

# Cities Pushing Ahead

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The case studies above represent the trailblazers of the green building movement. These communities have led the way on sustainable design reaching back into the 1990s, and the policies established by these cities are inventive and have stood the test of time. In addition many of these jurisdictions are leaders not only in green buildings but in all aspects of sustainable community development.

Local officials now exploring the establishment of their own green building policies should look to these identified leaders for best practices, but they should also examine many of the innovative ideas that are currently emerging in the rest of the country. Several communities continue to advance the standards of green policy. Current efforts of note that are pushing the envelope with municipal green building programs are taking place in California and the Washington, D.C.-to-Boston corridor.

## D.C.-to-Boston Corridor

America's largest cities are working to match the immense scale of the problem. New York, Boston, and Washington, D.C., have each advanced the efforts that were previously being made to reshape their urban landscape. The policies they have enacted affect more than nine million citizens or about 22 percent of the total population currently living under green building policies.

## Washington, D.C.

Washington, D.C., became the first major U.S. city to mandate sustainability guidelines for privately owned real estate when its law passed in 2006. The DC City Council passed the Green Building Act of 2006 on December 5, which calls for all new development in the city to conform to the USGBC's LEED standard. The law takes

*Sidwell Friends Middle School, AIA/COTE 2007 Top Ten Green Projects award recipient. Kieran Timberlake Associates LLP. Photo by Barry Halkin.*



force in 2008 for all publicly financed buildings and will be phased in by 2012 for private construction.

In 2008 publicly financed buildings of more than 10,000 square feet will be required to achieve 75 points on the Environmental Protection Agency (EPA) national energy performance rating system and be certified LEED Silver. The act also includes a green schools component which will require schools to meet the LEED for Schools standard.

New construction and renovation of private buildings of 50,000 square feet or more will have to switch over to the new standards by 2012. Nonresidential buildings will have to be LEED certified, while educational facilities (excluding postsecondary educational buildings) will be required to adhere to the LEED for Schools standard. The act also includes several incentives which will assist in the transition to a green standard throughout the city: a green building advisory council; Green Building Fund; incentives for developers; green development ambassador and one green building construction permit application reviewer; fast-track permits; revision of the construction codes to include green building practices; and priority leasing for buildings meeting green building standards.

AIA DC's Committee on the Environment collaborated with the city council to draft the initial green legislation. They worked closely with a council member who advocated the measure among her colleagues. With the legislation on the table, the architects joined a coalition of about 30 interests to work with the council and D.C. officials to determine language, testify in support of the bill, and overcome challenges to its fundamental goals.

Tove Anderson, AIA, LEED AP, former DC COTE chair, remarked that

*Washington, D.C., has made significant strides toward the integration of sustainable policy into both the private and public sectors. The key toward creating effective public policy has been the creation of unified holistic legislation. The opinions and advice of empowered and passionate representations from the government and industry were solicited throughout the drafting of legislation to ensure*

*buy in, resulting in policies that were progressive, economically viable, and fair.*

*Another goal of the Green Building Act was to create responsible civic policy. Green buildings save energy over the life cycle of a building, reducing the load for power and water from the city. EPA studies show employees in green buildings have greater productivity and fewer days lost to illness. These two advantages help attract tenants and enhance the quality of life of those working and living in Washington, D.C. The increased attractiveness of Green Buildings for potential tenants also means increased revenue. It is rare that governments have the opportunity to make short-term and long-term economic policy. This is what has been so encouraging about the DC Green Building Act.*

## **Boston**

Boston was the first major U.S. city to implement a green building zoning code in January 2007. Article 37 requires all major new and rehabilitation construction projects exceeding 50,000 square feet to earn 26 LEED New Construction (NC) points. In addition a further four points reflecting city priorities, including transportation, energy, historic preservation, and groundwater recharge, were added to the checklist. The city does not require third-party certification; rather Boston officials review and confirm developers' certifications.

Mayor Thomas M. Menino established a Green Building Task Force in 2003 composed of public and private experts in the field, including Mike Davis, AIA, to recommend a comprehensive green building plan for the city. The change to the zoning code was one of the major recommendations offered by the task force. "Zoning is a tool of public policy. Climate change is a big issue and architects can play a big part in fixing the problem," Davis says. "When a governing body says that we need to do something about climate change, then you need to look for people with specialized expertise, and in this case it was people who knew about green building and policy."

In the end, the change to the zoning code was one of the major recommendations offered by the task force.



*Artists for Humanity EpiCenter, AIA/COTE 2007 Top Ten Green Projects award recipient. Arrowstreet Inc. Photo by Richard Mandelkorn.*

The zoning code was viewed as an effective tool for public policy in Boston. This new green building provision also bolsters other green efforts in the city, including LEED certification of government buildings and city-supported projects. Furthermore the city sees the business case for green buildings to be very compelling and views the ancillary green collar jobs created as a further strong incentive for the program.

