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Spring 2011

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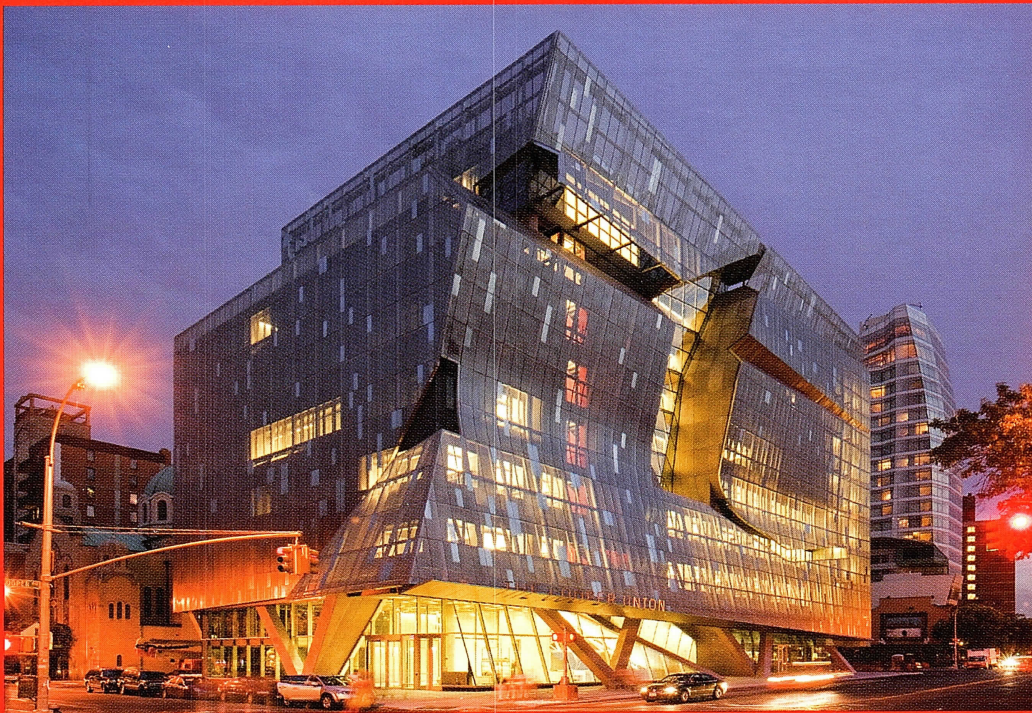


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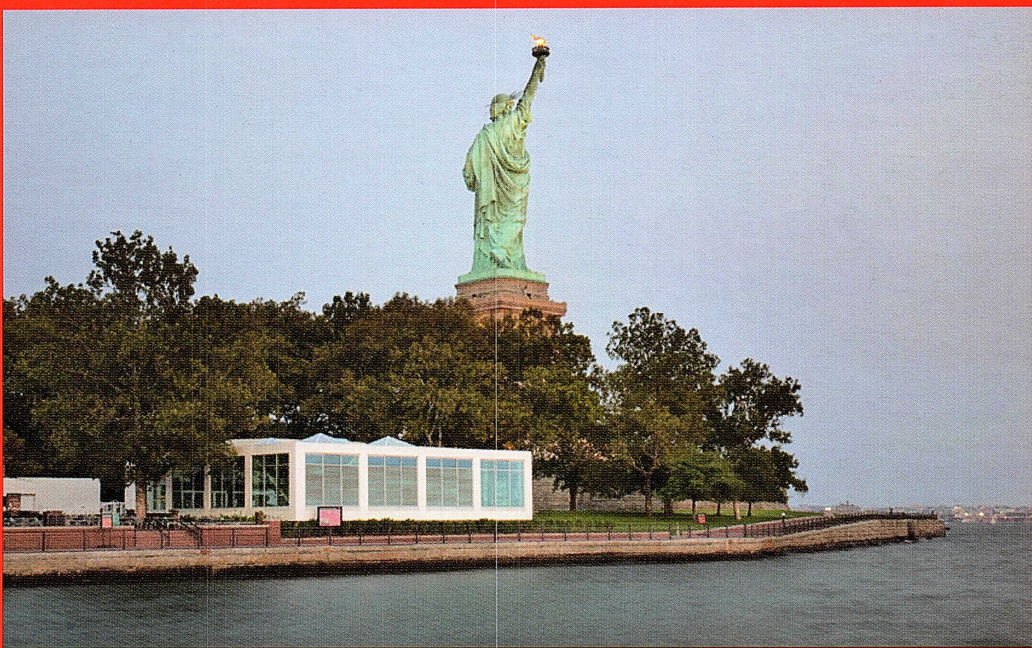




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**Liberty Island Retail Pavilion | Target LEED Platinum**

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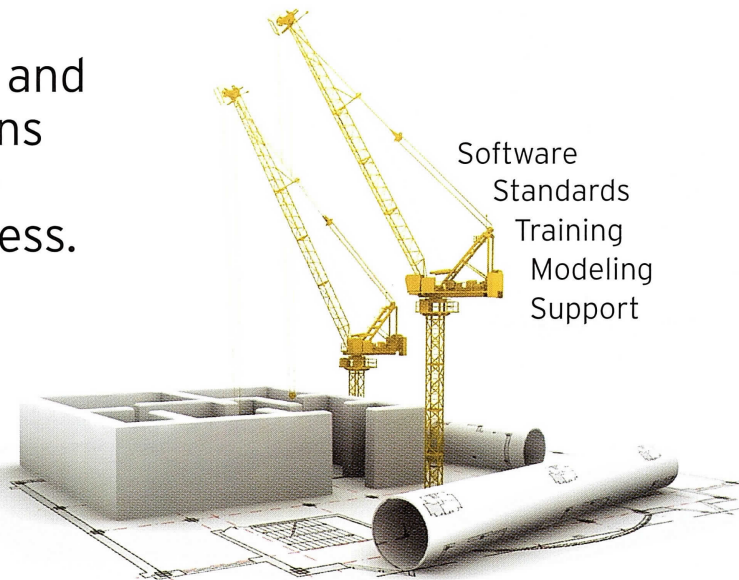
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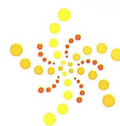
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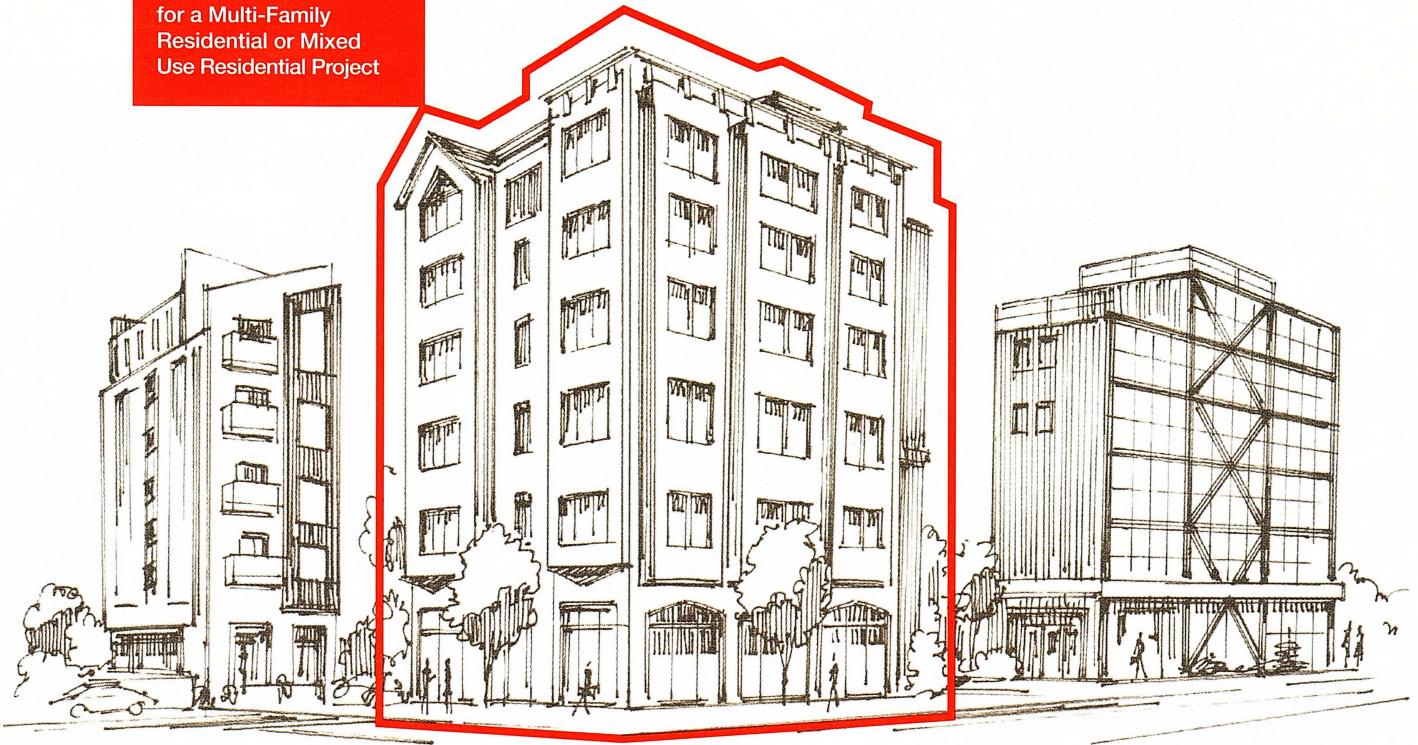
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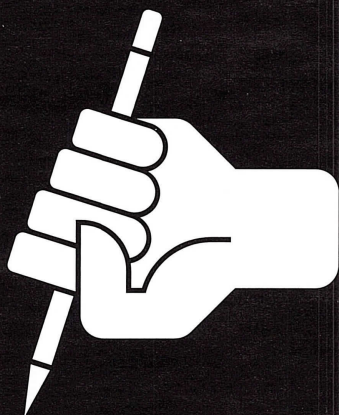
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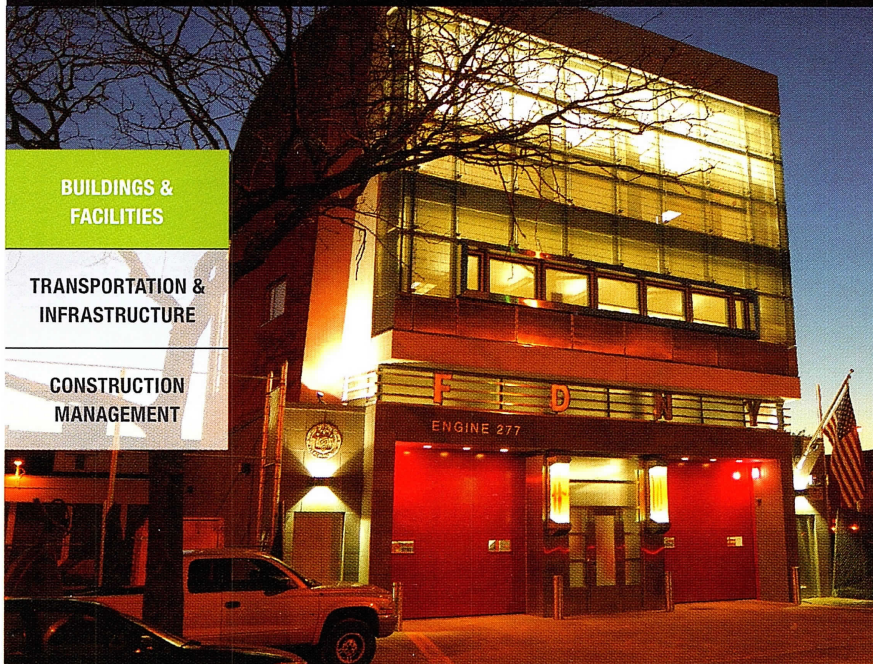
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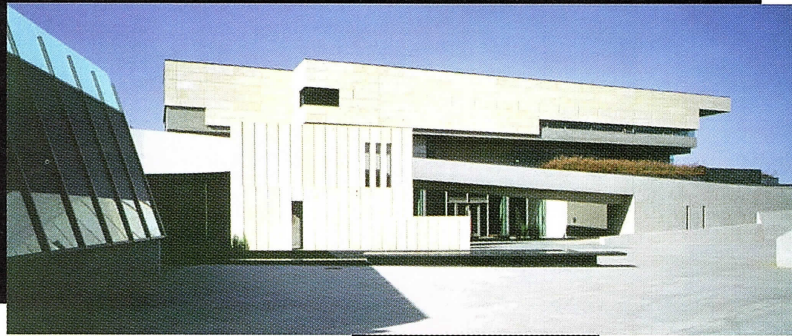


