

# ZONING PRACTICE

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**PRACTICE SUSTAINABILITY**

**4**

# Building Green: Onus or Bonus?

Rebecca Retzlaff, AICP

During a typical Chicago rainstorm, water flows across parking lots and streets, picking up oil, gasoline, lead, and other pollutants on its way through the sewer system to water treatment plants, lakes, and rivers.

Three inches of rain on a developed site of four acres produces 175,000 gallons of runoff—with potentially disastrous impacts on water quality, habitat, and human health.

Not so at the Center for Green Technology (CGT), Chicago's green building technology education center and demonstration project. CGT boasts a four-part water conservation system, including a green roof to absorb rain water, cisterns for water reuse, downspouts that funnel water into the landscape (and not the city's sewer system), and a channel and wetland system to absorb the rain water from paved surfaces. Under this system, the same three inches of rain on the same four acres would release only 85,000 gallons of water into the sewers.

CGT is only the third building in the United States to use the highest available standards for green technology. The center gets 20 percent of its electricity through solar

power, uses a ground-source heat pump for heating, and a "smart" lighting system that includes motion-sensitive lights to eliminate light waste. Forty percent of the materials used to renovate the building (located on a former brownfield) are from recycled products. Local producers provided most of the materials, which reduced the environmental impacts of long-distance transportation. The building is near Chicago's public transportation system, is equipped with bicycle racks and showers for bicycle commuters, and has an electric vehicle power station in the parking lot.

Green buildings are ideal for reducing negative environmental impacts. In several American cities, green building incentives and requirements in the zoning ordinance make them an attractive option for developers of sustainable projects who also watch the bottom line. This is the focus of this issue of *Zoning Practice*.

## WHY BUILD GREEN?

According to the U.S. Green Building Council, buildings in the United States account for 65 percent of electricity consumption, 36 percent of total energy usage, 30 percent of greenhouse gas emissions, 12 percent of potable water consumption, and 30 percent of raw materials usage.

Green building techniques substantially reduce such impacts. For example, commercial buildings can reduce water use more than 30 percent by installing water efficiency devices such as low-flow fixtures with sensors and automatic controls and using non-potable water for landscape irrigation, toilet flushing, custodial purposes, and for building systems such as heating and cooling.

Simple green building practices, such as installing energy-efficient appliances, can provide modest long-term energy savings. More complex practices—installing solar panels is an expensive proposition—also pay long-term dividends with far-reaching implications, including a reduction in utility bills, pollution prevention, and benefits to human health.

Over the past 10 years, building technology made great strides toward the development of sustainable techniques and materials, and toward public knowledge and acceptance of those techniques. Today, developers of sustainable buildings can easily find solar panels, cisterns, green roofs, and low-emitting lighting systems.

Green building regulations are in building and municipal codes now but the zoning ordinance holds new promise for sustainability. Zoning examples include green building certification requirements for planned unit developments, green roof incentives in designated zones, water-conserving landscaping requirements for new development, and performance-based approaches to promote green building development.



City of Chicago; Mark Farina

➡ The restored wetland at Chicago's Center for Green Technology is part of a four-part water conservation system that reduces stormwater runoff and helps prevent water pollution.



Brad Felkenhoff

➡ The David L. Lawrence Convention Center in Pittsburgh was awarded a Gold LEED certification by the U.S. Green Building Council. The building uses roof skylights and walls of glass for temperature control and natural lighting, and a water reclamation system to reduce potable water use. The shape of the building and its location along the Allegheny River captures natural airflow to help ventilate and cool the building.

### LEED GREEN BUILDING CERTIFICATION

LEED, which stands for leadership in energy and environmental design, is a voluntary, consensus-based green building rating system and the national standard for developing green and sustainable buildings. The U.S. Green Building Council (GBC) developed the LEED pilot program in 1998 and launched the second version of LEED nationally in 2000. Though not an official mandate in most communities, some use LEED as a guide when incorporating green building incentives into local zoning ordinances.

GBC created LEED to:

- define green building practices;
- establish a common standard of measurement for green development;
- promote integrated building design practices;
- recognize green building developments in the building industry;
- stimulate competition; and
- raise awareness about the benefits of green buildings.

### LEED REQUIREMENTS FOR PRIVATE DEVELOPMENT

Perhaps the most important contribution of LEED so far is that it provides a development standard for green buildings. Without it, planners and zoning administrators would have to devise their own or rely on vague requirements. Also, LEED guidelines make zoning requirements easier to understand and comply with because the guide-

lines are based on existing technology and are familiar to many developers. A zoning ordinance that incorporates LEED relieves planners of the role of regulatory taskmaster because the standards are consensus-based, developed in part by representatives of the building industry.

**Arlington County.** Arlington County, Virginia, uses LEED to gauge the energy efficiency and environmental performance of buildings in the county. Developers who seek a special zoning exception for more flexibility in building form or density must meet several green building requirements. First, the project team must include a LEED-accredited professional to advise on LEED and green building issues and make sure the project achieves LEED credits. The program tests building industry professionals on their understanding of green building practices and principles and their familiarity with LEED requirements and processes.

Secondly, a developer must submit a LEED scorecard as part of the site plan review. Accompanying the scorecard is a description of how the developer will achieve each credit, or an explanation of why it is not possible. Before the county issues the permit, developers submit a report outlining progress toward LEED credits. The county negotiates the number of credits for each project with the developers.