“We are very excited to be at the forefront of green building practice. The business case for Boston, which has guided this initiative, is very compelling for the city, and especially for the architectural community,” says John Dalzell, senior architect, Boston Redevelopment Authority.

This measure provides a concrete example of how a large American city can move its zoning code into the 21st century. The inclusion of green building standards directly into the code dramatically increases the number of green buildings constructed, as the number of permits issued by the city for green buildings in the first half of 2007 has far outstripped the number of all green buildings constructed last year. This increase in the number of green buildings also helps to further the momentum as the remaining cost differential between green and standard buildings diminishes.

### New York City

New York City Mayor Michael R. Bloomberg announced PlaNYC, a sweeping climate change proposal, on Earth Day (April 22) of 2007. The announcement evoked images of the urban planning effort that led to the creation of Central Park and the construction of Rockefeller Center in the midst of the Great Depression. The focus of the plan includes five key areas of the city’s environment: land, air, water, energy, and transportation.

The green building component of this wide reaching initiative

- Offers incentives for green building techniques
- Strengthens energy and building codes to support energy efficiency strategies and other environmental goals
- Supports the construction of the city’s first carbon-neutral building, primarily powered by electricity
- Uses a series of mandates, challenges, and incentives to reduce demand among the city’s largest energy consumers
- Encourages the installation of green roofs through a new incentive program
- Uses upcoming rezonings to direct growth toward areas with strong transit access
- Dedicates \$15 million to a fund supporting brown-field redevelopment



**20 River Terrace, The Solaire, AIA/COTE 2004 Top Ten Green Projects award recipient. Cesar Pelli and Associates. Photo by Jeff Goldberg/ESTO.**

- Implements more efficient construction management practices, including accelerating the adoption of technologies to reduce construction-related emissions
- Amends the building code to address the impacts of climate change

The mayor's plan calls for a 30 percent reduction in carbon emissions within the city by 2030. The strategy to tackle climate change encompasses a wide-ranging approach, from focusing on traffic issues to power plants to green buildings. The initiative builds upon earlier goals of the city, such as LEED standards for municipal buildings passed in 2005.

The residents of the city were involved through public meetings, and AIA New York City and COTE have been involved throughout the process and plan to

continue to offer assistance, serving as facilitators for dialogue in this important plan.

According to Chris Garvin, AIA, LEED AP, COTE New York cochair

*In September 2006, Mayor Bloomberg created the Sustainability Advisory Board, a diverse panel of environmental design and policy experts gathered to develop forward-thinking strategies for greening New York City as part of PlaNYC 2030. In addition to the formation of a Sustainability Advisory Board, key components of this ambitious initiative include the creation of the Office of Long-term Planning and Sustainability within the Mayor's Office of Operations and the undertaking of a major greenhouse gas inventory for city government and the city overall.*

*Since the release of PlaNYC 2030 in April 2007, the Sustainability Advisory Board has refocused their efforts to ensure that the city's strategies for sustainability are implemented in full and remain publicly accountable to citizens' concerns. The COTE committee will play a continuing role in building stakeholder input throughout this ongoing process. Their understanding of the complex relationship between human and natural systems underlies their insight into innovative solutions aimed at solving New York City's most critical environmental problems.*

As a result of Bob Fox's (Bob Fox is a partner at Cook+Fox Architects) appointment to the board, Garvin worked extensively with the mayor's office to develop initiatives relevant to the built environment. Bob and Chris' first-hand experience with gathering stakeholder input through design-related processes makes them valuable advocates for public policy that relates to the health of New York's natural environment as inextricable from that of its citizens.

## California

In California a new set of pioneers is setting a bold example by seeking to make green building the rule rather than the exception in all construction. The neighbor-

ing bay-area cities of Pleasanton and Livermore have each passed ordinances that mandate green building for residential and nonresidential construction. Santa Cruz and San Rafael push even further by requiring compliance on all construction and rewarding projects that go further than the standards that they impose.

### No Incentives, Just Good Design: Pleasanton and Livermore

In 2002 the City of Pleasanton passed an ordinance requiring all municipal buildings and nonresidential buildings of more than 20,000 square feet to be LEED certifiable. Buildings were considered certifiable by completing the LEED checklist and achieving enough points to meet the “certified” level. Pleasanton expanded this program in 2006 to include residential construction as well. The new law ensures that all single-family housing of more than 2,000 square feet, and all multifamily housing projects are required to earn a green home rating of 50 points using the Alameda County Waste Management Authority’s GreenPoint Guidelines.