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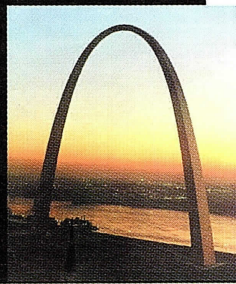
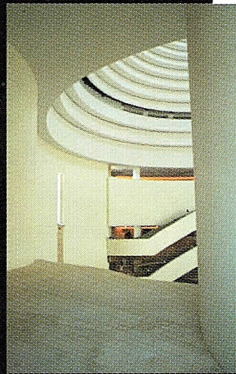
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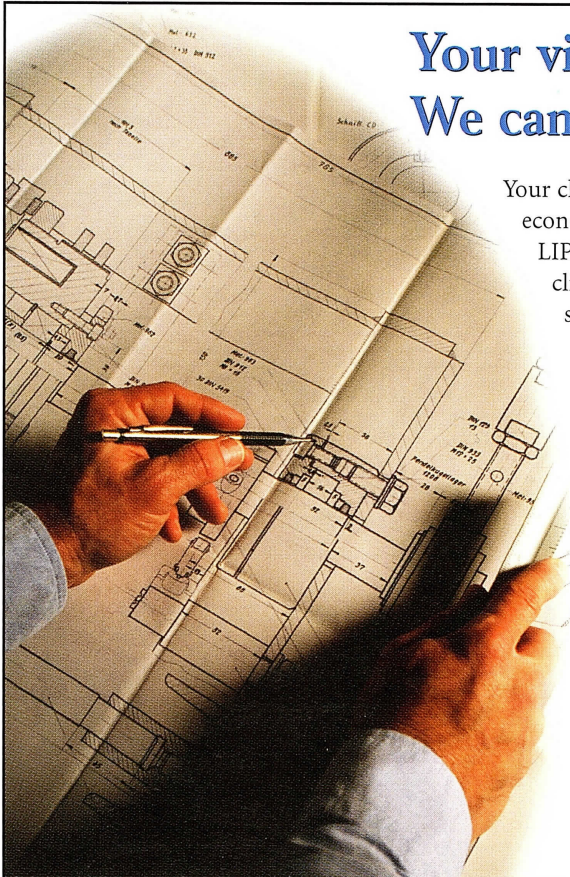
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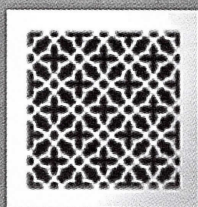
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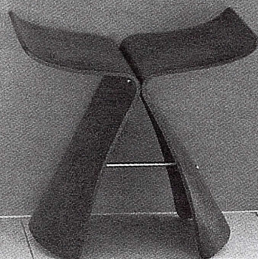
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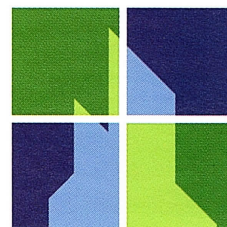
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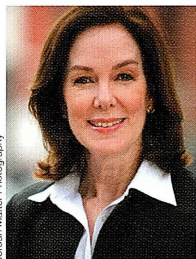
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## LETTER FROM THE PRESIDENT



Jordan Matter Photography

# Sustainability: Design for a Change

The theme of this issue and of my presidential year is sustainability, and the catch phrase is “Design for a Change.” How do you design for a change? Design new buildings and rejuvenate existing ones to remedy the environmental problems the city and planet are facing. Design to change the way buildings perform. Design to save clients money. Design to make people more healthy and productive. Design to conserve our natural environment and resources.

As a Sunday *New York Times* profile recently quoted that great contemporary philosopher William of the Black Eyed Peas: “I don’t want to hope anymore... We hoped enough. Now we have to do. We all have to do now.”

Mayor Michael Bloomberg is both leading and doing. He is pushing to reduce carbon emissions and slow climate change. What gets measured gets managed, he says. And so we will benchmark and start measuring our energy consumption. Let’s take every advantage of programs put in place by Bloomberg and his excellent team at the Office of Long Term Planning and Sustainability.

These nine actions will enable you to make essential changes in building design and performance:

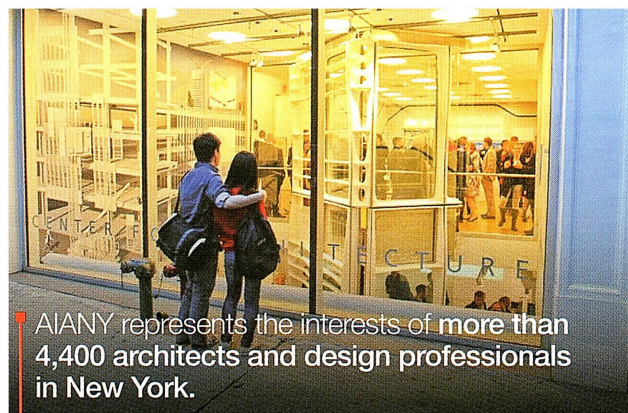
1. Take sustainability from the drawing board all the way through construction. Design your buildings to go beyond the LEED checklist. Select only fully knowledgeable engineers. Push for contractors truly committed to sustainable construction methods. Work directly with manufacturers to develop better materials that use natural resources wisely.
2. Track the performance of the buildings you’ve designed to be sure they operate as designed. You’ll learn some valuable lessons about what works in the long run.
3. Keep your clients informed about new mandates. Firms should consider offering building owners additional services, such as benchmarking and follow-up corrective measures to improve their buildings’ efficiency. Smart owners will do the benchmarks and upgrades. The value of their buildings will be affected, and wise realtors know this. Energy-aligned leases are on the horizon. If the School Construction Authority can plan to build a net-zero energy school, your clients can do the same with their facilities.

4. Read through the four landmark pieces of legislation comprising the city’s Greener, Greater Buildings Plan enacted in 2009 to achieve a 30% reduction of global-warming emissions by 2030. Links to these guidelines can be found at [www.nyc.gov/planyc2030](http://www.nyc.gov/planyc2030).
5. Spend an hour learning what’s required to benchmark the energy and water efficiency of larger existing buildings. EPA’s monthly webinar, “Benchmarking in Portfolio Manager for Large Portfolios,” tells you everything you need to know about Energy Star’s Portfolio Manager database, which EPA developed to measure a building’s total energy and water use. Webinar dates are posted at <http://energystar.webex.gov>.
6. Attend one of the forthcoming series on the new New York State Energy Conservation Code. Aided by a NYSERDA grant, AIANY will offer classes around the state in concert with Urban Green, the local affiliate of the U.S. Green Building Council. Two-thirds of the classes will be at the Center for Architecture and other downstate locations.
7. Attend the course on AIA’s 2030 initiative that AIANY COTE is developing. In fact, join the committee – it’s one of the Chapter’s most active.
8. Attend the five-part AIANY COTE and ASHRAE-NY Integration 201 series on high-performance buildings. Or sign up for the taped webinars that are part of the AIANY/Center for Architecture’s “On Demand Webinars.” Go to [www.aiany.org](http://www.aiany.org) and click on “Education.”
9. Browse the “50to50” list of tools and techniques on National AIA’s website, where you’ll find both broad and specific design strategies towards significant carbon reduction. Go to [www.aia.org/cote](http://www.aia.org/cote). COTE links to the 50to50 Wiki in the lower left corner, “Resources.”

In *Architect*’s January 2011 inaugural issue as AIA’s official publication, design activist Bruce Mau wrote a prickly essay, “You Can Do Better.” Well, Bruce, “Design for a Change” answers your call. We New York architects are already transforming New York into the nation’s greenest city.

Margaret O’Donoghue Castillo, AIA, LEED AP  
2011 President, AIA New York Chapter

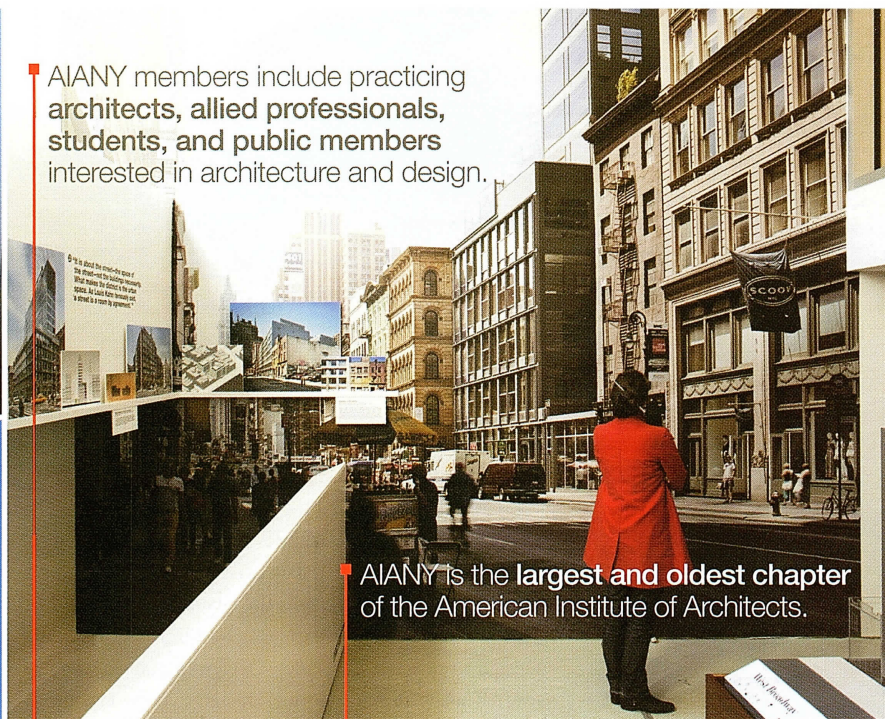




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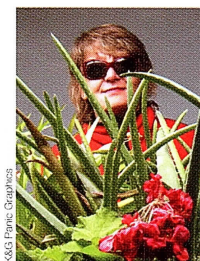
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# Designed for Change



Editor dreaming of change:  
from winter to spring.

City, state, and federal authorities around the globe are jumping on the “green” bandwagon. Some are acting more quickly and comprehensively than others, but there’s no denying there is a major shift afoot as communities don ever-greener mantles. We are fortunate to live in a city that, for the past several years, has led the way. New York City agency publications, such as the *High Performance Building Guidelines*, *Active Design Guidelines*, and *High Performance Landscape Guidelines* (to name just a few), are showing up on bookshelves and hard drives in the offices of architects, planners, and building departments worldwide. Local leadership is by no means a one-way street, however (see “How Cities Learn from Each Other” in *Oculus* Winter 2010/11).

If the AIANY Chapter’s theme for 2011 posits that “design for a change” means designing for increased sustainability, we must also ask: What is it we’re trying to sustain, exactly? How do we get beyond semantics, dueling green rating systems, and inevitable greenwashing? These are some of the questions posed to architects, a developer, an educator, and a city official in this issue’s Opener, “A Critique of Pure Sustainability.” Not surprisingly, there are no easy answers, but at least their responses are couched in cautious optimism.

It is with great optimism that we present three case studies of green architecture spanning two centuries. A gloriously Gothic 1907 school building facing demolition-by-neglect has been rescued and reborn as the PS90 Condominiums, featuring energy-efficient, loft-like apartments (including affordable housing) and a permanent home for Jacques d’Amboise’s National Dance Institute. When a deteriorating, energy hog of a Mid-Century Modern federal building in Newark, NJ, emerges from its construction cocoon in 2015, it should glint LEED Silver, focused on advanced energy efficiency. The Syracuse

Center for Excellence, a high-tech, LEED Platinum playground for teams of university researchers and design and manufacturing professionals, is on the very serious hunt for solutions to energy needs of the 21st century – and beyond.

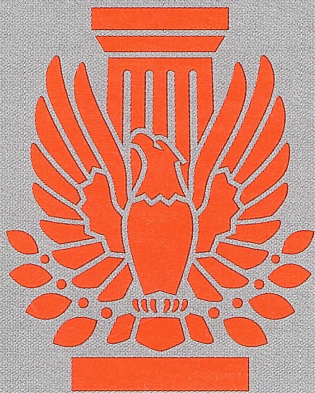
Also looking to their own sustainable future (and beyond) are the two New York student teams vying to win the U.S. Department of Energy’s 2011 Solar Decathlon with entries that offer winning solutions for big cities, not just greenfields. We also focus on stringent new codes that encourage ever-more fruitful collaborations between architectural and lighting design professionals and industries. Speaking of codes, NYC’s new energy laws are now among the strictest in the U.S. We asked an architect to explain what some of the major challenges will be – and how they are actually a great opportunity for architects to expand their services to clients. In our regular departments, “One Block Over” visits Chinatown, “where change is a constant.” And small victories are celebrated in “Good Practices.”