Developers that request special exceptions must also prepare and implement a construction

waste management plan for recycling, reuse, reprocessing, and disposal. For multifamily residential projects, appliances and fixtures must adhere to the U.S. EPA's Energy Star standards.

For special exception projects that do not receive LEED certification, developers must contribute \$0.03 per square foot to the county's green building fund, which is used for education and outreach for community green building such as county-sponsored seminars and lectures and green building identification signs. If the project achieves LEED certification at a later point, the county refunds the contribution.

**Chicago.** In 2004, Chicago adopted an official policy for green buildings, including green roofs. The requirements apply to all construction projects receiving public assistance, or those subject to review under the city's planned development or lakefront protection ordinances. The policy is set forth in a green building/green roof matrix that identifies different standards for each type of development based on the level of public assistance or zoning designation. For example, the developer of a private housing development of four or more units is required to install a green roof covering at least 25 percent of the roof area, with the remaining area meeting Energy Star standards for reflectivity. Commercial developers of community centers or schools (receiving no

public funding assistance) must provide either 25 percent green roof space, or 10 percent green roof space in a LEED-certified building.

Green building requirements in tax increment financing (TIF) districts and for developments that receive empowerment zone funding are more stringent than the requirements for privately funded developments. For example, large commercial developments (over 10,000 square feet) in TIF districts require green roofs covering at least 75 percent of the roof area, or 50 percent of the roof area and LEED certification.

Chicago requires all municipal developments except schools and community centers to have LEED certification and 50 percent of the roof as designated green space. As a demonstration project in 2000, the city installed the country's first municipal rooftop garden atop its 11-story city hall in the Loop. The green roof consists mostly of prairie plants native to the Chicago region.

As of June 2004, Chicago had more than 80 public and private green roofs totaling more than one million square feet. Michael Berkshire, the planning and development department's green projects administrator, says the city's interest in green buildings "originates not only from the environmental benefit standpoint, but also from a values standpoint. The city understands that green buildings have benefits because they last longer, the employees are healthier, and they are more sustainable."

**Calabasas.** In 2004, Calabasas, California, adopted an ordinance requiring all non-residential buildings larger than 500 square feet to achieve LEED certification. Structures between 500 and 5,000 square feet must achieve at least a certified rating from LEED, and structures over 5,000 square feet must achieve a "silver" rating.

According to Maureen Tamuri, the city's community development director, Calabasas planners get little use out of the ordinance. "I wish that I could say that we have a great history of people building under the green building ordinance, but we have very little commercial building development," she says. Tamuri says her department encountered many challenges as a result of the ordinance, including establishing protocol and training to check green building drawings. Locating trained, knowledgeable consultants to check development plan compliance was also a challenge. "We just interviewed eight consultants, and they didn't even know what LEED is," she says. Tamuri says the building industry and architects seem knowledgeable, even accepting, of LEED, but planners are largely unfamiliar with it.



#### NOT FOLLOWING THE LEED

Not all green building certification programs follow the LEED standard. Some cities develop individual certification standards and ordinances. Though the requirements may be based on LEED, they are modified to meet local needs or to develop consensus.

**Austin.** Austin, Texas, uses its own green building standards in the zoning code. The city requires new developments in the central business and downtown mixed-use zoning districts to achieve at least a "one-star rating" (five stars are possible) under the Austin Green Building Program. The rating system is different for commercial, multifamily, municipal, and single-family developments. Mixed-use projects must comply with the requirements of their land-use classification, which may include more than one type of use requirement.

Austin's commercial rating standards ask developers to comply with stormwater runoff and water quality control standards and water and energy use reduction requirements. Developers must submit building systems planning documentation verifying that all building systems are designed and calibrated and that they perform according to system requirements. Seventy-five percent of the roof surface must meet Energy Star standards for

reflectivity. There are also requirements for low-fume indoor paint, recyclable materials storage, and construction waste recycling.

Multi- and single-family developments must meet standards for energy efficiency, building materials, water use, indoor environmental quality, light pollution, and other requirements. For example, fluorescent lamps must be installed in at least two (for multifamily) or three (for single-family) light fixtures, and at least 90 percent of landscaping plants must be on the city's water-efficient landscaping plant list. The ordinance also allows developers in pursuit of higher green building program ratings (above the required "one star") to forego meeting these green building program requirements if they use flexible performance-based green building guidelines.

According to Richard Morgan, manager of the green building program, Austin started its green building initiatives in 1991, launching the first program in the country. Since its inception, the program has rated more than 5,000 single-family homes and consulted with developers and design teams on more than 60 commercial buildings.

The success of Austin's program is apparent in the city's reduction in electricity demand and pollution. In 2004, 22 percent of new homes participated in some variation of the program, reducing peak demand for the electric utility by 12.4 megawatts and power plant emission of carbon dioxide by 13,867 metric tons.

#### PERFORMANCE-BASED GREENING

Performance zoning is a flexible alternative to encourage green building technology. Flexible regulations come with a list of point-based guidelines and standards for developers, allowing them to accrue certification points. For example, when solar heating is unnecessary for a site or building, developers can provide other green building elements to meet performance zoning standards, such as energy-efficient appliances or insulating window covers.

