readapting to Venice Beach. I know his happy-lines never looked happier.

I was dumb not to realize when I accepted the job offer that I wouldn't evolve into an editor by my own efforts. I would evolve because I was forced into daily combat with a big fat dinosaur in a swampy pit of primordial corporate ooze. But I'd have headed right into it anyway, just like the plastic ape on Jim's dashboard did. In the end, we were the same: a couple of primates who needed new jobs. And I did successfully evolve from a mole into an editor. My magazine was extremely successful with readers and advertisers. It won a nice award, and sailed along with the easygoing times of the late 1980s until the construction market teetered on the brink of collapse, when Ed sold my magazine for a huge profit, handed me a pink slip, and threw me back into the evolutionary swamp.

Today I'm still an editor but with a much better magazine. The magazine I started has consumed three more publishers, and the editor who replaced me, and is now on its third generation of owners. Ed sold the rest of his publishing empire, and started over. I hear that his new company, between growls, is evolving.

Case Study  |  The Urban Design Jazz Ensemble

PROFESSOR MARK C. CHILDS is the author of Squares: A Public Space Design Guide for Urbanists (Albuquerque: UNM Press, 2004), Parking Spaces (New York: McGraw-Hill, 1999), and numerous articles. He is the creator and coordinator of the Town Design Certificate, and Director of the Design and Planning Assistance Center (DPAC) at the University of New Mexico. DPAC is a service-based learning center that works with communities and nonprofits in the region to improve the built environment. Mark has won awards for teaching, public art, heritage preservation, and poetry. He is a Fulbright Scholar studying public space in Cyprus.

Urbanists—those of us who wish to guide and shape the physical form of cities, neighborhoods, main streets, plaza districts, and other collectively made places—can play multiple roles. Architects, landscape architects, planners, artists, developers, traffic engineers, lawyers, bankers, and city officials all may work as from the wo

To play instrument, bu and improvi understand complex inte larly, to cor urbanist must towns and a street, for ex gle designer, many player revitalize or must unders tions that for place. Why bish an old zing code possibly be revived the l

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Who ar jazz band? A is an outline practitioner: and landsca p oper, and th ers participa zoning and real estate tions to help city water teach us abo (as did the e Journalists,
may work as urbanists. Great settlements emerge from the work of many professions.

To play jazz, it is necessary to master an instrument, but one must also learn to collaborate and improvise. To tend an ecosystem, one must understand not only single species but also the complex interactions of species over time. Similarly, to consciously compose the city, an urbanist must attend to the emergent character of towns and districts. A typical small town main street, for example, is not the creation of a single designer, but arises from the interactions of many players over time (Figure 10-1). Thus to revitalize or add to a main street, an urbanist must understand the relationships and assumptions that formed and will continue to shape the place. Why is it difficult to get a loan to refurbish an old main street business? Why does the zoning code require more parking than could possibly be accommodated? How have people revived the Friday evening stroll?

We are almost always playing in the context of previous and ongoing riffs, and even our wildest solos should add to the larger work.

Because the work of urbanists is the shaping of our human habitat, we seek to work not only across professional boundaries but also with the public for the public good. The art of shaping the polis is political. It is political not only in the sense of working with city hall but also in shaping the relationship between designers and users, defining the roles of public art, creating financial and physical structures to nurture small local businesses, and in influencing a myriad of other relationships.

Who are the members of this urban design jazz band? What roles do they play? Following is an outline, based on interviews of acclaimed practitioners, of four typical roles—the architect and landscape architect, the planner, the developer, and the public artist. Certainly many others participate. Lawyers, for example, may shape zoning and public policy, write law, structure real estate transactions, and facilitate negotiations to help shape the city. The engineers of the city water works may create works of beauty that teach us about water and provide public space (as did the engineers of the Roman aqueducts). Journalists, storytellers, and poets may tell the stories and myths of the city with an eye to inspiring the physical redesign of the city. Even in replanting my front yard, I may seek to create a coherent street and pleasant sidewalk, add habitat to the hummingbird flyway, or decrease the urban heat island effect. Urbanists seek to improve the built common wealth.