This issue of *Oculus* has been designed for change on its way to sustaining its own future. The most notable change: a fresh look to our pages, devised by the very creative Jessica Wyman of Wyman Projects. In addition, you’ll note a slightly reduced page count; as the industry rebounds, so too will our pages. In the meantime, “So Says...” interviews and “In Print” book reviews will have a new home online. The AIANY Chapter and Naylor, now the publisher of *Oculus* and e-*Oculus*, are committed to creating an ever-richer communication platform for Chapter members, industry professionals, and all who care about our built environment.

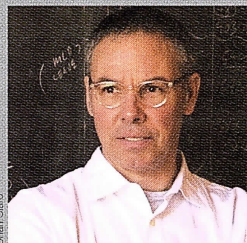
Change is good. It’s not always easy – but it is worth it.

Kristen Richards, Hon. AIA, Hon. ASLA  
Kristen@ArchNewsNow.com





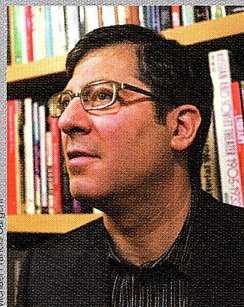
**AIA New York Chapter** congratulates the following Chapter members who have been elevated to the College of Fellows in 2011. We are proud of them and of their achievements, which are recognized with this honor.



**Stanley T. Allen, FAIA**  
Stan Allen Architect  
Category 2 – Education



**Audrey A. Matlock, FAIA**  
Audrey Matlock Architect  
Category 1 – Design



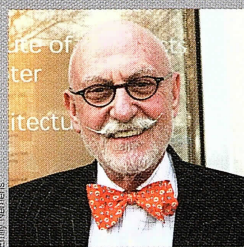
**Henry Myerberg, FAIA**  
HMA2 architects  
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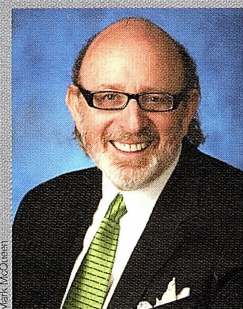
**Michael A. Nieminen, FAIA**  
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**Burton L. Roslyn, FAIA**  
Roslyn Consultants, LLC  
Category 3 – Led the Institute



**David Miles Ziskind, FAIA**  
STV Group  
Category 2 – Practice



# Center Highlights



Laura Trimble

(left) AIA's First Vice President **Joe Aliotta**, AIA, LEED AP, AIA's President **Margaret Castillo**, AIA, LEED AP, and **Clark Manus**, FAIA, AIA National President, at the Accent on Architecture Gala presented by the American Architectural Foundation in February.



Emily Norrington

(left) **Castillo** welcomed guests to the Helfand Spotlight exhibition "Design for Decades," which was on view in December and January. Design for Decades is an AIA National initiative modeled on AIA's "New York Now" subway show.



Emily Norrington

(left) NYC Parks Commissioner **Adrian Benepe** at the opening of the "High Performance Landscape Guidelines" exhibition.



Laura Trimble

(above) **Peter Eisenman**, FAIA, spoke about his Berlin Holocaust Memorial at Architecture on Screen: Selections from the Montreal International Festival of Films, organized by the Center and MUSE Film and Television on January 29.

(below) **Aliotta** spoke to associates at a January speed-mentoring session organized by ENYA, Women in Architecture, and the Professional Practices Committees.



Laura Trimble

(above) "Jugaad Urbanism: Resourceful Strategies for Indian Cities" opened at the Center on February 10, and will be on view until May 21, 2011.

(left) AIA's President **Margaret Castillo**, AIA, LEED AP, DC Councilmember **Tommy Wells**, and NYC Department of Design and Construction Commissioner **David Burney**, FAIA, at the Fit Nation DC: Promoting Healthy Communities through Design Conference in Washington, DC. The conference was organized by AIA and the NYC Department of Health and Mental Hygiene in partnership with the NYC Department of Planning, the NYC DDC, and the AIA Washington DC Chapter, with support from AIA National and the American Architectural Foundation.



Emily Norrington



Emily Norrington

## Center for Architecture Foundation

(left) Harlem resident **Roberta Washington**, FAIA, spoke with students at C.S. 154 in Harlem about her own and other African-American architects' work. Fifth graders are studying landmarks in their neighborhood and will compose a cell-phone audio tour with Learning By Design:NY educator Grace Hwang.





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# जुगाड़

## Jugaad Urbanism: Resourceful Strategies for Indian Cities

*On view  
through*

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Urbanism** Resourceful  
strategies for  
Indian cities



# Chinatown: Where Change is a Constant

BY CLAIRE WILSON

So much about Manhattan's Chinatown can't be quantified. No one can say for sure what the actual borders are. No one can say how many Asians, mostly Chinese, actually live in the district because of the number of undocumented immigrants.

What Wellington Chen, executive director of the Chinatown Partnership, will tell you is that meaningful redevelopment is almost out of the question. This is because out of 5,000 residential units, more than 4,200 are rent regulated and most floor plates are too small for major retail chains. He'll note with a shrug that while 30 million pedestrians a year walk on the main artery, Canal Street, there is no crosstown bus. Why? Because with the Manhattan Bridge at one end and the Holland Tunnel at the other, east-west traffic is usually at a standstill. The architect/planning consultant who did a stint at I.M. Pei & Partners early in his career also acknowledges a serious rat infestation sustained by underground water tunnels, and a long-standing street-level trash problem created by the ubiquitous restaurants and food markets.

Yet, says Chen, "We are sitting on a gold mine." That bright assessment is based on a number of constants, first of which is change. For centuries, this part of Manhattan has been the gateway to the American Dream for countless ethnic groups, from Eastern European Jews, Germans, Italian, and Irish to the Asians who dominate today. The small part of the neighborhood that was traditionally Chinese has subsumed what was once Italian and Eastern European Jewish, as those former residents prospered and moved to the outer boroughs and suburbs over the course of the last century. Today's Chinese immigrants make the same geographic trajectory but, unlike the Jewish and Italian communities that preceded them, the flow of new arrivals remains steady.

"The Lower East Side performs the same function it did 100 years ago: it is the front room to America," says Roberta Gratz, a writer on urban development issues. "It absorbs new immigrants and introduces them to the rest of the country."

Gratz was the guiding force behind the restoration of the Eldridge Street Synagogue, which now stands as a monument to those shifting immigration tides.

"The Lower East Side performs the same function it did 100 years ago: it is the front room to America. It absorbs new immigrants and introduces them to the rest of the country."



(above) The Explore Chinatown kiosk with a "Where is it?" map on Canal Street is a beacon for millions of tourists.



(left) The newly-restored Eldridge Street Synagogue is a monument to the shifting immigration tides in the neighborhood.

Founded in 1887 by a group of Eastern European Orthodox Jewish immigrants, its congregation has never missed a Shabbat service in 124 years. But after deteriorating slowly for decades, the building reopened in 2007 following a 20-year restoration, along with the new Museum at Eldridge Street.

Jill H. Gotthelf, AIA, principal at Walter Sedovic Architects, prepared the master plan for the restoration in 1990 while on staff at Robert E. Meadows Architects. According to her, the Moorish-style building with its Romanesque detailing reflects the experience of all newcomers to the area. "It fits every immigrant's idea of what they can achieve when they come together as a community," Gotthelf says.

The synagogue is one star in the firmament of future prosperity that Chen is banking on for Chinatown, which lost valuable tourism revenues after 9/11. He is hoping the 10th anniversary of the attacks will boost tourism to the area, which is within walking distance to many other attractions, including museums of Jewish and Irish heritage, Little Italy, Wall Street, and the South Street Seaport. Specifically he is counting on tourists from China where, he says, there are more English speakers than in the U.S. and Canada combined, and where the average visitor to the U.S. spends a whopping \$7,000 each. The majority will make that obligatory pilgrimage to Chinatown.

"Mott Street is our Mount Vernon," Chen says.

Claire Wilson writes for the *New York Times*.





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# A Critique of Pure Sustainability

After years of attention to sustainability, some architects are looking beyond semantics to substance and asking: What exactly are we trying to sustain?

BY BILL MILLARD

For any idea to stand the test of time, it usually has to endure a backlash. This also happens to the idea of standing the test of time.

Environmental sustainability has guided architectural practice long enough to elicit counterreactions. Some are tongue-in-cheek, some frankly hostile. Some critiques aim to hold the sustainable-design establishment to its own principles: when a few LEED buildings performed below expectations, skeptics accused the system of neglecting follow-through assessments. Even earnest advocates lament sustainability's status as a buzzword: a buzz never lasts.

"We've been at this now for 20 years," observes William Morrish, M.Arch., dean of the School of Constructed Environments at Parsons The New School for Design. "So what do we know and not know? Everybody's accepted the word, but not really interrogated what we know."

## Multiple ideas, systemic scales

Sustainability can be a goal, an ideal, a common language. What it can't be is simple. It may be worthwhile to speak of *sustainabilities*, plural, rather than designate things green or non-green. The 1987 Brundtland Commission report *Our Common Future* defined sustainable development as both positive and negative

practices that meet present needs without diminishing later generations' ability to meet theirs. Not all sustainabilities are environmental; economic forms inevitably constrain ecological ones. Some organizations sustain themselves by balancing solvency with environmental and social well-being, as expressed in Ove Arup's 1970 "Key Speech."

Dennis Wedlick, AIA, who designed the Hudson Passive Project in Claverack, NY, one of the first U.S. houses to observe Germany's Passivhaus standards, is disenchanted with point-based ratings, likening LEED to the IRS. "It's as complicated, and as easy to cheat," he says, defining sustainability by "thoughts of the day, as opposed to enduring principles and measurable results." He prefers houses that are precisely designed, site-specific, and tightly built, with details assessed uniformly: "Every residual, every impact of building science, translates to energy." The U.S. Passive House Institute claims a passive house uses about 15 million BTUs a year, compared with a national residential average of about 95 million. Wedlick hopes the National Association of Home Builders will promote Passivhaus standards industry-wide.

Literal sustainability implies stasis, the province of preservationists rather than ecologists. Jonathan F.P. Rose of the Jonathan Rose Companies, a devel-

## What's Inside

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(above) Kevin Kennon Architects (design architect) and Beijing Victory Star Architectural & Civil Engineering Design Co. (architect-of-record): The Tian Fang Project of Tianjin Zhong Xin Eco-City South Subcore, China, will be a 45-story, multiuse skyscraper of bundled tubes "cracked" at intervals to create space for green atriums.





Elliot Kaufman

oper devoted to spreading smart growth and other sustainable practices, prefers the term *resilience* for its emphasis on adaptation. “‘Sustainable’ is a generic and imprecise term,” Rose says. “It could represent extremely deep strategies and actions or trivial ones. It’s as meaningful, and meaningless, as the phrase ‘green.’”

Both nature and culture, Rose notes, are “living, dynamic systems that are continually evolving and unfolding. As the LEED system is evolving, even it, too, is not static. So LEED EBOM [for Existing Buildings: Operations and Maintenance] requires continuous reporting and feeding-back on the performance of one’s building.” Evolutionary biology suggests that when conditions change, diverse and flexible systems outlive simple, brittle ones. Current spaces, strategies, and dependencies, Rose believes, require deeper transformations. When an entire city (Detroit) can decline because of overdependence on a single industry, he cautions, that is a monoculture in both transportation and economic terms that hardly seems worth sustaining.

Randolph R. Croxton, FAIA, LEED AP, principal of Croxton Collaborative Architects, believes that “current patterns of growth and development, here and globally, are grossly destructive of natural systems.” Croxton views sustainability as a systemic organizing concept – “the underlying process necessary to assure the viability of the human community through the integration of built and natural systems.” Along with the conventional focus on efficiency in energy and materials, he would like to see mitigation of environmental problems, and design that restores natural systems as “subsets or tools by which real sustainability could be achieved.” He offers a kind of categorical imperative. For him, sustainability is

a “filter” that lets architects assess the “generalizability” of decisions affecting energy and resource consumption. With unprecedented global pressure on resources, both renewable (forests, fisheries, agricultural lands) and nonrenewable (water, oil, copper, rare earths, to name a few), he asks, “If all nations continue to proceed in that manner, do you ultimately undermine and have a collapse, or a partial collapse, of human society?”

Describing isolated projects, practices, or communities as sustainable, even if they deserve admiration, is thinking on the wrong level. “It’s meaningless to say the United States is being sustainable,” Croxton contends. “Sustainability can only be realized at the global scale by nations acting in concert and within the Earth’s carrying capacity. Consensus metrics supporting the ongoing balance of built and natural systems must be implemented globally. We are at the elementary-school stage of trying to come to grips with that large idea.”