**Corvallis.** Corvallis, Oregon's, performance-based professional and administrative office district ordinance requires developers to meet a specified number of development goals, grouped into four categories: site design, structure, neighborhood impact, and energy efficiency. Each goal within those categories is assigned points and zoning applicants must accrue a certain number of points in each category. The total is 370.

Many of the goals were designed expressly for green buildings. A comprehensive system receives 75 points. Building materials with heat retention capabilities also get 75 points. Others include energy-saving appliances, 35 points; providing 15 percent more bicycle parking than required by the zoning ordinance, 30 points; and for orienting the longest wall of the building to the south, 40 points.

**Boulder.** In Boulder, Colorado, new residential construction, interior remodeling, and residential building additions greater than 500 square feet must comply with the city's green points program. Although not a zoning program, it is a lesson to planners who want to initiate a performance-based green building ordinance. The program awards points for a wide range of green building technologies, including water conservation, building materials, xeriscaping, irrigation, energy efficiency, solar access, indoor air quality, and innovative project designs. For example, a clothesline is worth one point, solar hot-water heating is worth 10, using recycled carpeting gets two points, and using engineered swales to filter stormwater runoff is worth three.

To receive a residential building permit, new construction projects must accrue 50 to 65 points. Interior remodeling projects must have 10 to 25 points, and additions, 25 to 50, depending on the square footage of the development.

### GREEN BUILDING INCENTIVES

Some cities choose a market-based, incentive approach over mandatory requirements to encourage green building technology. Zoning incentives typically include density bonuses, design flexibility, or setback reductions. Non-zoning incentives include tax credits, preferential building permit review, and technical assistance programs.

Because many zoning ordinances include density bonus provisions for open space, affordable housing, public recreation amenities, and many other services, the inclusion of green building technology as a criterion for bonuses can make it easier for local governments to encourage sustainable building design. When selling a mandatory green building program to public officials and citizens proves troublesome, density bonuses for green buildings make it more palatable.

**Wenatchee.** Wenatchee, Washington, added green building provisions to its list of criteria for density bonuses. The ordinance lists many of the incentives for density

bonuses normally found in zoning ordinances, including preservation of open space, affordable housing development, public services such as schools and bike paths, and increased private open space. The Wenatchee ordinance also lists "environmental design exceeding mandatory code requirements" as a criterion for a density bonus. The code includes such environmental design examples as natural drainage, flood control measures, use of recycled materials, resource-conserving building designs, and landscape treatments.

**Arlington County.** Arlington County implemented a more extensive green building density bonus program to encourage LEED certification. The program allows developers to request a slightly larger building than permitted under the zoning code if the project receives any level of official LEED certification. The awarded bonus varies, depending on the project type and the certification level. In 2003, the program expanded from commercial office developments (as originally intended) to all development types.

Developers of LEED-certified buildings do not automatically receive a density bonus. The

### GREEN ON TOP

Green roofs save on heating costs in the winter and cooling costs in the summer. They offer a longer roof membrane life span and sound insulation. Green roofs even create recreational space.

The environmental benefits of green roofs include filtering particulate matter from the air, reducing stormwater runoff and non-point source pollution, retaining and cleaning water that would otherwise be diverted into sewer systems, and providing new opportunities for biodiversity, habitat protection for birds and insects, and seed dispersal.

Green roofs also reduce the urban heat island effect—the disproportionate rise in temperature that occurs when vast expanses of paved surface and built-up terrain absorb heat from the sun. Urban heat islands exacerbate air pollution and increase energy usage. Evidence shows that green roofs also slow the spread of fire through the roof.

**Portland.** In Portland, Oregon, eco-roofs and traditional rooftop gardens qualify for a density bonus. The density bonus for eco-roofs applies to developments in the central



City of Chicago Mark Farina

Green roofs improve air quality, conserve energy, reduce stormwater runoff, and reduce the heat island in large urban areas. This green roof atop a municipal building in Chicago is one of 80 green roofs in the city.

county board considers requests for additional density between .15 and .35 floor area ratio, and for additional height up to three stories. A guarantee of LEED certification must accompany the request.

The ordinance prevents competition between the green building incentive program and the county's affordable housing density bonus incentive program by permitting both incentives on one site.

city plan district. Eco-roofs must act as stormwater facilities and be certified by the city's Bureau of Environmental Services as such. The amount of the density bonus depends on the percentage of roof covered and is based on a sliding scale.

A rooftop garden density bonus is available to developers of buildings in the central commercial, central employment, and central residential zones. Rooftop gardens differ from

eco-roofs because they can be designed as recreational space or gardens instead of stormwater management facilities. If developers choose the rooftop garden option, they get a density bonus of one square foot for an equal amount of garden. The garden must cover at least 50 percent of the rooftop. Of that, 30 percent must be plants. Property owners of eco-roofs and rooftop gardens must execute a covenant with the city ensuring continuing maintenance of the garden.