**Architect and Landscape**

**Architect as Urbanist**

Architects have, at times, conceived of urban design as architecture writ large. Disneyland, master planned communities, and company towns are products of this approach in which the totality is designed by a single hand. Most settlements, however, are the result of many designers working over time. Rome was not built in a day. Working as an architect-urbanist in this complex multiple-designers environment requires a deep understanding of built form design and the values and motivations of other players.

The architect William Morrish founded and ran the applied urban design research center called the Design Center for American Urban Landscape at the University of Minnesota and was a central author of the Urban Design Plan for the Phoenix Public Arts Program. He describes his role as an urbanist:

River Pilot—charting the course and flows of the political landscape's cultural ecology from its source and throughout its system. This metaphor represents my interest as an architect in how the terms of making architecture for a city are set, "up river" of when we typically get the problem to solve. A river pilot helps others read the changing river mosaic, so that they can navigate their own way in the city and its urban landscape.

The Design Center, for example, provided a "neutral ground" for political bodies to explore ideas on contested urban spaces and issues.

We used the tools and methods of design to open up the questions, explore optional futures, and then begin the process of framing strategic design, policy, implementation, and finance strategies. We educated
Figure 10-1 The coherence of this street in a small town in southern France is not due to a single designer. Rather, the designs of the different builders work together because of a shared set of building methods and conventions, such as building up to the edge of the street, creating two to three story buildings, and construction using a limited set of materials and techniques. Courtesy of Mark C. Childs.

the public and private civic leadership to be better urbanists and gave them the skills to demand great creativity from staff, citizens, professionals, and entrepreneurs. We did not propose defined plans, but frameworks for short-term needs and long-term efforts. (William Morrish)

According to Morrish, skills that are central to success of this role include the ability to:
• Cross disciplinary boundaries and creatively demonstrate common ground, connections, and gaps.
• Understand the depth of your own discipline’s contributions to the issue.
• Research and synthesize complex multi-professional data and terms—to become “multilingual.”
• Format complicated issues in accessible language and images.
• Literally “draw out” data into spatial form and structure.
• Develop a wide range of design options.

Key to much of his work is Simpson’s ability to engage other players in the urban design process. “We all need to affect the political and economic system which is creating dysfunctional urban and suburban landscapes. Projects need to be amortized over a much longer time ... in that way, design will be more sustainable and spiritual. We all need to come to the same table at the same time as the developer and the banker start to envision a project (Buster Simpson).”

Planner as Urbanist

If architects, landscape architects, artists, and engineers are the musicians in the ensemble, urbanist planners are, perhaps, best compared to a combination of band and venue managers. Frequently, planners seek to create a good process for the design of the city by articulating goals, shaping regulations, directing public funds, and facilitating communication between players.

Patrick Doherty, former manager of Seattle’s innovative Design Review Program and currently the Economic Development Director for the City of Federal Way, describes the skills critical for this role:

• The ability to engage a diverse set of players in the process with sincerity and honesty. That is, the ability to communicate with neighbors of a proposed project about important siting and design issues without coming off as “superior” or “ivory tower,” while also being able to communicate with confidence to internationally respected architects and designers on complex issues that often include an undeniable amount of subjectivity. This requires both a vast knowledge of design-speak vocabulary, graphic tools, and urban design principles, as well as a lot of interaction with the public in order to understand how the layperson might view the issues.
• In-the-trenches work to recognize key issues—that is, sufficient analysis of the various parties’ interests, the site’s specific attributes, and the city’s environmental/urban design/architectural context.
• Knowledge and insight about municipal regulatory and financial practices.
• Political skill. Nothing grand can be achieved without availing oneself of the political system—rather than bucking it.

Developer as Urbanist

“A city builder or urbanist assumes responsibility for his own projects and the context within which he or she builds,” writes Chris Leinberger. New development should work within existing places to “create what I refer to as ‘upward spirals’ of pedestrian-oriented, mixed-use, multiple-transportation option places. This is opposed to the throw away development (‘downward spiral’) we practice today to the detriment of tax revenues and our public realm.”

