

GREEN BUILDINGS FOR COOL CITIES

A GUIDE FOR ADVOCATING FOR LOCAL GREEN BUILDING POLICIES



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GREEN BUILDINGS FOR COOL CITIES

More than 1000 American cities and counties are investing in the future by taking action to reduce their impact on global climate change. Local governments are developing innovative policies and methods to reduce greenhouse gas emissions and demonstrating leadership by pledging commitment to pacts like the U.S. Mayors Climate Protection Agreement and the Cool Counties Climate Stabilization Declaration.

The operation, heating and cooling of buildings contribute nearly 40 percent of global warming emissions¹, and consume over 70 percent of electricity use in the United States². As local governments advance climate action plans and determine how to meet their goals, they are discovering that improving the efficiency of their buildings is one of the most effective ways to protect our climate and recharge our economy.

That's why the Sierra Club's Cool Cities Program and the U.S. Green Building Council (USGBC®) are teaming up to advocate for cost-effective, local, administrative green building policies. This guide provides our organizations' joint recommendations for greening buildings in your community. In the following pages, you'll find a step-by-step approach to best practices that address the diverse context and needs of communities big and small, from coast to coast.

WHAT MAKES A BUILDING "GREEN"?

A green building is one that is designed and constructed to reduce the overall impact of the built environment on human health and the natural environment. Green buildings efficiently use energy, water, and other natural resources, protect occupant health, improve employee productivity, and reduce pollution.

Green buildings incorporate energy-efficient heating, cooling, lighting, and water systems, including high-performance insulation, windows, doors, and appliances; sustainable construction materials such as those made from recycled and recyclable materials with reduced-emissions; and water-saving site design and landscaping. In addition, green buildings may have, or can be easily suited to, clean renewable power systems.

REDUCED ENERGY USE IN GREEN BUILDINGS AS COMPARED WITH CONVENTIONAL BUILDINGS

	Certified	Silver	Gold	Average
Energy Efficiency (above standard code)	18%	30%	37%	28%

Source: Capital E Analysis³

THE BENEFITS OF GREEN BUILDINGS

Green, high-performance buildings deliver measurable and significant environmental and fiscal benefits. When compared to structures built to conventional construction methods, green buildings:

- ▶ consume 26% less energy⁴
- ▶ account for 33% fewer greenhouse gas emissions⁵
- ▶ require 13% lower maintenance costs⁶
- ▶ yield 27% higher occupant satisfaction⁷



Building green doesn't have to cost a penny more.⁸ Investments in green buildings pay dividends and reap rewards, on average resulting in:

- ▶ 6.6% improvement on return on investment⁹
- ▶ 8%–9% reduction in operating costs¹⁰
- ▶ 7.5% increase in building value¹¹
- ▶ 3.5% increase in occupancy ratio¹²

Building green also creates quality jobs. A 2009 USGBC/Booz Allen Hamilton report found that, despite a challenging economic outlook, green building will support nearly 8 million jobs in the U.S. economy and contribute \$554 Billion to U.S. GDP between 2009 and 2013, many times its contribution to jobs and GDP over the last eight years.¹³

GREEN BUILDING AND LEED®

The most widely accepted green building certification program is LEED, developed by the U.S. Green Building Council, to provide third-party review and verification of the design, construction and operation of green buildings. LEED recognizes excellence for measures that help protect human and environmental health in a variety of areas, including: energy efficiency, sustainable site development, water savings, materials selection and indoor environmental quality.

In recent years, thousands of buildings in the United States have achieved LEED certification. As of November 2009, more than 200 localities across the U.S. are recognizing LEED as an effective tool for benchmarking the performance of buildings in their community, and 2,997 local government projects are currently pursuing LEED certification. Learn more about green building policies: www.usgbc.org/DisplayPage.aspx?CMSPageID=1852



HOW DOES LEED WORK?

LEED is a rating system under which projects earn points for satisfying specific green building criteria. The number of points the project earns, as verified by third-party review, determines whether a project will be certified and the level of LEED certification it will achieve. Certification is available in four progressive levels – Certified, Silver, Gold and Platinum. For greater flexibility, LEED allows a variety of point combinations to achieve each certification level, in addition to several minimum prerequisites. Learn more about LEED: www.usgbc.org/LEED

COOL CITIES—USGBC GREEN BUILDING POLICY RECOMMENDATIONS

The local green building policies described in this guide are organized from basic to more advanced plans of action to address energy efficiency and environmental sustainability across the built environment. Highlighted policies include leadership standards for government buildings that serve as models for the community, financial and no-cost incentives to build green for the commercial and residential sectors, and improved minimum efficiency standards through energy code adoption and enforcement. These recommendations can be used as a foundation for developing new administrative policies, a guide to expanding upon current activities, or combined for a holistic approach.