### ENERGY EFFICIENCY

**Minneapolis.** Minneapolis offers density bonuses in its downtown districts for the expected amenities—open space, interior through-block connections, transit facilities, historic preservation, and street-level retail uses. The city includes energy efficiency on that list in exchange for a bonus of increased floor area ratio. Applicants who seek a density bonus for energy efficiency must submit a high-performance building plan that demonstrates a 35 percent increase in overall building efficiency over existing state energy code requirements. Buildings achieving a 45 percent increase in energy efficiency receive double the density bonus. According to Michael Orange, a principal planner with the Minneapolis Community Planning and Economic Development Department, the city wanted green development but discovered that the state building code preempts local regulations (when local regulations are stricter) so the city created an incentive.

Orange says his department studied the feasibility of the density bonus, knowing the building technology available today could make them more energy efficient. However, since passing the ordinance, limited downtown development has kept the density bonus option dormant.

**Hailey.** One goal of the planned unit development ordinance in Hailey, Idaho, is to encourage the use of renewable resources to conserve energy. The Hailey zoning ordinance states that PUDs with energy-efficient amenities also receive density bonuses. To provide developers with a common measurement of energy efficiency, Hailey awards a 10 percent density bonus for developments that provide at least 50 percent of the total energy needs of the PUD from renewable resources such as solar, wind, or geothermal power.

### WATER-EFFICIENT LANDSCAPING

Current landscape irrigation practices in the United States consume large amounts of water. Although non-potable water is effective and safe for irrigation use, most farmers and landscapers still use potable water. In climate-sensitive areas such as the Desert Southwest, communities can adopt separate water-efficient landscaping requirements in the zoning ordinance.

**West Valley City.** The water-efficient landscape ordinance in West Valley City, Utah, has different provisions for single-family development and for commercial, industrial, and multi-family projects. Developers must submit a landscaping plan that includes a designation of landscape zones, details of the irrigation system, a soils report, and a water allowance worksheet. The worksheet must include the annual landscape water allowance as determined by a formula.

#### WEB-BASED ENHANCEMENTS FOR ZONING PRACTICE

To enhance the reading experience for *Zoning Practice* subscribers, the editors are pleased to provide additional LEED information, a list of references, and a Green Zoning Matrix summarizing the ordinances featured in this article on the *Zoning Practice* webpages of APA's website. We invite you to check out this additional information at [www.planning.org/ZoningPractice/currentissue.htm](http://www.planning.org/ZoningPractice/currentissue.htm).

The landscape and irrigation design standards must maximize water efficiency through specific measures such as water meters, water-conserving plants, fire-resistant plants, drip irrigation lines, and water reuse.

The ordinance uses educational literature to motivate rather than mandate homeowners. The single-family development standards require the city's water purveyor to provide the homeowner with a landscape education package, consisting of a description of the principles of water-efficient landscape design, a list of water-conserving plants, water conservation tips, and other information.

Zoning Administrator Kevin Hooper says the city enacted the ordinance in response to water supply issues in the desert community. "We are hoping that the ordinance will reduce our water needs," he says. But Hooper also says the city initially had problems with enforcement of the ordinance. "We have had some problems with

execution—getting water audits and other requirements," he says. Since the ordinance is new, Hooper says the problems may dissipate as developers become used to the idea. He also says developers in West Valley City are generally supportive of the new regulation. "It costs them less money in the long run in terms of landscape installation and overall maintenance," he says.

### ZONING FOR A GREEN FUTURE

While green building requirements in the zoning ordinance are the exception, experts predict change. "Right now, you hear a lot about requirements for green municipal buildings," says Berkshire. He says that although few cities have requirements for private development, "A lot of these policies are going to be incorporated into the normal building standard instead of the green building standards. It will become the building standard."

For planners looking to use green building technology, the U.S. Green Building Council, Congress for the New Urbanism, and the Natural Resources Defense Council are working on a LEED certification standard for neighborhood developments, called LEED-ND. LEED-ND emphasizes smart growth ideas while incorporating important green building practices. The Smart Growth Network's 10 principles of smart development guide LEED-ND, which addresses density, proximity to transit, mixed uses, housing type, and bicycle- and pedestrian-friendly designs in neighborhood developments.

In a statement on its website, the U.S. Green Building Council says, "LEED-ND would create a label, as well as a set of guidelines for decision-making, which could serve as a concrete signal of, and incentive for, better location, design, and construction of neighborhoods and buildings." Ideally, planners can use LEED as an incentive to curtail sprawl, revitalize urban areas, decrease traffic congestion, and improve the environment—all the while building sustainable communities of lasting value.

A packet of information on green building provisions in the zoning ordinance is available to *Zoning Practice* subscribers by contacting Michael Davidson, editor, *Zoning Practice*, at the American Planning Association, 122 South Michigan Avenue, Suite 1600, Chicago, IL 60603, or by sending an e-mail to [mdavidson@planning.org](mailto:mdavidson@planning.org). *Rebecca Retzlaff, AICP, is a researcher with the American Planning Association and a Ph.D. candidate in urban planning and policy at the University of Illinois at Chicago.*



## NEWS BRIEFS

### WAL-MART CIRCUMVENTS LOCAL LAWS—AGAIN

By Sarah K. Wiebenson

Increasing numbers of local and county governments are devising ways to prohibit the proliferation of large-scale formula retailers. In characteristic fashion, the “big boxes” (a less flattering but more literal description of this type of retailer) are fighting back. Early this year, when big box king Wal-Mart went up against a Calvert County, Maryland, ordinance with a 75,000-square-foot size limit on stores for a single site, the retailer circumvented the restriction by building its nursery on an adjacent site. The combined size of the two properties totaled nearly 98,000 square feet. This month, Wal-Mart successfully lobbied to overturn a size-limit restriction on big boxes that Bennington, Vermont, officials enacted just this past January. These cases and others beg the question: Is zoning the most effective tool to stop big box development?