Pleasanton’s closest neighbor, Livermore, took mandatory requirements even further by approving legislation in 2006 that requires residential and nonresidential projects to meet minimum standards on the appropriate green building checklists. Like Pleasanton, Livermore chose LEED for nonresidential and GreenPoint for

residential projects. Unlike Pleasanton, however, there were no size thresholds, thereby creating green building standards for all buildings in the city. To receive a plan permit for any project in Livermore, it is necessary to have the appropriate documentation from the green building checklist.

Livermore also created slightly different standards by mandating that all nonresidential projects achieve 20 points on the LEED checklist rather than meet the certifiable level. The purpose of this deviation is to reduce the initial burden while still leaving open the possibility of increasing the standard, as the city plans to review the requirements annually to keep the standards stringent.

Both cities worked closely with the development community and, to reduce the burden on builders, they allowed for a one-year grace period before the requirements are enforced. On all projects for the first year, the developers were required to complete all the paperwork that would be necessary for a green building in order to familiarize themselves with the system. During this grace period they did not have to meet the minimum requirements for approval. Once the requirements are fully implemented the cities will stop short of actually requiring LEED registration and certification. Rather they are training staff in planning, plan review, and building inspection to be accredited by the LEED and GreenPoints guidelines in order to inspect and review buildings according to these guidelines.



*Stanford University’s Leslie Shao-Ming Sun Field Station, AIA/COTE 2004 Top Ten Green Projects award recipient. Rob Wellington Quigley. Photo by Rob Wellington Quigley, FAIA.*

In addition to ensuring professional verification of a project's compliance, the training allows the two cities to provide technical advice to developers and address potential problems early in the design process. In discussions with developers before the policy was enacted, David Rashé, Livermore's Permit Center manager in the Department of Community Development, found that access to such qualified assistance was a much greater concern than the regulations themselves. It was this engagement and cooperation that earned the endorsement of the development community and allowed Livermore to make their policy mandatory with remarkably little opposition.

Although both of these programs are too new to warrant a full case study, they are not without success. Livermore is not yet through its one-year grace period but can already claim 25 single-family and one multi-family building that meet the green standards. Meanwhile, in Pleasanton, there are more than 20 nonresidential buildings that have made the grade. Officials from Pleasanton, when asked how many single-family houses had met the GreenPoints mark, simply replied: "a lot."

### **Demanding Quality, Rewarding Excellence: Santa Cruz and San Rafael**

Bob Brown, director of Community Development in San Rafael, insists that when the city passed its green ordinance in July of 2007 he had never heard of the program in Santa Cruz, so it is somewhat serendipitous that the two policies should be so similar. Both programs have mandatory requirements for almost all residential and nonresidential structures and both have a system of rewards, including expedited plan checks and official plaques of recognition for buildings that exceed the performance requirements. Still, the policies are clearly unique from one another.

Santa Cruz may prove to be particularly instructive for cities looking for ambitious programs in the future due to the unique context in which the city's policy was established. The city offers proof that it doesn't take a large population with numerous staff and abundant

resources to implement an effective green building program. Originally the city council formed a Green Building Working Group to develop a proposal as early as September of 2002. The work group was instructed to specifically consider the city's "beleaguered" fiscal situation and come up with a program at minimal cost.<sup>4</sup> It took nearly four years and a considerable amount of debate but, in the end, the program eventually adopted required the compliance of all future construction.

Santa Cruz developed a straight-forward set of requirements for nonresidential projects within the city. To receive a building permit a project must first earn seven LEED points. This number was deliberately set low with the understanding that it can always be increased in the future. In addition to the seven LEED points, the program offers expedited plan check for any building that achieves 33 points, or the equivalent of LEED Gold. Finally the city created a Green Building Award which it bestows on projects that earn 40 points or more. This award is an excellent marketing tool for companies to attract both conscientious consumers as well as talented employees.

The noncommercial side of the program is structured somewhat differently. The requirements are based on the size of the structure:

Action	Minimum number of points required for 350 sq. ft.	Each additional points need per 100 sq. ft.
Receipt of building permit	10	1.5
Accelerated building permit processing	35	2.5
Green Building Award	60	3.5

As a result, an average home of 2,500 square feet requires slightly more than 40 GreenPoints to receive a building permit. The same 2,500-square-foot home needs around 87 GreenPoints to speed up the permitting process and approximately 133 GreenPoints for

<sup>4</sup> Stubendorff, Richard (2005, August 18). "Planning Commission General Report." City of Santa Cruz. Retrieved from [www.ci.santa-cruz.ca.us/pl/gbwg/GreenBldgReport.pdf](http://www.ci.santa-cruz.ca.us/pl/gbwg/GreenBldgReport.pdf).

the Green Building Award. This is no small task. This year the city processed 135 applications that met the minimum requirements but just two earned enough points to be awarded. Five projects are striving for the same mark but are still awaiting certification. In addition to these requirements for private development, the city leads by example and requires municipal buildings to meet LEED Silver specifications.