#### Send that hair-shirt to the recyclers

One widespread belief equates sustainability with tiresomely virtuous sacrifice. This hair-shirt model frames all economic activity as invasive – cultural historian Leo Marx’s “machine in the garden.” Ever since “Jimmy Carter wore the sweater in the White House in 1976 and turned down his thermostat,” laments Robin Guenther, FAIA, a design leader at Perkins+Will, “there’s been a mindset that sustainability is associated with deprivation.”

Sustainable design, says Kevin Kennon, AIA, too often becomes a search for lowest common denominators, not harmony with nature. “I find it sort of cynical,” he comments, warning of “the trap of

(above) Dennis Wedlick Architect. Built by Bill Stratton Building Company, with support from the New York State Energy Research Development Authority (NYSERDA), the Hudson Passive Project in Claverack, NY, is a virtually airtight 3-bedroom, 2-bath house that observes Germany’s Passivhaus standards.

“‘Sustainable’ is a generic and imprecise term. It could represent extremely deep strategies and actions or trivial ones. It’s as meaningful, and meaningless, as the phrase ‘green’.”



appearing to be green” with largely symbolic fixes. While acknowledging LEED’s achievements, he disdains checklists as mere damage control and sees sustainability as a minimal precondition for practices that “utilize technology to create or build upon the natural affinities we have with life systems, light, and air.”

The developing world, Kennon says, needs “the freedom of thought that technology allows you to have” and can often look to its not-yet-vanished traditions for “a symbiotic relation between man and his environment.” China’s polluted air is not only “an indication of the rapidity of industrialization, but of how far they’ve distanced themselves from the roots of their culture,” he says. “Merely ‘sustaining’ isn’t appealing if you’re experiencing phenomenal growth. A connection to nature is embedded in Chinese culture, and I hope realizing what they are losing will make a difference.” He identifies “positive steps that we as architects need to propagate – a therapeutic model, as opposed to [LEED’s] ‘Don’t do this, don’t do that’ model, and ‘if you do all the things we tell you, you’ll get a nice award.’”

In Tianjin Eco-City, a Chinese-Singaporean joint project, Kennon is working on the 200-meter multiuse Tian Fang skyscraper that puts a structure of Sears Tower-style bundled tubes in familiar visual terms: a gathering of bamboo stalks. Its structure helps reduce dependence on mechanical HVAC apparatus, forming a ventilating chimney effect that uses natural convection, aided by chilled beams and thermally insulated glass units with solar-guided louvers. The tower reconnects with its surroundings, “cracking” the tubes at staggered intervals to invite daylight into green atriums. This machinery doesn’t invade a garden – it supports gardens.

David Bragdon, director of the Mayor’s Office of Long-Term Planning and Sustainability, contrasts the shades of green here with Portland, OR, where as Metro Council president he frequently heard sustainability “equated to no growth, zero impact.” Frustrated with hair-shirtism, he is heartened that “New Yorkers are pro-growth and pro-sustainability at the same time.” The data-driven Bloomberg Administration, he says, favors measures that generate cost-effective “co-benefits.” Stormwater management through plantings, porous pavement, and wetlands reclamation also helps cool neighborhoods, preserve wildlife habitats, add visual appeal, and reduce harbor contamination. “From a regulatory standpoint, a green infrastructure approach is harder to quantify in advance,” Bragdon says. Bioswales and retention ponds have different costs and operational requirements than pipes and huge centralized treatment plants, and “that’s what makes regulators nervous about it.” The city is measuring outcomes, he says, and those are the real indicators of a sound civic investment.

Unlike its 2007 predecessor, PlaNYC 2.0, due this spring, will appear in a difficult fiscal climate. “Some policy proposals will actually help the city to avoid costs,” he says. “We know a recession is actually a good time to be investing in some things.” Education, job growth, and green building codes are strong priorities for the plan; dramatic changes are not. PlaNYC reflects the recognition that, as Bragdon says, “everything gets paid for, one way or another,” and some apparent savings amount to “offloading externalities” – environmental and other costs not incorporated into economic mechanisms – “onto society, the taxpayer, or future generations.”

## Learning from what wasn’t sustained

Catastrophes dramatically reveal systemic flaws, notes Parsons’ Morrish. Hurricane Katrina overpowered not only New Orleans’ levees but an entire cultural ecology. The built environment indicated inattention to infrastructural resilience (through wetland development), economic diversity (through industrial decay and overdependence on tourism), and social balance (through many citizens’ exclusion from basic services, including evacuation). New Orleans learned a hard lesson in how unsustainable it had become. It was “the first city in modern U.S. history to suffer a sweeping catastrophe due in large measure to public sector myopia and basic human denial,” Morrish wrote in the journal *Social Research*.

Would a better-planned community collapse New Orleans-style in a climate crisis? Structural engineer Guy Nordenson, PE, SE, has explored disaster scenarios as a FEMA planner and developer of the NYC’s Seismic Code. “Let’s say you accept that your flood protection is likely to be overwhelmed in an extreme event,” he says. “So there’ll be water. You need to decide how you’re going to deal with it. Some parts of the city will be uninhabitable, so where do those people go? To Houston or Baton Rouge? Or close to their homes, to emergency housing?” Preparing for the latter entails decisions about building stock, public health, security, transportation, and myriad other variables.

## “Civic gumbo”

“The lesson for me from Katrina,” Nordenson says, “is this idea of soft infrastructure – that you marry ecology and landscape with infrastructure.” But that’s only one aspect. When outsiders suggested abandoning the Ninth Ward, “all hell broke loose, for good reason, because no one was prepared to accept that.” Cultural attachments outweighed risk assessment, just as they did in much of the rebuilding planning for Lower Manhattan after 9/11. Nordenson and Morrish suggest that urban sustainability isn’t just about buildings, plantings, supply chains, or hydrologic engineering, but what Morrish calls the entire “civic gumbo” linking the local with the global, infrastructure with culture, quality of life with contingency plans.

“We’re allergic to planning in this country; it’s ‘socialist,’” Nordenson laments. “The disaster issue is different and more compelling, as a way to try to instigate larger-scale planning.” His seismic research influenced New York City codes only after quakes at Loma Prieta (1989) and Northridge (1994) convinced city officials it could also happen here. “Eight years were spent getting prepared for the crisis, and then *boom*. In my experience, that’s all it takes.”

Ultimately, sustainability expresses a timeless idea. “Sustainability is the glue that holds the Vitruvian triangle together,” comments AIA’s Executive Director Rick Bell, FAIA, “combining the resilience of *firmitas*, the functionality of *utilitas*, and the design focus of *venustas*.” Extending Vitruvian principles to urban systems strengthens the chance that communities on all scales will earn the description from William Faulkner’s Nobel Prize address: They will not merely endure, but prevail. ■

Bill Millard is a freelance writer and editor whose work has appeared in *Oculus*, *Architect*, *Icon*, *Content*, *The Architect’s Newspaper*, *LEAF Review*, and other publications.



# Testing Green Ideas

The new Syracuse Center of Excellence not only tests innovative energy concepts, it connects research universities with the building and design community

BY JAMES S. RUSSELL, FAIA



(above and right) The Syracuse CoE, considered a "living lab" for collaborative research and demonstration projects, is slated to receive LEED Platinum certification for its numerous sustainable design strategies.

"Science needs to become a more social activity, to be more collaborative. We've made more transparency so researchers see the highway and the city, and the public has a better idea of what's going on."

A quest for next-generation green architecture didn't make me think of Syracuse, but as I drove into the chilly city between lake-effect snowstorms, it occurred to me that the volatile upstate climate is a perfect place to test climate-sensitive design.

Toshiko Mori Architect's angular Syracuse Center of Excellence (CoE) stands up like a billboard for innovation, located in the elbow of a freeway intersection that hacks through the center of the tough industrial town. Syracuse flowered thanks to the Erie Canal, but has suffered the stifling fate of too many older industrial centers. Former Governor George Pataki established the CoE to combine institutional and private building-industry research. Such research in America has been funded at almost trivial levels, so the potential is great (as is the competitive threat from outside the U.S.).

The center is the hub of the New York Energy Regional Innovation Cluster. The idea of this mouthful is to connect research universities (Syracuse University and nearby Rensselaer Polytechnic Institute) with building-product manufacturers, architects, engineers, and builders, who are innovating to keep pace with global competition – some 100 partners in all. The center hosts a translucent sun-tracking, façade-system solar array, for example, that generates



electricity and heats water. It was developed by Rensselaer and SHoP Architects.

The building, which cant to the west and bends in the middle, is calibrated to a wide variety of interior and exterior conditions. According to Toshiko Mori, FAIA, the center's executive director, Ed Bogucz, "wants scientists to think of what they do in connection to humanity, to the city around them." Mori adds, "Science needs to become a more social activity, to be more collaborative. We've made more transparency so researchers see the highway and the city, and the public has a better idea of what's going on."

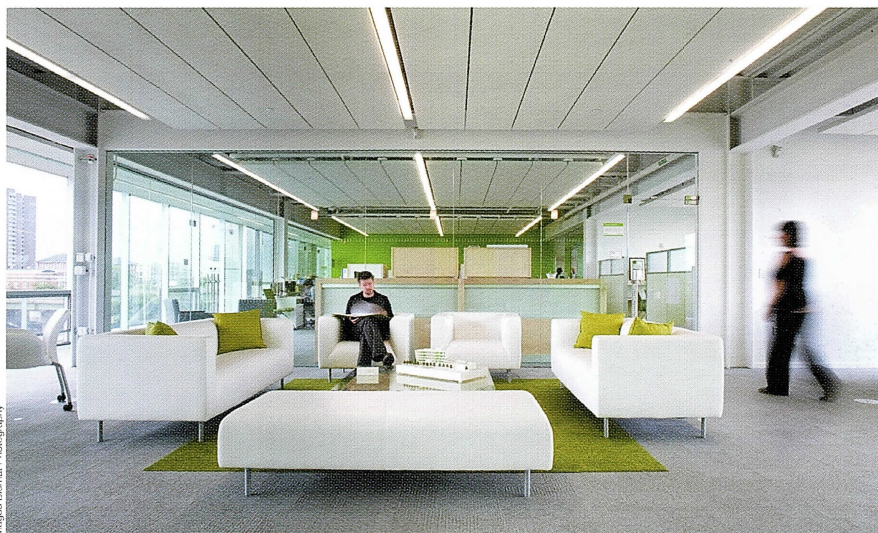


The inviting entrance plantings, by landscape architect Hargreaves Associates, breaks down pollutants. (The brownfield site once hosted a type-writer factory that left ample contaminants behind.) Succulent plantings carpet the roof that ramps up from the entry, then switches back atop high-bay materials-testing labs. It's a green roof that passersby can actually see. Mori puts much of the building on display for visitors, including an overlook for observing research in the cavernous materials-testing labs.

I met Bogucz in a third-floor reception space with windows on two sides, revealing to visitors how the building's slim form daylights much of the interior. The idea is not just to study innovative concepts, says Bogucz, but to "build systems, test them, and show which ones can be used affordably, with measurable metrics." The principal ongoing research (with HVAC manufacturer Carrier) is studying the effect of air quality on productivity, especially personally adjustable ventilation and temperature – a long-sought goal because of its tremendous potential to improve productivity.

The building design, with the local firm Ashley McGraw Architects, walks the center's innovative talk – with the expectation of achieving LEED Platinum certification. Thin silvery blinds within fritted insulating glass units rotate open or closed, depending upon light conditions. Mori single-loaded the building, placing the corridor along the southern side and glazing the interior so that the corridor, only partly air conditioned, could act as a secondary insulating airspace. The windows, daylighting, and low-velocity displacement ventilation in many spaces work together with radiant panels that reduce fan energy and convey heating and cooling more efficiently than all-air systems. A geothermal well system provides about half the heating and cooling demand. Heat recovery reduces the heavy energy load of laboratories. The center's primary energy target is about 300 kilowatt hours per square meter per year, about three times as much as advanced low-energy office buildings in Germany, but less than half the ASHRAE base lab building modeled by Ove Arup & Partners, the engineering consultants.

Construction tested the building team's many ambitions for the design. Mori had shaped the building to avoid the most polluted parts of the site – a tactic that skittish brownfield developers might well have emulated, except that preconstruction testing did not reveal the full extent of contamination, which took \$4 million to correct. She also shaped a bend in the building, hoping to focus prevailing breezes into a wind turbine. But rooftop turbines have quickly



(above) In addition to specialized research facilities, the CoE demonstrates daylighting as well as ceiling-mounted radiant heating/cooling panels in this third-floor reception space.