This concern for the specific case and its context is evident in Leinberger’s twenty-five years of experience consulting on city redevelopment and his prolific and insightful writing about this work. The practice of writing, giving public speeches, teaching, participating in forums, and the like provides a means for urbanists to reflect on their projects, draw out lessons, and discuss theory. These are critical means to conduct what Donald Schon calls reflective practice, which is characterized by learning-by-doing, a willingness to reframe problems and see them in broader contexts, and publicly reflecting upon what one did (1983).

Currently, Chris Leinberger is redeveloping downtown Albuquerque “This has allowed me to put my consulting experience to the test. In essence, I ran out of clients who were willing to try my concepts on the ground. If I wanted to continue my education about how we can best build our metropolitan areas from environmental, social, economic, and fiscal perspectives, I had to do it myself.”

He recommends that students wishing to become city builders first ground themselves in a liberal arts degree that teaches one to think and challenge, then to gain business education and experience: “Always want to keep learning and do not automatically accept conventional wisdom. Finally, I would advise they eventually get into the development business directly some day. . . not just be a consultant. We desperately need progressive developers.”

The Drum Line: Underlying Metrics for Urbanists

In addition to the roles outlined above, traffic and civil engineers, lawyers, bankers, city officials, and others may also work as urbanists conscientiously guiding and shaping the physical form of our cities. Key, however, to any of these urbanist roles are:

• A sense of jazz—the ability to communicate clearly and act in concert with other players and the underlying context.
• Deep knowledge of the value and values of one’s particular profession—the ability to represent these to others, and the willingness to engage in politics to balance them with other goals.
• Engaging in public reflection—the willingness to discuss and critique one’s work with others both during and after a project.
• Understanding, taking responsibility for, and working to improve the greater context of a project. In William Morris’s words: “Before you decide what you need, know what you already have. Before you decide what will be, know what might be.”

STUDY QUESTIONS

1. Find people in your community who either identify themselves as urbanists (i.e., people who through their professional activities help shape the physical form of cities and regions) or you believe acts as such, and interview them. Questions you might consider include:

• What have been a few of your greatest successes in helping shape cities? What skills were central to your success?
• What would you like people, who do not work in your profession but who act as urbanists in other roles, to know or be skilled in?
• What makes a great city?
• What is your professional and experiential educational background? What advice would you give to students who wished to work in a manner similar to your own?

*Courtesy

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• Are there other thoughts or issues you would like to add?

2. Find a place where design work was obviously not coordinated across property boundaries (i.e., a sidewalk that ends in nothing or is not aligned with the next segment of sidewalk; a subdivision that has no access to a regional trail next to it). Discover the planning and zoning regulations that governed the design. If possible, interview the designers, city planners, and others who worked on the project to discover the source of the problem.

REFERENCE

Case Study | An Unusual Consulting Practice—Dyer + Dyer

What follows is the case study of the firm Dyer + Dyer Architecture/Urban Design, written by the two principals, Gene and Dorothy Dyer.*

Gene Dyer, a native New Mexican (from five generations of New Mexicans), graduated from a five-year architecture program at the University of New Mexico in 1968. He began work for one of the largest firms in the state, Flatow Moore Bryan & Fairburn. After two years, he and a fellow Flatow colleague left the firm and started Dyer/McClenon Architects in 1970. This practice lasted twelve years and was tagged as one of the bright and talented young firms in the state.

By 1978, Gene Dyer decided to take a sabbatical from the firm and go to Harvard’s Graduate School of Design (GSD), studying in the Urban Design Program. The newly created program at the GSD was headed by world famous Israeli-Canadian Architect, Moshe Safdie, who moved his main office to Cambridge to take the Harvard position. Gene was ready for a change; he was interested to learn about urban design and large city context. So, soon after his wife Dorothy received her Master of Architecture degree from the University of New Mexico, the family, which included their two teenage daughters, headed for Boston. At thirty-seven, Gene was one of the oldest in his class.