San Rafael follows the same general principal of setting mandates and rewarding projects with exceptional scores but the standards the city set certainly raise the bar for achievement. Covered nonresidential projects in the city fall into two categories:

- Those between 5,000 and 29,999 square feet must retain the services of a LEED accredited professional and achieve at least a LEED Certified rating, although actual USGBC certification is not necessary
- All nonresidential projects exceeding 29,999 square feet are required to go through the certification process, at their own expense, and achieve a LEED Silver rating.

The residential requirements are equally challenging. Like the cities mentioned above, San Rafael chose to follow the Alameda County Waste Management Authority GreenPoint system and simply requires that all single-family and multifamily units earn 60 points.

In addition to these requirements the city offers a fairly generous set of incentives for projects that meet even higher standards. Residential construction that earns 100 GreenPoints and nonresidential construction that earns the LEED Gold rating are eligible for expedited permitting, reimbursement of the cost for the Certified Green Building Rater, and a plaque for meeting the city's Emerald standards.

The San Rafael policy is undoubtedly one of the most challenging in the nation. It is also a testament to the effect that education can have on the development community in a city. Brown was pleased to report that this was the first initiative he had ever worked on that had no opposition by the time it was approved by the city council.

## Beyond Platinum: The Living Building Challenge™

The Cascadia region of the USGBC has issued a challenge to the most advanced developers in the Northwest. The Living Building Challenge pushes the limits of green buildings far beyond LEED Platinum to achieve zero net energy and zero net water status. Although this is a dramatic goal by any stretch of the imagination, it is not an unachievable one, and forward-thinking architects and developers are moving toward this point.

Recently the Cascadia region has seen the development of buildings that are earning Gold and even Platinum ratings with relative ease and insignificant green premiums. As a result they are creating the Living Building Challenge. The purpose is not to replace, or even compete with the LEED standards, but to continue to drive the market toward true sustainability.

The Living Building Challenge is not a policy of any particular city, and the final version has yet to even be released but it represents an exciting leap forward in sustainable design. Many architects and developers in the Northwest dove headfirst into experimenting and improving upon green design features long before cities in the rest of the nation had even begun to test the waters or, for that matter, before many elsewhere were even aware the pool existed.

The new challenge is to go beyond Platinum. A living building is not rated with a scorecard but rather consists of 16 prerequisites that consider the entire life-cycle of the building. The challenge reconceptualizes buildings as “flowers,” wholly sustained by their local surroundings to produce 100 percent of the net energy and treat 100 percent of the net water use. This results in a 100 percent reduction in the building's carbon production for a “triple net 0” performance. The 16 requirements cover energy, water, indoor quality, building materials, site selection (grayfields and brownfields only), and beauty and inspirational quality. To verify the building performs as well in reality as it does on the drawing board, it cannot be certified until one year after occupancy.

As difficult as this may seem, it is not impossible. There are already projects currently striving to become the first living buildings. The most likely candidate seems to be the Kenton Living Building, a multifamily housing project with an in-house daycare center in North Portland, Ore. The building will sell excess energy back into the grid during the summer months, thereby allowing it to buy the energy it may need in the winter and still result in a net surplus. Net-zero water will be the more challenging task but developers believe a 9,000-gallon cistern in the basement will collect enough water to make it through dryer months. This and a few similar projects still constitute Living Building experiments. There will certainly be more efforts to learn from their experience as technology and design practices continue to evolve.



*Fisher Pavilion at Seattle Center, AIA/COTE 2003 Top Ten Green Projects award recipient. The Miller/Hull Partnership LLP. Photo by Steven Keating.*

## Additional Information

New York PlaNYC, [www.nyc.gov/html/planyc2030/html/home/home.shtml](http://www.nyc.gov/html/planyc2030/html/home/home.shtml)

Boston Program, [www.bostongreenbuilding.org/](http://www.bostongreenbuilding.org/)

Alameda County Build It Green Program, [www.builditgreen.org/](http://www.builditgreen.org/)

Santa Cruz Program, [www.ci.santa-cruz.ca.us/pl/building/green.html](http://www.ci.santa-cruz.ca.us/pl/building/green.html)

Living Building Challenge, [www.cascadiagbc.org/lbc/Lb-challenge-v1-2](http://www.cascadiagbc.org/lbc/Lb-challenge-v1-2)

Article on the Kenton Living Building, [http://findarticles.com/p/articles/mi\\_qn4184/is\\_20070430/ai\\_n19066623](http://findarticles.com/p/articles/mi_qn4184/is_20070430/ai_n19066623)