Efforts to regulate big box design are successful in isolated instances. As suburban markets become saturated, big box retailers become more willing to adapt their design in exchange for access to urban consumers. In Milwaukee, Wal-Mart agreed to a neo-traditional design for a new store, which included a zero setback and parking in the rear. The retailer rehabilitated an abandoned commercial space and scaled down the operations of two locations in Vermont. Home improvement giant Home Depot even bowed to the high densities of Manhattan when it opened a store on 23rd Street (See *Saving Face: How Corporate Franchise Design Can Respect Community Character*, PAS Report No. 503/504).

Currently, planners have two zoning options that can potentially protect local businesses from a big box takeover: 1) district designations, or other efforts to force big box retailers away from the central business district, and 2) limits on store size.

Concern about competition in the central business district between big box retailers and independent businesses is the reason some communities require large retailers to set up shop on the periphery of the community, often along the highway or interstate. This was the solution in Burlington, Vermont,

where big box stores sell their goods six miles outside of town.

Some municipalities prohibit any retailers over a specified size. The size limits vary widely, but generally range from 25,000 to 100,000 square feet. Hailey, Idaho, prohibits stores with an aggregate floor area more than 36,000 square feet from locating in any of its business districts. Restrictions are more severe in Hailey’s SCI-SO (service commercial industrial—sales and office) subdistrict, where stores more than 25,000 square feet are prohibited.

Responding to the ever-changing format of large, formula retailers, Oakland, California, created a new land-use classification called “large-scale combined retail and grocery sales commercial activities” to prevent the biggest of the big boxes—the “supercenters”—from infiltrating the community. The Oakland ordinance still allows membership wholesale clubs and home improvement stores.

Design regulation addresses the “size matters” part of the big box problem, but it fails to address the long-term economic consequences of these establishments on local merchants and wages.

Today, opponents of rampant big box proliferation can use economic impact studies in their battle against the corporate retailers. There is a growing body of research that says big box retailers may cause impacts extending far beyond the closing of mom-and-pop establishments. The studies show that the presence of big box retailers can result in a net loss of jobs and tax revenue to a community over time.

Such was the focus of discussions between Wal-Mart and the City of Chicago when, in a flurry of controversy, the retailer sought to open two locations in the city—a first for Chicago. Ultimately, neighborhood officials from the South Side rejected Wal-Mart’s proposal for a store there, but council members on the West Side decided (after much deliberation) that Wal-Mart provided a necessary economic boost for their depressed neighborhoods, and it was permitted.

New York City is considering a more proactive strategy with legislation that would allow the city to look at the corporate history of any prospective retailer before issuing licenses. For example, the commissioner of consumer affairs could withhold a license if the company is discovered to have a history of “excessive employment-related claims.” The law would apply to stores larger than 85,000

square feet. Also, the onus is on the petitioner to demonstrate a positive local economic impact. It all plays out during two public hearings, at which testimony from an opposing side (i.e., merchants of locally owned establishments, neighborhood groups, preservationists, etc.) is heard. Opponents, who fear precedent, criticize the bill as “municipal socialism.”

Despite regulatory efforts and growing social hostility, Wal-Mart recently announced plans to increase its operations by 138,000 acres over the next 10 years.

A packet of information on zoning options for big box retail uses is available to *Zoning Practice* subscribers by contacting Michael Davidson, editor, *Zoning Practice*, at the American Planning Association, 122 South Michigan Avenue, Suite 1600, Chicago, IL 60603, or by sending an e-mail to [mdavidson@planning.org](mailto:mdavidson@planning.org).

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Cover photo courtesy of the City of Chicago. Photo shows the green roof atop Dearborn Center, a municipal building.

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# ➔ APRIL 2005 ZONING PRACTICE