Dorothy found her first job out of the masters program with Wallace, Floyd, Ellenzweig, Moore, a well-known Cambridge firm in the Boston area. Dorothy worked with the firm for two years on the relocation of the Orange Line Subway in Boston’s South End, the largest urban design project in the United States at that time.

After Gene graduated from his design program, the Dyers returned to New Mexico where Gene continued his partnership practice with Dyer/McClenon. The opportunity arose in 1982 to work with Moshe Safdie on a large urban design project, Robina, a new town in Australia. It would require being gone for several years, working in both the Safdie Boston office and in Robina. This opportunity presented a dilemma requiring big decisions. It was not fair to the Albuquerque firm to be gone for so long, yet going with the Safdie urban design project was what Gene’s Harvard Education was about. Another dilemma was that Gene was rooted in New Mexico and felt loyalty to his family and state. He knew he did not want to join the Safdie firm permanently, but he was seduced by the work. He would go to Boston if he knew that at the end of the job he could return to New Mexico. Safdie agreed to this arrangement, and a relationship that lasted over twenty-eight years began.

Meanwhile, Dorothy had taken a job as the Urban Designer for the city of Albuquerque, not knowing that the Robina job would become available to Gene. Even with this wonderful op-
It's assumed today that politicians were trained as lawyers. What in your background made you consider the jump from architect to politician?
I grew up the sixth of eight kids in a working-class family with parents that taught us the importance of caring about other people. I worked my way through college on the second shift at a tool and die shop, grinding steel to help pay for my college education. I have built a successful architectural business. These experiences, understanding what the challenges are growing a small business, led me to the conclusion Indiana can and should be doing better.

What inspired you to become an architect?
When I was young, I was constantly drawing buildings, and I was always curious about spatial relationships. You grow up with four brothers sharing the same bedroom, you become aware of the importance of how to organize space.

What brought you to Indianapolis after you graduated from Notre Dame?
I got a job at Cole Associates, in South Bend, and they transferred me to Indianapolis. My first assignment was running blue lines for six months. Eventually, I learned of an opportunity at CSO.

Governor seems a pretty high entry-level position into politics, particularly since it would be only your third career move. Did you consider school board or something more modest first?
No. Being a governor of a state or mayor of a city is very similar to being the president of a company. The guiding principles that have led our firm to success will be the same that will lead our state to success. When I became president of CSO Architects in 1996, I worked hard to give everybody a seat at the table. We do that as architects. We work with very diverse groups of people: site engineers, structural engineers and mechanical engineers and electrical engineers, and people that specialize in technology or life safety. We bring them together; we work toward the good of the whole to make sure that the end product is representative of everybody's expertise, knowledge, and input.

If you become governor of Indiana in November, do you expect to remain involved in your architecture firm?
No. It will be a full-time job being governor of Indiana. When I win the primary, I am going to take a leave of absence. Then, when I win in November, I will sever ties with the firm.

There are a few pockets of architectural interest in the Hoosier state. Columbus and New Harmony come immediately to mind. Unlike neighboring Ohio, where many avant-garde practitioners have built in recent decades, Indiana seems pretty mainstream. Will that change if you become governor?
My influence from the governor's office is going to be trying to improve education, to stand up for the rights of working men and women, to help grow and preserve our working families, and to create jobs throughout our state, to resolve our property tax crisis, to work hard to get health insurance for the 800,000 Hoosiers who do not have it, and to protect our environment. Our firm is one of the leading firms in Indiana in terms of having LEED accredited professionals on our staff. The architects in our state do a fine job, and I will be there to support them when I can.

Do you think more architects should become politically involved?
Architects are specially equipped to combine the left brain with the right brain and to bring people together. That gives us a unique ability to look at things from all sides. For architects that have good communication skills, we bring people together with different views toward a better solution. We need good government because government is the one entity that makes sure no one gets left behind. My involvement—because I was raising a family and building a business—was to support good people. Slowly, I became involved in things and gained respect for my leadership skills outside of architecture.