(left) With a high-visibility site where two freeways intersect in downtown Syracuse, the attention-getting architecture advertises the CoE's building-innovation mission.

become more efficient, and the site's breezes proved less powerful than assumed.

The CoE is but one recent effort to boost the fortunes of Syracuse by making closer connections with the vibrant research presence of Syracuse University. The center acts like a pivot along what's called the Connective Corridor, which links the hilltop university with the handsome downtown that is showing glimmers of rebirth. In the struggling Near West Side, the center has worked with Syracuse architecture dean Mark Robbins on competition-winning, energy-conserving prototype houses built by NYC-based Cook+Fox Architects and Architecture Research Office/ARO with Della Valle Bernheimer, and Onion Flats of Philadelphia.

The center still hopes to fund biomass co-generation, among other promising measures. Not all of its potential is yet realized, which reflects both private-sector skittishness about energy-conservation investments and the federal government's lagging commitment to research. But the Syracuse CoE is ready when America is. ■

James S. Russell, FAIA, serves on the *Oculus* Committee as editorial advisor, and is the national architecture critic for *Bloomberg News*.

#### Project Credits

CLIENT: Syracuse Center of Excellence in Environmental and Energy Systems (Syracuse CoE)

DESIGN ARCHITECT: Toshiko Mori Architect

DESIGN TEAM: Toshiko Mori, FAIA, Josh Uhl, AIA, LEED AP, Tilmann Schmidt, Michael Inerarity

EXECUTIVE ARCHITECT: Ashley McGraw Architects

DESIGN TEAM: Ed McGraw, AIA, LEED AP, Gregory Dembs, AIA, LEED AP, Calvin Ahn, LEED AP

MEP/STRUCTURAL ENGINEER: Ove Arup & Partners, Consulting Engineers

LANDSCAPE ARCHITECT: Hargreaves Associates

CONSTRUCTION MANAGER: LeChase Construction Services

LEED CONSULTANT: 7 Group

LAB PLANNER: Burt Hill

COMMISSIONING AGENT: C&S Companies

GEOTECHNICAL ENGINEERING: John P. Stopen Engineering

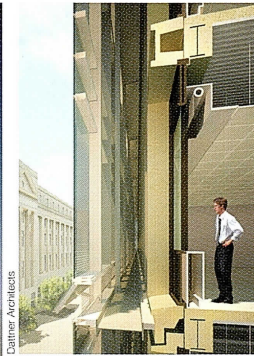
ENVIRONMENTAL ENGINEER: O'Brien & Gere

ELEVATORS: Peterson Engineering

CIVIL ENGINEERING: Stearns & Wheeler

CLIMATE CONCEPTS: Transsolar





(above) A three-foot-deep cavity between the new and existing facades will permit access for window cleaning and monitoring the concrete façade.

(left) The building will be crowned with an illuminated "halo" of metal panels housing a photovoltaic array.

## New Life for a Boomer Building

A deteriorating, low-performing government facility in downtown Newark is undergoing a remarkable transformation into a new, energy-efficient phase of life

BY MICHAEL J. CROSBIE, AIA

From the moment it opened in 1968, the Peter W. Rodino Federal Building was falling apart. "The precast concrete panels were deteriorating from day one," says architect John Woelfling, AIA, LEED AP, a principal of Dattner Architects in New York City. (In fact, the concrete panels were cracking before they were even installed on the 16-story structure in downtown Newark, NJ.) A multifaceted, \$146-million rejuvenation of the building designed by the Dattner Architects team, which includes associate architect Richard McElhiney, incorporates security upgrades and energy-efficient strategies.

Like many other "boomer buildings" constructed during the sweet years of cheap energy, this one was designed with little or no regard to high performance. The windows were single-pane and the envelope had little insulation. Repairs to the concrete exterior have been ongoing. The client for the retrofit, the U.S. General Services Administration (with funding from the American Recovery and Reinvestment Act), wanted to improve the building's performance, harden it for security, improve the interior acoustical performance, and upgrade its "presence" among the government buildings at Newark's Federal Square.

### Project Credits

CLIENT: U.S. General Service Administration  
 ARCHITECT: Dattner Architects  
 DESIGN TEAM: Joseph Coppola, AIA, Richard Dattner, FAIA, John Woelfling, AIA, LEED AP  
 ASSOCIATE ARCHITECT: Richard McElhiney Architect, Richard McElhiney, AIA  
 DESIGN-BUILD TEAM: Tocci/Driscoll Joint Venture with KlingStubbins, Architect-of-Record  
 MEP/FIRE PROTECTION ENGINEER: WSP Flack+Kurtz  
 STRUCTURAL ENGINEER/ BUILDING ENVELOPE: Robert Silman Associates  
 BLAST ENGINEER: Weidinger Associates  
 LIGHTING DESIGN: Domingo Gonzalez Associates  
 CONSTRUCTION MANAGER: Bovis Lend Lease

The biggest challenge was dealing with the chronic concrete problems. Woelfling explains that several scenarios were developed to combat the crumbling panels, including stabilizing the deterioration, repairing or replacing the concrete panels, and installing a completely new curtain wall system. The scheme that made the most sense in terms of life-cycle cost, performance, and continued use was to cover the existing concrete envelope with a new high-performance glass curtain wall. This will boost energy efficiency while allowing the numerous government agencies housed in the 526,609-square-foot facility to remain there during retrofitting.

In a move that Woelfling describes as "what Christo might do," a new curtain wall will wrap completely around the building (except for an area on the south façade containing the core, which will be clad in metal panels). A three-foot-deep cavity between the new and existing facades will permit access for window cleaning, servicing the ventilation system, and monitoring the concrete façade. The new façade's double-glazed windows with selective low-E coatings (depending on orientation) will aid thermal comfort and energy conservation. The existing single-pane glazing will stay in place, effectively creating a double-wall thermal system. Estimated energy use will be reduced by a third; a LEED Silver rating is being sought for the retrofit.

The building will be crowned with an illuminated "halo" of metal panels housing an array of photovoltaic panels to help offset electrical consumption. The cornice is also part of the new curtain wall's structural support. A combination of laminated glass, applied film, and a beefed-up glass support structure will provide the required blast resistance. Mechanical systems will be upgraded, including a new variable-air-volume under-floor supply system that will improve comfort and energy performance.

The design team is now coordinating with the selected design-build team of Tocci/Driscoll Joint Venture with architect-of-record KlingStubbins. Scheduled for completion in 2015, the project is already winning awards. In January the GSA recognized the project with an On-the-Boards Engineering Citation in its biennial Design Awards program. ■

Michael J. Crosbie, AIA, is the author and editor of more than 30 books, including *Boomer Buildings: Mid-Century Architecture Reborn* (2007) and the forthcoming *New York Dozen: Gen X Architects* (2011).



# School Back in Session after 30-Year Recess

The historic but dilapidated P.S. 90 provided a perfect opportunity for adaptive reuse. Now condos and choreography do a *pas de deux*  
BY CLAIRE WILSON

(right above) P.S. 90, pre-restoration.

(right below) The meticulously restored 1907 façade of PS90: even the parapets, because of extensive water damage, had to be entirely rebuilt using almost all of the original terra-cotta, which was painstakingly removed, restored, then reassembled – like a giant jigsaw puzzle.

## Project Credits

**CLIENT/DEVELOPER:**  
L&M Development Partners

**ARCHITECT:**  
Curtis + Ginsberg Architects

**DESIGN TEAM:**  
Mark Ginsberg, FAIA, LEED AP, Beth Cooper Lawrence, AIA, LEED AP, Cassie S. Walker, Assoc. AIA, LEED AP

**STRUCTURAL ENGINEER:**  
Goldstein Associates Consulting Engineer

**MEP ENGINEER:**  
Rodkin Cardinale Consulting Engineers

**STRUCTURAL FAÇADE CONSULTANT:**  
Old Structures Engineering

**LANDSCAPE ARCHITECT:**  
Starr Whitehouse Landscape Architects and Planners

**DESIGN CONSULTANT FOR NATIONAL DANCE INSTITUTE:**  
H3 Hardy Collaboration Architecture

**DESIGN CONSULTANT:**  
The Norsworthy Fund

**GENERAL CONTRACTOR/INTERIOR DESIGN:**  
L&M Builders Group

When Mark Ginsberg, FAIA, LEED AP, first laid eyes on P.S. 90, the roof was gone. There were no windows. Trees sprouted from the top of the building, which had been abandoned in the 1970s, a casualty of the city's fiscal crisis. Derelict apartment buildings lined the street.

No one walking that block of West 148th Street in Manhattan today would find evidence of that dreary chapter now. P.S. 90 is a stellar 1907 example of Collegiate Gothic architecture designed by Charles B.J. Snyder, the superintendent and chief architect for NYC schools from 1891 to 1922. Ginsberg's firm, Curtis + Ginsberg Architects, tucked 75 bright, spacious new condo units into the old school. What was once the school's basement and auditorium is now home to the National Dance Institute (NDI), a non-profit dance education program founded in 1976 by Jacques d'Amboise, former principal dancer with the New York City Ballet. All the older, low-rise residential dwellings along the street have been refurbished, most by L+M Development Partners, the developer of the PS90 Condominiums.

Ginsberg recalls what a mess the school was at the outset, covered with mold and still filled with desks, chairs, and school paraphernalia. It was also dangerous. "If you stepped in the wrong place you'd go right through the slab," says Ginsberg.

Replacing those slabs on all five floors was the first order of business. Next was designing a layout using the original window configuration of the through-block "H" plan inspired by Paris's Hotel de Cluny. The architect then devised attractive, double-hung, operable windows with a third, fixed pane at the top. The exterior frames are painted to match the decorative details on the building's façade.

For the lobby, Ginsberg dropped the ground floor to create a double-height space that also provides elevators between the lobby and all floors. "Coming in on the ground level to a double-height lobby created a much more gracious entrance," Ginsberg says. An elegant new staircase leads up to the first floor, which opens onto a common garden court yard, designed by



Both photos: Thomas H. Keen/Orion Corporate Photography

Starr Whitehouse Landscape Architects and Planners, at the back of the building. The sunken, landscaped entryway at the front has the pleasant feel of a garden oasis slightly below street level.

Twenty of the 75 units are affordable housing and, except for finishes, identical to the market-rate condos. The dance institute will use residential units as offices (d'Amboise will also be a tenant), and the lower level for studios and a performance space. "There is a beautiful synergy with the fact that it is a revitalized public school and we are a public-school-based program," says Kathy Landau, executive director of NDI, which teaches 4,000 students citywide.

PS90 incorporates a number of sustainable features: insulated low-E glass windows; Energy Star appliances; energy-efficient heat pumps, boilers, and light fixtures; light-colored paving materials on the rooftop and courtyards; and drought-resistant plantings. Most importantly, adaptive reuse preserved the existing building's embodied energy and its incalculable beauty.

It was a long, hard project, says Ginsberg, but restoring "this wonderful, historic building" was well worth it. ■

Claire Wilson writes for the *New York Times*.



# It Takes More Than a Village

Two local teams competing in the Solar Decathlon give their zero-energy designs an urban spin

BY LISA DELGADO

To get a sneak peek at what sustainable housing of the future will look like, the U.S. Department of Energy Solar Decathlon is a good place to look. Every couple of years, the competition gives rise to research and innovation, as 20 student-led teams from around the world compete to see whose solar-powered, zero-energy house design outdoes the others in 10 categories. Featuring two entries from the NYC area for the first time, the next “solar village” of houses in the competition will be displayed from September 23 to October 2 in West Potomac Park on the National Mall.

There’s no denying that the Solar Decathlon is a powerful forum for boosting pedagogy and public awareness about clean energy. But some local designers from the City College of New York (CCNY) have one tiny quibble: Why the name “solar village”? “That doesn’t make sense,” remarks Christian Volkmann, an associate professor of architecture who is project manager for CCNY’s house design. “We are the school of the urban environment, and we have to apply this topic of sustainability somehow to cities.”

Volkmann’s team drew inspiration from the urban problems of NYC, whereas the other local team – with members from Parsons The New School for Design, Milano The New School for Management and Urban Policy, and Hoboken, NJ-based Stevens Institute of Technology – researched a working-class neighborhood in northeast Washington, DC. Both teams have far-reaching ambitions, envisioning their designs as models for eco-friendly, inexpensive habitations that could be customized and replicated on a large scale to improve city life.

## Rooftop Remedy: Solar Roof Pod

When Volkmann and his students in an Integrated Building Systems class were pondering early design ideas in fall 2009, they turned to PlaNYC. Since the plan predicts a swelling population, the city will face escalating demands on both its power grid and its capacity to provide housing. If the students wanted to settle in NYC after graduation, would there be space

for them, and could they afford to live here? The designers eyed an underutilized space in the city – its rooftops.