## BUILDING GREEN: ONUS OR BONUS?

### GREEN BUILDINGS MATRIX

Municipality	Green Municipal Buildings	Green Building Requirements or Guidelines	Private Development Requirements	Incentive Programs	Links
Acton, Maine	No	No	Yes, density bonus for LEED certification	No	<a href="http://doc.acton-ma.gov/dsweb/Get/Document-8222/Town+of+Acton+Zoning+Bylaw+2004.pdf">doc.acton-ma.gov/dsweb/Get/Document-8222/Town+of+Acton+Zoning+Bylaw+2004.pdf</a> See Section 5.5B.2.2.d
Alameda County, California	Yes	No	N/A	N/A	<a href="http://www.co.alameda.ca.us/admin/admincode/">www.co.alameda.ca.us/admin/admincode/</a>
Arlington County, Virginia	No	Yes, for site plan projects	Yes, density bonus	Voluntary green single-family home program, priority plan review	<a href="http://www.co.arlington.va.us/Departments/EnvironmentalServices/epo/EnvironmentalServicesEpoGreenBuildings.aspx?lnsLinkId=1075">www.co.arlington.va.us/Departments/EnvironmentalServices/epo/EnvironmentalServicesEpoGreenBuildings.aspx?lnsLinkId=1075</a>
Arlington, Massachusetts	Yes, LEED Silver certification requirement	No	No	No	<a href="http://www.town.arlington.ma.us/Public_Documents/ArlingtonMA_TownBylaws/title1#article16">www.town.arlington.ma.us/Public_Documents/ArlingtonMA_TownBylaws/title1#article16</a> See Article 15 (construction projects), Section 4 (LEED)
Atlanta, Georgia	Yes, city-funded buildings over 5,000 square feet must meet LEED Silver rating	No	No	N/A	<a href="http://www.atlantaga.gov/client_resources/forms/energy%20conservation/adopted%20ordinance.pdf">www.atlantaga.gov/client_resources/forms/energy%20conservation/adopted%20ordinance.pdf</a>
Austin, Texas	Yes, the city has developed three-volume set of sustainable development guidelines for municipal facilities	Yes, all new developments in the central business district achieve at least a rating of "one star" under the Austin Green Building Program	Yes, rebate programs, seminars, technical assistance	Austin has developed separate rating systems for commercial, multi-family, municipal, and single-family developments	<a href="http://www.ci.austin.tx.us/greenbuilder/">www.ci.austin.tx.us/greenbuilder/</a>
Battery Park Authority, New York	No	Green building guidelines may be required in RFPs	No	Residential, commercial, institutional green building guidelines	<a href="http://www.batteryparkcity.org/Working/green-guidelines.htm">www.batteryparkcity.org/Working/green-guidelines.htm</a>
Berkeley, California	Yes	No	Yes, resource center, demonstration projects	N/A	<a href="http://www.ci.berkeley.ca.us/sustainabledevelopment/greenbuilding/">www.ci.berkeley.ca.us/sustainabledevelopment/greenbuilding/</a>
Boston, Massachusetts	No	No	Yes, green building feasibility study grants, green building task force	N/A	<a href="http://www.cityofboston.gov/bra/gbtf/gbtfhome.asp">www.cityofboston.gov/bra/gbtf/gbtfhome.asp</a>
Boulder, Colorado	Yes	No	N/A	New residential construction, interior remodeling, and residential building additions that are over 500 square feet are required to comply with the city's green points program	<a href="http://www.ci.boulder.co.us/environmentalaffairs/green_points/">www.ci.boulder.co.us/environmentalaffairs/green_points/</a>
Bowie, Maryland	Yes, low-impact development, waste management, and conservation landscaping requirements for municipal buildings	No	No	N/A	<a href="http://www.cityofbowie.org/green/legislation/bowie_legislation.htm">www.cityofbowie.org/green/legislation/bowie_legislation.htm</a>
Calabasas, California	Yes	Yes, non-residential structures over 500 square feet up to 5,000 square feet must meet LEED certified level. Non-residential structures over 5,000 square feet must meet LEED Silver level	No	N/A	<a href="http://www.cityofcalabasas.com/pdf/green-building-ordinance.pdf">www.cityofcalabasas.com/pdf/green-building-ordinance.pdf</a>
Chicago, Illinois	Yes, the City of Chicago has adopted The Chicago Standard to guide the design, construction, renovation, operation, and maintenance of municipal facilities based on LEED	Yes, for planned unit developments and lakefront protection ordinance developments	Yes	Green bungalow initiative, center for green technology, rooftop garden demonstration project	<a href="http://egov.cityofchicago.org/">egov.cityofchicago.org/</a>
Corvallis, Oregon	N/A	Yes, in the professional and administrative office district	No	No	<a href="http://www.ci.corvallis.or.us/downloads/cd/lcd3-11.pdf">www.ci.corvallis.or.us/downloads/cd/lcd3-11.pdf</a>
Eugene, Oregon	Yes	N/A	N/A	N/A	<a href="http://www.ci.eugene.or.us/PDD/BPS/ecobuild/index.htm">www.ci.eugene.or.us/PDD/BPS/ecobuild/index.htm</a>
Frisco, Texas	Yes	Yes, mandates the EPA "Energy Star" standards for residential development	No	Feasibility study of a mandatory commercial green building program, drought-tolerant landscaping initiative	<a href="http://www.friscotexas.gov/planning_dev/greenbuilding/">www.friscotexas.gov/planning_dev/greenbuilding/</a>
Hailey, Idaho	No	No	Yes, density bonus for renewable energy sources	No	<a href="http://www.haileycityhall.org/p_z/ordinance/zoning_ord/Article_10_Planned_Unit_Developments.pdf">www.haileycityhall.org/p_z/ordinance/zoning_ord/Article_10_Planned_Unit_Developments.pdf</a>
Issaquah, Washington	N/A	N/A	Water utility rebates, energy rebates, free technical assistance, preferential building permit review	N/A	<a href="http://www.ci.issaquah.wa.us/Page.asp?NavID=325">www.ci.issaquah.wa.us/Page.asp?NavID=325</a>

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**GREEN BUILDINGS MATRIX (continued)**