STEP ONE: GETTING STARTED – Leading by Example and Expanding the Green Building Market
<ul style="list-style-type: none"> I. Green Building Standards for New Municipal Buildings and Major Renovation of Municipal Buildings II. Non-Financial Incentives for Commercial and Residential Buildings III. Green Building Standards and Incentives for Schools and Affordable Housing
STEP TWO: RAISING THE BAR – Increasing Standards and Encouraging Private Development
<ul style="list-style-type: none"> I. Green Retrofit Standards for Existing Municipal Buildings II. Higher Standards for New Construction and Major Renovation of Municipal Buildings III. Financial Incentives for Commercial and Residential Buildings
STEP THREE: ADVANCED – Greening Our Cities through Smart Financing and Building Codes
<ul style="list-style-type: none"> I. Cost Effective Home Energy Efficiency Financing II. Better Building Codes

1 STEP ONE: LEADING BY EXAMPLE AND EXPANDING THE GREEN BUILDING MARKET

The very first step for local governments is to set strong green building standards for new and retrofitted public buildings, including schools, public safety facilities, libraries, and administrative offices. Such buildings are highly visible, demonstrate leadership by example, and help to educate citizens about the benefits and realities of green building. They can also serve as a catalyst for green building community-wide, increasing local expertise and driving down costs.

Early actions can also include offering non-financial incentives to advance green building in the private sector and leading the way to make affordable housing green, so that all citizens have access to healthier, more efficient homes.

I. GREEN BUILDING STANDARDS FOR NEW MUNICIPAL BUILDINGS AND MAJOR RENOVATION OF MUNICIPAL BUILDINGS

Clayton, MO (16,076 pop.) – Requires all new construction and major renovations of city-owned, -occupied, or -funded buildings over 5,000 sq. ft. to earn LEED Silver™ certification.
[Learn more: www.usgbc.org/ShowFile.aspx?DocumentID=1976](http://www.usgbc.org/ShowFile.aspx?DocumentID=1976)

Kearny, NJ (37,295 pop.) – Requires all new municipal buildings to earn a minimum of LEED Silver certification. The Town also offers density bonuses to private redevelopment projects that earn LEED certification.
[Learn more: www.usgbc.org/ShowFile.aspx?DocumentID=6347](http://www.usgbc.org/ShowFile.aspx?DocumentID=6347)

Miami-Dade County, FL (2,387,170 pop.) – Requires all new county-owned and county-financed facilities and all major renovations of greater than 50% of replacement cost to achieve LEED Silver certification. County-owned, -operated, or -financed renovations of less than 50% of replacement cost are required to achieve LEED Certified®.
[Learn more: www.miamidade.gov/govaction/matter.asp?matter=073319&file=true&yearFolder=Y2007](http://www.miamidade.gov/govaction/matter.asp?matter=073319&file=true&yearFolder=Y2007)



II. NON-FINANCIAL INCENTIVES FOR COMMERCIAL AND RESIDENTIAL BUILDINGS

Portsmouth, NH (20,495 pop.) – Provides a density bonus of 0.5 FAR (floor area ratio) for projects that earn LEED certification and also meet appropriate open space requirements.

[Learn more: www.cityofportsmouth.com/planning/applications.htm](http://www.cityofportsmouth.com/planning/applications.htm)

Chicago, IL (2,836,658 pop.) – Expedites the permitting process for projects that incorporate innovative green building practices, including LEED certification. Commercial projects striving for LEED certification will receive their permits within 30 days. Projects striving for higher levels of LEED certification are will receive their permits within 15 days and are eligible to have their consultant review fee waived.

[Learn more: egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/ChicagoStandard.pdf](http://egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/ChicagoStandard.pdf)

III. GREEN BUILDING STANDARDS AND INCENTIVES FOR SCHOOLS AND AFFORDABLE HOUSING

Cincinnati, OH (332,458 pop.) – Public schools will strive for LEED Silver certification while requiring that at least four schools achieve LEED Silver certification and one additional school achieve LEED Gold™ or LEED Platinum™ certification.

[Learn more: www.greenschoolbuildings.org/action/connect/k12_initiatives.aspx](http://www.greenschoolbuildings.org/action/connect/k12_initiatives.aspx)

Anchorage, AK (279,671 pop.) – Requires all new Anchorage School District buildings and major building renovations over 20,000 sq. ft. to achieve LEED Certified. The minimum level of certification will increase to LEED Silver on July 1, 2012.