They came up with a design called the “Solar Roof Pod” ([www.ccnysolardecathlon.com](http://www.ccnysolardecathlon.com)), a rooftop residence and garden that would address multiple city problems. The green roof would offer environmental benefits, while the residence could help “accommodate people in situ, without having to redevelop major areas of the city,” says Prof. Hillary Brown, FAIA, LEED AP, principal of New Civic Works and the project’s communications/outreach manager. “We’re adding solar power, as well, so the extra residents have a zero carbon footprint,” adds Samuel Mikhail, student team leader.

After the Solar Decathlon accepted the proposal in April 2010, work began in earnest, becoming a multidisciplinary part of the college’s curriculum. By the time the project is completed this fall, about 100 architecture, landscape architecture, engineering, and art students, among others, will have participated in it.

The Solar Roof Pod is a flexible kit of parts, so it can form various configurations, depending on the site and the inhabitants’ needs. The components can be transported to the roof via elevator; no crane is needed.

The design comprises three layers: At the highest point is a “solar trellis,” which provides shade and power through an array of PV panels and solar thermal collectors. Below that is an energy-efficient house, which sits atop a green roof-deck. Though the competition requires a residential design, the Solar Roof Pod system is flexible enough that people could create other sorts of spaces – such as a day-care center, social club, or office – or if they wish, they could use only the green roof or solar trellis.

Ideally, the CCNY team, known as “Team New York,” envisions the design as being mass-produced for citywide use. The competition added affordability as new criterion this year, penalizing entries if they didn’t keep construction costs to a maximum of \$250,000. Because it’s a single prototype, the design



Asher Salzberg (rendering); Cesar Juarez (photo background)

(above) In the Solar Roof Pod, a “solar trellis” provides energy for a rooftop house, and any surplus goes to the building below. Planters in the roof-deck offer a place to grow fresh produce or other vegetation.

## Project Credits

**SOLAR DECATHLON SPONSORS:**  
U.S. Department of Energy  
Office of Energy Efficiency  
and Renewable Energy,  
National Renewable Energy  
Laboratory

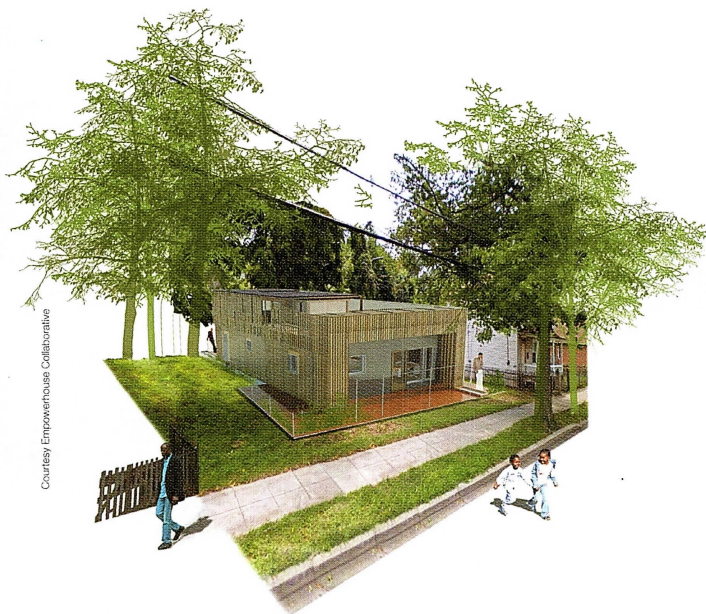
**SOLAR ROOF POD TEAM:**  
City College of New York /  
Team New York

**FACULTY ADVISORS:**  
Christian Volkmann (Program  
Manager), Dominick Pilla, Lee  
Weintraub, FASLA, Hillary  
Brown, FAIA, LEED AP, Jorge  
E. González

**TEAM NEW YORK STUDENTS:**  
**ARCHITECTURE:**  
Samuel Mikhail, John  
Vlahakis, Yinery Baez, Asher  
Salzberg, Mike Cheng, Iskra  
Petrova, Yelisa Grullon, Carlos  
Matute, Chris Hopstock,  
Mary Dourmas, Alex Gurevich,  
Wennian Qu, Teicha Villegas,  
George Fahim, Farah Ahmad,  
Ros Pecheny, **ENGINEERING:**  
Giovanny Giraldo, Tvrtko  
Stigler, Francisco Arias, Ivan  
Uquillas, Nisu Quayum, Joann  
Lee, Chetram Dasrat, Suzy  
Gonzalez, Rajeevan Rat-  
nanandan, Fredy Urushima,  
Afua Safo-Asante, Adrian  
Rybak, Jim Ness, Moshin  
Shabbir, Zohaib Dar, Amy  
Leon, Magda Katehis, Javier  
Montesino, Faiz Zaman, **ART:**  
Joseph Fisher, Kyle O’Connor  
**PROJECT COORDINATOR:**  
Jessica Maktal

**STRUCTURAL ENGINEER:**  
Dominick R. Pilla Associates  
**CONSTRUCTION:**  
Sciame Construction  
**CONSULTANTS:**  
Kohn Pedersen Fox  
Associates (Architecture),  
Arup, New York (MEP  
Engineer)





Courtesy Empowerhouse Collaborative

(above) The one-bedroom, single-family version of the Empowerhouse is currently in the design development for the Solar Decathlon exhibition this fall.

#### EMPOWERHOUSE

##### COLLABORATIVE TEAM:

Parsons The New School for Design, Milano The New School for Management and Urban Policy, Stevens Institute of Technology

##### FACULTY ADVISORS:

Laura Briggs, John Nastasi, David Lewis, AIA, David White, Peter Russell, Chris Steffens, Joerg Thoene, Lisa Maione, Benjamin Bacon, Timo Rissanen, Lyn Godley, Alison Mears, AIA, LEED AP, John Clinton, John Stinar

##### STUDENT TEAM OFFICERS:

Steve Scribner, Jason Hudspeth, Nick Mundell, Travis Heithoff, Justin Richman, Kate Crane, Obi Elechi, Nick Albizati, Felicia Nitu, Amanda Waal, Shana Mosher, Melanie Hendel, Orlando Velez

##### DC PARTNERS:

Habitat for Humanity of Washington D.C., D.C. Department of Housing and Community Development, Sylvia Brown, Advisory Neighborhood Commissioner 7C04, Lederer Youth Gardens

##### ARCHITECT-OF-RECORD:

Zavos Architecture + Design

##### MEP/STRUCTURAL ENGINEER-OF-RECORD:

Buro Happold Consulting Engineers

##### SAFETY FIRST CODE

CONSULTANT: BLDGtyp

##### DESIGN CONSULTANTS:

BLDGtyp, CASE Design

to be displayed this fall won't meet that budget, but it could be that inexpensive if its modular parts were mass-produced in the future.

#### Empowerhouse: Duplex for Deanwood

The three-school team created a design called the "Empowerhouse" ([www.empowerhouse-dc.org](http://www.empowerhouse-dc.org)), which is already destined for a real-world urban context. The competition house will eventually find a second life as a residence in Washington, DC. About 240 students will contribute to the project by the time it's completed, says Laura Briggs, a principal of BriggsKnowles Architecture + Design and a Parsons faculty advisor for the project.

Early on, the group decided to take the project beyond the scope of the competition, and they chose a permanent site in Deanwood, a neighborhood in northeast Washington, DC, where many residents have limited means. "We have been separated from the center city of DC by geographical and social barriers, so we have been kind of self-reliant," says Sylvia Brown, a local elected official. That ethos of self-sufficiency made the community a natural fit for a home designed to be light on the energy grid.

The team decided to create a Passive House, as Briggs had noticed this type of design did well in past competitions. A Passive House employs an ultra-airtight envelope and thick insulation to drastically reduce energy needs. (It can be heated by the amount of energy used by a hairdryer.)

Designed using a hybrid modular-and-panelized system, the Empowerhouse has high R-values, and the insulation is made of cellulose, a nontoxic, low-cost material composed of recycled newspaper. An energy recovery ventilator provides a constant exchange of air between the interior and exterior with minimal loss of energy, says David Gano, head of construction and land development for Habitat for

Humanity of Washington, DC. Other sustainable features include a photovoltaic array, a vegetable garden on the roof, and a rainwater garden.

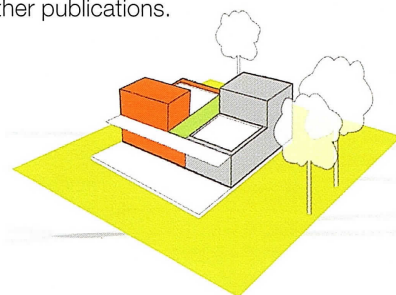
The competition's size constraint of 1,000 square feet meant that only a single-family house would be practical for the exhibition, but the team had higher ambitions. "As an urban school, we need to make an urban project," Briggs explains. "We wanted to build something that had urban density, so we are building a duplex."

One unit will be displayed at the exhibition, and meanwhile, a larger unit will be under construction in Deanwood with help from Habitat for Humanity volunteers. When the competition is over, the two units will be joined together, and the duplex configuration will raise energy efficiency even further. The two families that eventually live there will have no energy bills, Briggs predicts.

The project sparked so much interest within Habitat for Humanity of Washington, DC, that it has decided to do only Passive House construction from now on. The Empowerhouse team is helping by creating a standard for the organization for similar affordable, sustainable designs, Briggs says. Perhaps in New York City, Passive Houses will emerge in the form of row houses, the shared walls boosting efficiency even more than in the Empowerhouse.

By combining high performance with low cost, both the Empowerhouse and the Solar Roof Pod help dispel the stereotype that leading-edge sustainable housing is too pricey for most. When the energy and ecological prices for housing both plummet, sustainable design starts to look like something we can't afford not to bring home. ■

Lisa Delgado is a freelance journalist who has written for e-Oculus, *The Architect's Newspaper*, *Architectural Record*, *Blueprint*, and *Wired*, among other publications.



Courtesy Empowerhouse Collaborative

(above) Diagram illustrates placement of the two Empowerhouse units combined on the Deanwood site. A 3-bedroom unit will be added, creating a duplex with a shared party wall. The raised enclosure shown here on the roof will also be transformed into a second story with two bedrooms.





## Shedding Light

Restrictive new codes are prompting NYC designers to come up with bright ideas in lighting technology  
BY TAMI HAUSMAN, PH.D.

For the first time since Edison invented the incandescent light bulb in 1879, the lighting industry is transforming itself. The federal government will retire all incandescent light bulbs by 2014, forcing the design community to find highly efficient, sustainable, and low-cost alternatives.

Local, state, and federal energy codes are becoming more restrictive, compelling lighting designers to reduce wattage but not skimp on light. Charles G. Stone, II, FIALD, IES, LEED AP, president of lighting firm Fisher Marantz Stone, says, “The kit of parts we used 10 years ago is almost completely obsolete, and this difference has transformed our business. We have always designed with both daylight and electric light, but now we have to bring very specialized knowledge to projects. It’s an exciting time.”

The challenge is especially significant in New York City. Lighting accounts for almost 20% of carbon from buildings, or about a third of commercial energy use. Although New York is among the most energy-efficient metropolitan areas in the U.S., its administration is one of the most aggressive in terms of passing green legislation. City officials hope to reduce greenhouse gas emissions as much as 30% by



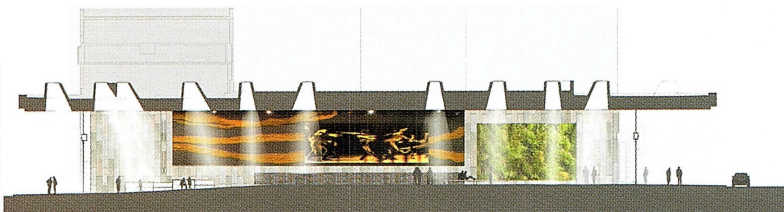
2030. Partnerships with local organizations like the Urban Green Council (the New York Chapter of the U.S. Green Building Council) are helping to enact comprehensive energy reform.

### New technologies are lighting the way

Rapid improvements in lighting technology have already started to reduce carbon emissions. Products like LEDs produce more lumens per watt, or more light for less energy. LED light bulbs can be as thin as a half inch and require only 1/30th the amount of energy as an incandescent bulb, yet still achieve a variety of architectural effects. LED bulbs aren’t yet widely used, partly because they are five times more expensive than linear fluorescent bulbs. Lighting controls and sensors also help reduce energy waste by automatically shutting off lights not in use.