<b>Municipality</b>	<b>Green Municipal Buildings</b>	<b>Green Building Requirements or Guidelines</b>	<b>Private Development Requirements</b>	<b>Incentive Programs</b>	<b>Links</b>
Kansas City, Missouri	Yes	No	No	N/A	<a href="http://cityclerk.kcmo.org/ordinancesearch.aspx">cityclerk.kcmo.org/ordinancesearch.aspx</a> Search for ordinance number 041222
King County, Washington	Yes, all county projects must be LEED certified	N/A	N/A	Adopted a LEED supplement for King County	<a href="http://www.metrokc.gov/dnrp/swd/greenbuilding/index.asp">www.metrokc.gov/dnrp/swd/greenbuilding/index.asp</a>
Long Beach, California	Yes	No	No	N/A	<a href="http://www.longbeach.gov/civica/filebank/blobdload.asp?BlobID=7226">www.longbeach.gov/civica/filebank/blobdload.asp?BlobID=7226</a> <a href="http://www.longbeach.gov/plan/pb/apd/green_building.asp">www.longbeach.gov/plan/pb/apd/green_building.asp</a>
Los Angeles, California	Yes	No	No	N/A	<a href="http://cityclerk.lacity.org/CFI/">cityclerk.lacity.org/CFI/</a> Search for council file number 02-0182
Minneapolis, Minnesota	No	No	Yes, density bonus for energy efficiency	No	<a href="http://www.municode.com/">www.municode.com/</a> Search for State of Minnesota, City of Minneapolis Code of Ordinances, Title 20 – Zoning, Chapter 549 – Downtown Districts, Article II – Floor Area Premiums, Section 549.220(12) – Energy Efficiency
Montgomery County, Maryland	The Montgomery County green schools program encourages efficient and responsible energy use in Montgomery County public schools	N/A	N/A	N/A	<a href="http://www.greenschoolsfocus.org/">www.greenschoolsfocus.org/</a>
New York, New York	No, pilot program to implement sustainable features on selected Department of Design and Construction projects	No	No	Published high-performance guidelines	<a href="http://www.nyc.gov/html/ddc/html/ddcgreen/home.html">www.nyc.gov/html/ddc/html/ddcgreen/home.html</a>
Pleasanton, California	All new construction projects must meet LEED-certified rating. Formal LEED certification is not required	Yes, for commercial development	No	No	<a href="http://www.ci.pleasanton.ca.us/pdf/greenbldg.pdf">www.ci.pleasanton.ca.us/pdf/greenbldg.pdf</a>
Portland, Oregon	Yes, also adopted a Portland LEED standard for municipal developments	N/A	Yes, density bonus for green roofs	N/A	<a href="http://www.green-rated.org/uploaded_files/01_jan_gb_policy.pdf">www.green-rated.org/uploaded_files/01_jan_gb_policy.pdf</a>
San Diego, California	Yes	N/A	N/A	N/A	<a href="http://genesis.sannet.gov/infospc/templates/esd/commercial_programs.jsp">genesis.sannet.gov/infospc/templates/esd/commercial_programs.jsp</a>
San Francisco, California	Yes	No	No	N/A	<a href="http://www.sfgov.org">www.sfgov.org</a>
San Jose, California	Yes	No	No	N/A	<a href="http://www.sanjoseca.gov/esd/natural-energy-resources/greenbuilding.htm">www.sanjoseca.gov/esd/natural-energy-resources/greenbuilding.htm</a>
San Mateo County, California	Yes, applies to new construction and additions to existing county buildings and facilities over 5,000 square feet	No	No	Published online sustainable building guide	<a href="http://www.recycleworks.org/greenbuilding/sus_building_policy.html">www.recycleworks.org/greenbuilding/sus_building_policy.html</a>
Santa Barbara County, California	No	No	Design incentives for energy-efficient building design	Established an innovative building design review committee to advise builders on energy-efficient design. Incentives for energy-efficient building design	<a href="http://www.silcom.com/~sbcplan/ibdrc.html">www.silcom.com/~sbcplan/ibdrc.html</a>
Santa Monica, California	N/A	Yes	N/A	Construction and material recycling waste ordinance. Green building design and construction guidelines	<a href="http://greenbuildings.santa-monica.org/">greenbuildings.santa-monica.org/</a>
Scottsdale, Arizona	New city-occupied buildings must be built to LEED Gold level	N/A	N/A	Incentives, expedited plans, checklist	<a href="http://www.scottsdaleaz.gov/greenbuilding/">www.scottsdaleaz.gov/greenbuilding/</a>
Seattle, Washington	Yes	No	No	Contributed to preparation of the Northwest Regional Sustainable Building Action Plan. Prepared facility standards for design, construction, and operations, which includes green building elements	<a href="http://www.cityofseattle.net/sustainablebuilding/SBpolicy.htm">www.cityofseattle.net/sustainablebuilding/SBpolicy.htm</a>
Suffolk County, New York	LEED pilot program for municipal buildings from the 2005-2007 capital improvement program	No	No	No	<a href="http://www.co.suffolk.ny.us/legis/resos2004/i1754-04.htm">www.co.suffolk.ny.us/legis/resos2004/i1754-04.htm</a>
Wenatchee, Washington	No	No	Yes, density bonus for environmental design	No	<a href="http://www.cityofwenatchee.com/acrofiles/3070%20effective%2010-10-04.pdf">www.cityofwenatchee.com/acrofiles/3070%20effective%2010-10-04.pdf</a> Density bonus section, page 39

Source: This list is partially based on Peter Templeton's "LEED Users Summary Government Sector." (Washington D.C.: U.S. Green Building Council, 2004).