Still, the codes are changing faster than lighting designers and professionals can learn new skills and produce new technologies. Realizing that education is key, city officials collaborated with state agencies, professional associations, and non-profit organizations in November 2009 to establish the Green Light New York center. This non-profit lab will provide lighting information to decision makers – including lighting designers, architects, and building owners – and promote the development of sustainable lighting strategies. Green Light is scheduled to open this fall.





(opposite page left) Lighting is not just utilitarian, but it can beautify urban infrastructures like Triple Bridges, a project for the Port Authority Bus Terminal's elevated bus ramps, designed by PKSB Architects and Leni Schwendinger Light Projects.

(opposite page right and above) The David Rubenstein Atrium at Lincoln Center, designed by Tod Williams Billie Tsien Architects with lighting design firm Fisher Marantz Stone, uses low-energy LEDs to pull light down through the skylights.

(below) At the NYC Department of Transportation's New Sunrise Yard in Queens, designed by Gruzen Samton and Horton Lees Brogden Lighting Design, natural daylight floods the interior spaces and contributes to vast energy savings.



"Green Light will encourage designers to exceed code requirements and still get good quality," says Laurie Kerr, RA, LEED AP, a founder of Green Light and senior policy advisor at the Mayor's Office of Long-Term Planning and Sustainability. "Code has the broadest reach," she says, "but it's the least you can do" to save energy. She hopes designers will apply the "creative thinking that happens in LEED projects to raise the bar for architecture and, ultimately, to promote higher industry standards."

### Collaboration sparks creativity

New York has the right alchemy to spark creative ideas, since it has perhaps the highest concentration of architects and lighting designers in the world. The design community is taking "a more holistic approach to energy codes that goes beyond the output of individual fixtures," says AIA's Executive Director Rick Bell, FAIA, a Green Light board member. "Lighting and architecture are becoming more inseparable."

One model for collaborative practice is New Sunrise Yard, a building for the New York City Department of Transportation's facilities maintenance teams. Designed by Gruzen Samton for the NYC Department of Design + Construction and located in Ozone Park, Queens, it is oriented for maximum

daylight exposure and sun control. It will save about 90% more energy than the ASHRAE/IESNA Standard 90.1-2001. But it will not always be easy to replicate these results. Most New York sites are small and/or hemmed in by surrounding buildings, restricting proper solar orientation.

"Teams need to integrate lighting design into the design process early," explains Hayden McKay, AIA, FIALD, LEED AP, principal at Horton Lees Brogden Lighting Design, and lighting designer for New Sunrise Yard. "Collaboration generates powerful architecture. Factors such as glazing, orientation, fenestration, and materials all influence lighting quality and energy performance." For example, while glass absorbs daylight, it can cause excessive heat gain, heat loss, and glare. Stephen Cassell, AIA, LEED AP, partner at Architecture Research Office, which is designing Green Light's headquarters, says, "Sustainable daylighting strategies can directly shape buildings; I recently taught a studio at MIT called 'Form Follows Sunlight'."

Lighting should not only be measured in terms of efficiency – it plays a deeper role than just delivering lumens. Like architecture, it has an emotive quality that should not be ignored. "Places like Times Square have a social, economic, and aesthetic influence that outweighs a simplistic energy calculation," explained Leni Schwendinger, IALD, president of Leni Schwendinger Light Projects. It's impractical to regulate lighting on a building-by-building basis, especially in a city like New York, where "the public realm is our living room," she adds. "We need some exceptions to the rule."

While codes can promote more sustainable practices, designers seek a more nuanced and inclusive approach to lighting that "accounts for the many meanings of the word 'sustainable,'" says Schwendinger. "We have to keep our cities exciting, vital, and livable." And, certainly, full of light. ■

Tami Hausman, Ph.D., president of Hausman LLC, writes about architecture and develops communications strategies for the design industry.

### Additional Resources

[Green Light New York](http://GreenLightNewYork.org) [greenlightnyc.org](http://greenlightnyc.org)

[New York City Lighting Council](http://NewYorkCityLightingCouncil.org) [lighting311.org](http://lighting311.org)

[Urban Green Council](http://UrbanGreenCouncil.org) [urbangreencouncil.org/greencodes](http://urbangreencouncil.org/greencodes)

[PlaNYC](http://PlaNYC.gov) [nyc.gov/planync](http://nyc.gov/planync)



# What Every Architect Should Know About NYC's New Energy Laws

Stricter energy standards mean developing efficient and economical solutions – and bring new opportunities to design professionals

BY CRAIG A. HARGROVE, AIA, LEED AP

With the “Greener, Greater Buildings Plan,” New York City enacted what is arguably the most ambitious green retrofit initiative to date in a U.S. city. For buildings in New York’s five boroughs, the directive means more stringent energy standards, mandatory energy- and water-use audits, and required energy-efficiency retrofits. For architects, the new regulations are an opportunity for expanded services in the areas of benchmarking, energy-efficiency analysis, and sustainable design.

## New York City Energy Conservation Code

Of all the states that base energy codes on the International Energy Conservation Code, only New York exempts minor renovations from compliance. New York City, where renovations are often a small percentage of building area, adopted its own energy code in 2009 to cover the repairs and alterations exempt from state law. When New York State updated its energy code in December 2010, the city was forced to keep pace. The result is Local Law 01 of 2011, which amends the New York City Energy Conservation Code (NYCECC) with tighter provisions.

**Key Points:** All renovations to NYC buildings, regardless of scale, must comply with the NYCECC. Unaltered portions of the building and unconditioned spaces are not affected. Only those buildings listed on the State or National Registers of Historic Places, or those eligible for listing, are exempt. Designation by the NYC Landmarks Preservation Commission is no longer grounds for exemption.

The new NYCECC applies to projects submitted to the Department of Buildings (DOB) for construction document approval on or after December 28, 2010. Applications filed July 1–December 27, 2010 may comply with the original version of the NYCECC; work approved before July is exempt.

**Implications:** Be sure you are familiar with approved compliance pathways, formats, and energy modeling software. NYCECC construction document requirements now demand fluency with R-values, fenestration U-factors, solar heat gain coefficients (SHGCs), and economizers among compliance criteria. Field deviation from approved documents requires resubmission to the DOB, so contractor change requests may mean longer delays. Because progress and final inspections by a registered design professional are now required by law, include any additional services these duties require in owner-architect agreements.

## Benchmarking

To encourage owners to improve performance, the city will create a database to compare building performance.

**Key Points:** Energy and water use data must be input into the Environmental Protection Agency (EPA) database for:

- non-municipally-owned buildings more than 50,000 square feet; or
- two buildings on the same lot with combined square footage more than 100,000 square feet; or
- condominiums owned by the same board with combined square footage more than 100,000 square feet; or
- buildings more than 10,000 square feet for which the city pays all or part of the energy bills.

As of May 1, 2010, benchmarking must be completed annually for municipal buildings. Privately owned buildings’ first benchmarking deadline is May 1, 2011. Thereafter, benchmarking must be completed before May 1 each year.

**Implications:** Prospective buyers and tenants will have access to benchmarking data, so owners are motivated to keep poor performance from hurting property values. Architects are well positioned to conduct building assessments and direct clients toward appropriate upgrade strategies.

## Energy Audits and Retro-commissioning

Energy standards for new buildings have become increasingly stringent. However, most of New York City is already built. To close the gap, the new legislation aims to improve existing building stock.

Reporting consists of an energy audit identifying opportunities for improved efficiency in mechanical, electrical, and building envelope systems; and retro-commissioning encompassing operations, maintenance, repair, and documentation, which includes functional performance testing to detect deficiencies and low-performing systems. Auditing and retro-commissioning differ from benchmarking in that they evaluate energy performance of specific systems, whereas benchmarking records total energy consumed.

**Key Points:** Buildings subject to benchmarking must also submit Energy Efficiency Reports.



#### Exemptions – Energy Audits:

- EPA Energy Star label for two of the three preceding years; or
- LEED for Existing Buildings (LEED-EB) performance of 25+ points above average for two out of the three preceding years; or
- LEED-EB certification within the preceding four years.

#### Exemptions – Retro-commissioning:

- LEED-EB certification within the preceding two years, including the point for investigation and analysis and commissioning implementation.

Energy Efficiency Reports are due every 10 years, beginning in 2013. Reporting can be deferred if the building is less than 10 years old or has undergone substantial rehabilitation and complies with the NYCECC.

For municipal buildings only, recommended improvements that would recoup costs within seven years must be implemented. City buildings have one year after filing to complete mandated retrofits.

Implications: Although the seven-year payback retrofit mandate applies only to city buildings, the Council intends to extend the retrofit requirement to commercial buildings within the next few years. To plan for this eventuality, architects may want to encourage private clients to implement retrofits recommended in the energy efficiency report, in anticipation of the proposed regulations.

Along with energy auditing, retro-commissioning presents an opportunity to upgrade poorly performing components and systems. Architects are uniquely qualified to coordinate and oversee this process.

#### Lighting Upgrades and Sub-Metering

Because lighting upgrade expenses are typically recovered relatively quickly through energy cost savings, the city justifies required modifications as having minimal financial impact. Sub-meter installation aims to make energy conservation a priority of owners, who have little incentive to increase efficiency because tenants pay the bills. By requiring upfront disclosure of electricity consumption, the city hopes to inspire reduced usage on the part of both owners and tenants.

Key Points: Buildings subject to benchmarking must also upgrade lighting systems, including fixtures, wiring, and controls, to comply with the NYCECC power consumption standards for new systems. For commercial tenant spaces of more than 10,000 square feet, sub-meters must be installed to independently measure electricity usage. Exemptions include residential units, egress stairways or corridors, emergency or security areas, and assembly spaces in houses of worship.

Lighting upgrades, sub-meter installation, and reporting must be completed by January 1, 2025.



(above) Installation of a vapor barrier in preparation for a new energy-efficient roofing system at Madison Square Garden. New and replacement roofing systems must comply with the New York State Energy Code for items such as R-value (the assembly's thermal resistance or ability to insulate).



(left) Sealant replacement at Altria's World Headquarters in New York. Sometimes the simplest energy upgrades are the most effective. Things like timely sealant replacement prohibit air infiltration and limit energy loss through the building envelope.

Implications: As with most mandated energy upgrades, these provide architects occasion to design solutions that optimize efficiency, economy, and aesthetics.

#### In Crisis, There Is Opportunity

Recognizing the role buildings play in carbon emissions and fuel consumption, city administrators developed the "Greener, Greater Buildings Plan" to address the threat of escalating pollution and resource depletion. For architects, this environmental crisis brings opportunity – for innovation, creative solutions, and new services.

While "benchmarking," "auditing," and "retro-commissioning" aren't part of the standard architectural lexicon, today's successful design professionals need to see these services as integral to contemporary architecture practice. For many of us struggling under the economic downturn and resultant slowdown in the building industry, New York's energy mandates provide a chance to apply our expertise to new areas. ■

Craig A. Hargrove, AIA, LEED AP, is senior vice president and director of architecture with Hoffmann Architects in New York City. Hargrove has led project teams in improving the energy profile of properties ranging from historic landmarks to contemporary high-rises.



# Chronicles of Life in the Profession

## Episode 9: Small Victories

Winning helps, even if the margin of victory is slender

BY STANLEY STARK, FAIA



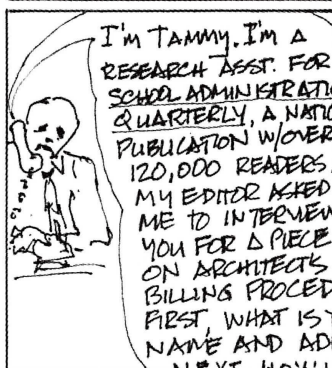
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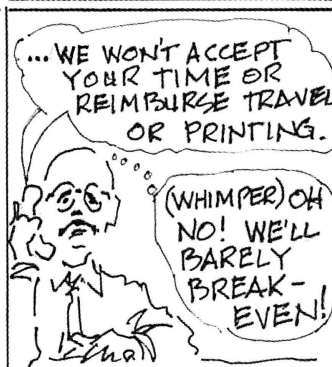
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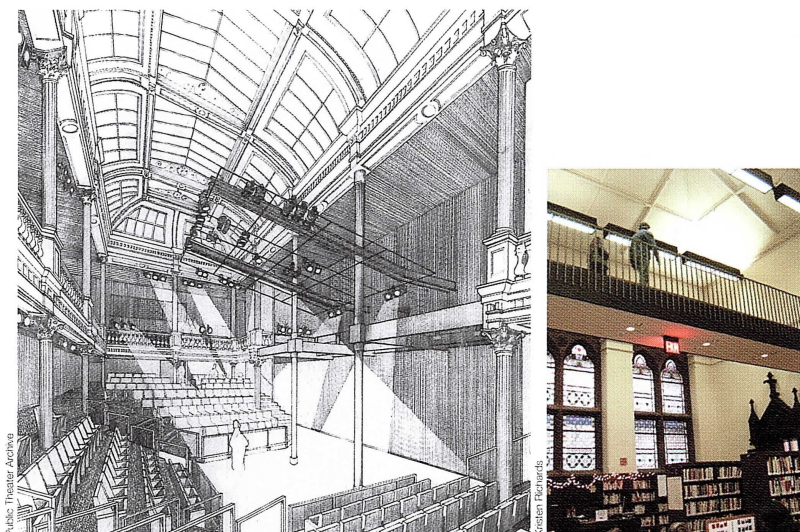


**BUT THERE'S A CATCH!**



STARK 1/20/11





## In 1967

Giorgio Cavaglieri, FAIA, completed two of his precedent-setting adaptive reuse projects

BY JOHN MORRIS DIXON, FAIA

(above left) A sketch by Cavaglieri shows how the skylit main reading room of the Astor Library would become the Public Theater's Anspacher Theater; note the two columns in the performing area stripped down to bare iron, while the others are carefully preserved. The entrance, lobby, and public spaces are now being upgraded and renovated by Ennead Architects.

(above right) In transforming the Jefferson Market Courthouse into a public library, Cavaglieri juxtaposed unobtrusive modern elements, such as lighting and a bridge spanning the second-floor main reading room connecting third-floor administrative spaces, with the original Gothic windows and door trim.

New York architect Giorgio Cavaglieri, FAIA, made a major contribution to sustainability by elevating adaptive reuse to an art. Cavaglieri (1911–2007) has been credited, in fact, with originating the term “adaptive reuse,” thus adding the conservation of resources to the motives behind preservation.

Until the 1960s, architects generally accepted “remodeling” work only for lack of better commissions. As a refugee from Mussolini’s Italy setting up a practice in New York, Cavaglieri accepted low-profile renovation jobs as a matter of course. But in the 1960s he attracted international notice with his creative transformations of some Manhattan landmarks.

A native of Venice with architecture and engineering degrees, Cavaglieri had some colorful experience before arriving in New York. While serving in the Italian army, he designed airfields in Libya. A decade later in the U.S. Army, he gained relevant experience by adapting captured German barracks for the Allied forces.

In the 1950s, Cavaglieri was one of the first architects in the U.S. to join the preservation movement – then viewed by most of the profession as an obstacle to progress. He was a leader in the fights to save Penn Station and stave off threats to Grand Central. In 1963 he was elected president of the Municipal Art Society, and in 1970 president of the AIA New York Chapter. As Chapter president, he made a prescient environmental statement: “Architects, as professionals responsible for shaping the environment, must utilize their skills to reduce pollution through conservation of energy and through design and planning.”

Cavaglieri’s prime demonstrations of adaptive reuse occurred in the mid-1960s, when he was commissioned to convert the Jefferson Market Courthouse into a public library branch and the Astor Library into the home of Joseph Papp’s fledgling Public Theater. He had joined the effort to save the long-vacated courthouse, the city’s most prominent example of the High Victorian Gothic style. With its central position in Greenwich Village and its picturesque clock tower, the structure gained a strong following among area residents who prized its eccentricity and abhorred demolition. Cavaglieri’s transformation of it, completed in 1967, combined meticulous exterior restoration with the insertion of frankly Modern elements, such as a steel bridge spanning the double-height reading room.

The dignified but low-profile Astor Library, built in stages between 1853 and 1881, had no such local constituency, but was one of the first structures saved from demolition by the city’s newly established Landmark Preservation Commission in 1965. Leaving the building’s exterior essentially intact, Cavaglieri fit a variety of performing and support spaces into its interiors, juxtaposing new insertions to preserved historical details. A tall reading room became the principal theater *Newsweek* called at its 1967 opening “the most delightful show-space in New York.”

In the 1970s, Cavaglieri adapted the Chapel of the Good Shepherd and the Blackwell Farmhouse for community uses as part of the development of Roosevelt Island. And he was the architect for several new and renovated public library branches. Rick Bell, FAIA, recalls that Cavaglieri, almost alone among architects doing such city work, had the courage to challenge the provisions of the city’s contracts for commissions of such complexity.

Interviewed in 1999, Cavaglieri acknowledged that his Modern insertions into historic structures would never please “preservation purists.” But his insistence on clear distinctions between the pre-existing and the new became the rule for adaptive reuse, enshrined in the widely applied Secretary of the Interior’s Standards for the Treatment of Historic Properties. ■

John Morris Dixon, FAIA, left the drafting board for journalism in 1960 and was editor of *Progressive Architecture* from 1972 to 1996. He wrote the Midtown Manhattan portion of the original 1967 *AIA Guide to New York City*. In recent years he has written for *Architectural Record*, *Architecture*, *Architect*, and other publications.



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## LETTER FROM THE EXECUTIVE DIRECTOR



Bell at the new Union Station Bikestation in Washington, DC.

# PlaNYC: Where We Would Be

PlaNYC was announced by Mayor Michael R. Bloomberg on Earth Day in April 2007. Its authors are diligently endeavoring to bring many of its fundamental aspirations to fruition in the time that remains to the administration. But as a Mayor's Office update states, "Any long-term vision must be refreshed over time." It notes that the city supported the passage of Local Law 17 of 2008, which requires an update to PlaNYC every four years: "As a long-term plan, much of PlaNYC is still not complete; that is appropriate. But, once every four years, it is equally appropriate to ask: What has worked well? What can go farther?"

In remarks at a Sallan Foundation event at the Center for Architecture, Adam Freed, deputy director of the Mayor's Office for Long-Term Planning & Sustainability, called for benchmarking of both public and private buildings "to establish comparative baseline data on their energy and water consumption." This benchmarking requirement, according to Sallan Executive Director Nancy Anderson, "is in keeping with the Bloomberg Administration mantra 'What gets measured gets managed.'" Requiring metrics on achieving goals is now mandated by statute. In his 2009 song "Time Flies," Steven Wilson of the band Porcupine Tree asks, "How does time break down? / With no marker, things slow down." We will know how many of the million new trees called for in the initial report have been planted, and how many acres of park have been added. We will know how many miles of protected bike lanes knit our city together, and whether or not we are planning secure bike parking for commuters, such as the Bikestation facility near Union Station in Washington, DC. In addition, guideline documents from several city agencies assure that design matters and that quality is important.

Quantitative and qualitative reporting is important to carrying the aspirations of PlaNYC into the next mayoralty. But the most important result that those in office now can achieve is a change in

consciousness as we head to carbon neutrality and energy independence by 2030. Not many months are left to change the political landscape and make it inevitable that the 2013 mayoral candidates embrace the dreams of PlaNYC. Elia Suleiman's 2009 Palestinian film, *The Time That Remains*, closes with a jazzy version of "Stayin' Alive," the Bee Gees song that characterized New York City in the lean days of 1977: "Feel the city breakin' and everybody shakin.'" We need nifty footwork more than ever.

Imagine today is January 1, 2014. New York's new mayor is not quoting E.B. White at the inauguration, as did Mayor Bloomberg in 2010. But she – or he – is talking about what one generation learns from another, and what one political leader owes to another, speaking to constituents whose expectations create the conditions for continuity of policy. Perhaps the inaugural remarks delivered a thousand days from now will strike a Bloomberg refrain: "We must work together to plan – and act – to make our city, which will have 9.1 million residents in 2030, easier to live in, healthier, and more equitable than it is today. We must work together today to make the changes we need so that the lives of those who come after us are even better than our own. We must work together to share ideas, to promote innovation, to make pragmatic change, to balance short-term costs and long-term benefits. Above all, we must continue to make progress to ensure that New York is a greener, greater city in 2030."

As we heard from David Bragdon, director of the Mayor's Office of Long-Term Planning & Sustainability, PlaNYC is essentially "about beauty, emotional attachment to place, and love of where you are." And at the 2014 inaugural, instead of John Lithgow or Liza Minelli, we might hear the new mayor bring Steven Wilson to the lectern to sing from *Lightbulb Sun*: "Tied to a time / When we knew that the sun would shine / And we could just talk for a while... / Of where we would be when the future comes." ■

Rick Bell, FAIA  
Executive Director, AIA New York Chapter

"Good fortune is guiding our affairs better than we could have desired, for there you see, friend Sancho Panza, thirty or more enormous giants with whom I intend to do battle."

—from *Don Quixote*,  
Miguel de Cervantes (1605)

"Ariadne: How did architects get involved?  
Cobb: Someone had to design the dreams."

—from the film *Inception*,  
Christopher Nolan (2010)

"If we call out in unison  
The season of flowers  
Will also come  
Happy days shall be here again"

—from the song "Mitwa"  
in the Bollywood film  
*Lagaan* (2001)



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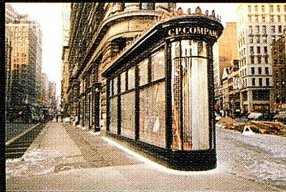




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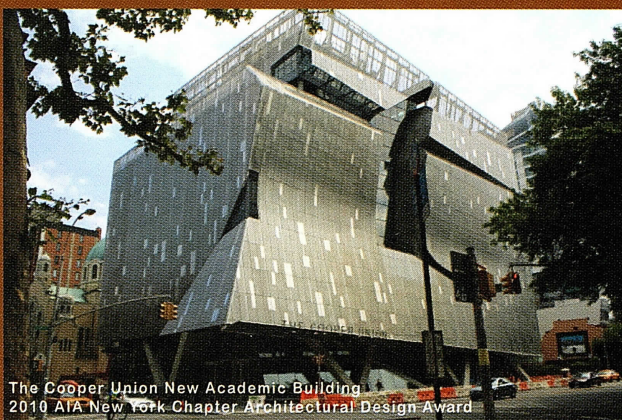
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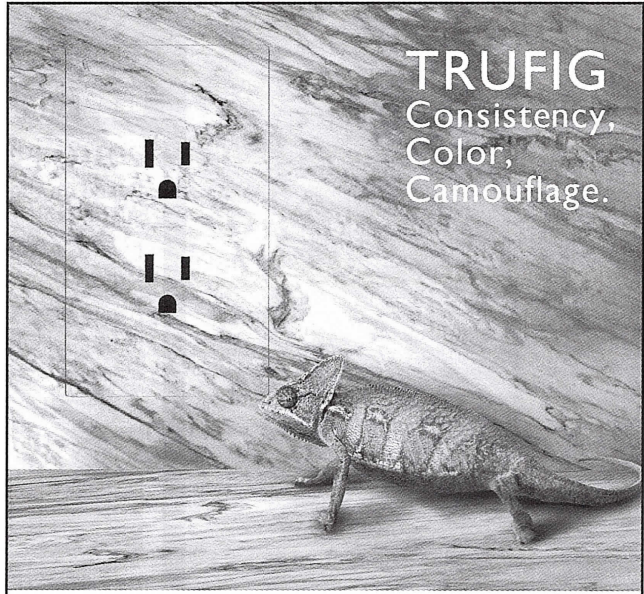


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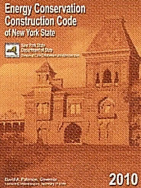
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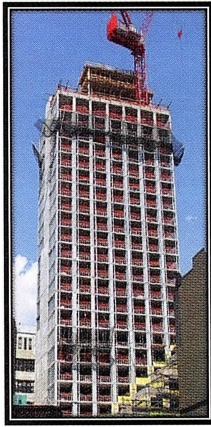


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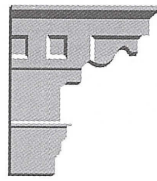
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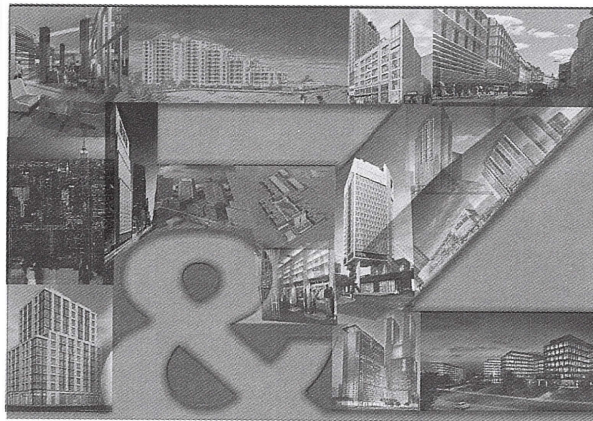
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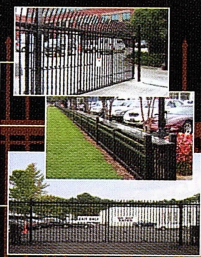
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