## ➡ APRIL 2005 ZONING PRACTICE

### BUILDING GREEN: ONUS OR BONUS?

#### LEED CATEGORIES FOR GREEN BUILDING TECHNOLOGY:

- **Sustainable Sites:** project and building location, how the project relates to the surrounding property, brownfields, transportation, landscaping, stormwater management
- **Water Efficiency:** water-efficient landscaping, wastewater technologies, potable water supply, water use reduction
- **Energy and Atmosphere:** energy efficiency and performance, renewable energy sources, systems commissioning, green power, global climate issues
- **Materials and Resources:** building reuse, construction and demolition debris management, recycled products, sustainably certified wood
- **Indoor Air Quality:** low-emitting materials, thermal comfort, daylighting, ventilation
- **Innovation and Design:** creative applications of green building ideas, innovation in design, accredited professionals, technology

Aspiring green building developments can accrue points in these categories for one of four LEED award levels: certified (26 to 32 points), silver (33 to 38 points), gold (39 to 51 points), and platinum (52 to 69 points).

#### LEED STANDARDS ARE CURRENTLY AVAILABLE OR UNDER DEVELOPMENT FOR:

- **LEED-NC (new commercial construction and major renovation projects):** for new commercial and institutional projects, with a focus on office buildings
- **LEED-EB (existing building operations):** for building operations and systems upgrades in existing buildings where the majority of interior or exterior surfaces remain unchanged
- **LEED-CI (commercial interiors projects):** for tenant spaces in office, retail, and institutional buildings
- **LEED-CS (core and shell projects):** for new core and shell construction that covers base building elements such as heating, cooling, and structure
- **LEED-H (homes):** for single-family and low-rise multifamily residential development
- **LEED-ND (neighborhood development):** for site selection, design, and smart growth

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## ➡ APRIL 2005 ZONING PRACTICE (continued)

### BUILDING GREEN: ONUS OR BONUS?

#### REFERENCES:

- Arlington County, Virginia, green buildings program: [www.arlingtonva.us](http://www.arlingtonva.us). Click on the link.
- Austin, Texas, green building program: [www.ci.austin.tx.us/greenbuilder/](http://www.ci.austin.tx.us/greenbuilder/)
- Boulder, Colorado, green points program: [www.ci.boulder.co.us/environmentalaffairs/green\\_points/](http://www.ci.boulder.co.us/environmentalaffairs/green_points/)
- Calabasas, California, green building ordinance: [www.cityofcalabasas.com/pdf/green-building-ordinance.pdf](http://www.cityofcalabasas.com/pdf/green-building-ordinance.pdf)
- City of Chicago green buildings/green roofs program: [egov.cityofchicago.org](http://egov.cityofchicago.org). Click on the Environmental Initiatives link.
- "Green Grow the Buildings." *Planning* (forthcoming), July 2005.
- Green Roofs for Healthy Cities: [www.greenroofs.org/](http://www.greenroofs.org/)
- G-Rated: Portland, Oregon's, green building resource: [www.green-rated.org](http://www.green-rated.org)
- Greener Buildings: the resource center for environmentally responsible building development: [www.greenerbuildings.com](http://www.greenerbuildings.com)
- Greg Kats, *The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force*: [www.cap-e.com/publications](http://www.cap-e.com/publications)
- Lisa Fay Metthiessen and Peter Morris, *Costing Green: A Comprehensive Cost Database and Budgeting Methodology*: [www.dladamson.com/images/pdf\\_files/costinggreen.pdf](http://www.dladamson.com/images/pdf_files/costinggreen.pdf)
- Minnesota Planning, *Return on Investment: High Performance Buildings*: [www.mnplan.state.mn.us/pdf/2002/BuildingsReport.pdf](http://www.mnplan.state.mn.us/pdf/2002/BuildingsReport.pdf)
- National Association of Home Builders Research Center, *A Guide to Developing Green Builder Programs*: [www.smartgrowth.org/pdf/greengd.pdf](http://www.smartgrowth.org/pdf/greengd.pdf)
- San Francisco Department of Environment, *Municipal Green Building Compliance Guide*: [temp.sfgov.org](http://temp.sfgov.org)
- SBW Consulting, Inc., *Achieving Silver LEED: Preliminary Benefit-Cost Analysis for Two City of Seattle Facilities*: [www.cityofseattle.net/sustainablebuilding/Leeds/docs/LEED\\_CostBenefit\\_Report.pdf](http://www.cityofseattle.net/sustainablebuilding/Leeds/docs/LEED_CostBenefit_Report.pdf)
- TerraLogos: Eco Architecture, *Green Building Template: A Guide to Sustainable Design Renovating for Baltimore Rowhouses*: [www.dnr.state.md.us/ed/casestudies/baltimorerowhouses.pdf](http://www.dnr.state.md.us/ed/casestudies/baltimorerowhouses.pdf)
- U.S. Department of Housing and Urban Development, *A Community Guide to Basic and Cost-Saving Construction in the American Southwest*: [www.huduser.org/publications/destech/cost\\_saving.html](http://www.huduser.org/publications/destech/cost_saving.html)
- U.S. Green Building Council (and LEED): [www.usgbc.org](http://www.usgbc.org)