[Learn more: www.akcenter.org/files/sustainable-communities/Final%20A0%207-18-08.pdf](http://www.akcenter.org/files/sustainable-communities/Final%20A0%207-18-08.pdf)

Washington, DC (581,539 pop.) – The DC Green Building Act of 2006 requires that all publicly-funded residential projects over 10,000 sq. ft. meet green building standards. While the law only applies directly to projects receiving at least 15% of construction costs from public sources, the DC Department of Housing and Community Development has incorporated Enterprise's Green Communities Criteria, a national framework for sustainable affordable homes, into all city-funded projects.

[Learn more: www.dccouncil.washington.dc.us/images/00001/20061218152322.pdf](http://www.dccouncil.washington.dc.us/images/00001/20061218152322.pdf)

Seattle, WA (582,454 pop.) – The City of Seattle published the SeaGreen Affordable Housing Guide in 2002 to promote energy efficiency, operating savings, and sustainable building methods in affordable multi-family housing developments. City funding for low-income development projects is awarded with consideration of a project's sustainability plan and adherence to SeaGreen criteria.

[Learn more: www.seattle.gov/housing/SeaGreen](http://www.seattle.gov/housing/SeaGreen)

Boston, MA (589,141 pop.) – The City's Green Affordable Housing Initiative requires that developers of affordable housing projects that receive public funding must adhere to LEED Silver and ENERGY STAR® standards, depending on the size of the project. This initiative is part of Boston's larger Green Building program.

[Learn more: www.cityofboston.gov/dnd/D_green_housing.asp](http://www.cityofboston.gov/dnd/D_green_housing.asp)



2 STEP TWO: RAISING THE BAR – INCREASING STANDARDS AND ENCOURAGING PRIVATE DEVELOPMENT

Local governments can further promote green building community-wide by setting even higher standards for new and retrofitted municipal buildings, and by providing greater commercial and residential financial incentives.

I. GREEN RETROFIT STANDARDS FOR EXISTING MUNICIPAL BUILDINGS

Portland, OR (550,396 pop.) – Requires all existing municipal buildings to earn LEED Silver certification. The city also requires all new municipal buildings to earn LEED Gold certification and municipally-leased facilities to earn LEED Silver certification.

[Learn more: www.portlandonline.com/shared/cfm/image.cfm?id=112682](http://www.portlandonline.com/shared/cfm/image.cfm?id=112682)

Los Angeles, CA (3,819,951 pop.) – Requires all existing municipal buildings larger than 7,500 sq. ft. or built before 1978 to be retrofitted with the goal of achieving LEED Silver certification in existing buildings.

[Learn more: clkrep.lacity.org/onlinedocs/2006/06-1963_ord_180633.pdf](http://clkrep.lacity.org/onlinedocs/2006/06-1963_ord_180633.pdf)

II. HIGHER STANDARDS FOR NEW CONSTRUCTION AND MAJOR RENOVATION OF MUNICIPAL BUILDINGS

Greensburg, KS (1,383 pop.) – Requires all new city-owned buildings greater than 4,000 sq. ft. to earn LEED Platinum certification, making it the first city in the U.S. to create such a standard. Projects under construction at the time the standard was implemented are also required to register and certify at the LEED Platinum level.

[Learn more: www.bnim.com/greensburg/Greensburg-LEED-Resolution.pdf](http://www.bnim.com/greensburg/Greensburg-LEED-Resolution.pdf)

Asheville, NC (73,875 pop.) – Requires that all new, occupied, city-owned buildings greater than or equal to 5,000 sq. ft. achieve a minimum of LEED Gold certification, when project resources and conditions permit. In addition, all new, occupied city-owned buildings less than 5,000 sq. ft. will be built to incorporate measures that would allow them to be certified at the LEED Silver level.

[Learn more: www.dsireusa.org/documents/Incentives/NC16R.pdf](http://www.dsireusa.org/documents/Incentives/NC16R.pdf)

III. FINANCIAL INCENTIVES FOR COMMERCIAL AND RESIDENTIAL BUILDINGS

Doylestown Borough, PA (8,149 pop.) – Provides a 60% reduction in building permit fees for new commercial and residential construction, additions, and interior remodels earning a minimum of LEED Silver certification through the Green Points Building Incentives Program.

[Learn more: www.usgbc.org/ShowFile.aspx?DocumentID=6441](http://www.usgbc.org/ShowFile.aspx?DocumentID=6441)

Chatham County, GA (248,469 pop.) – Provides a full abatement for state and county property taxes for commercial buildings achieving LEED Gold certification for five years, then a decreasing abatement in year six that tapers off by 20% each year until the tenth year. Qualifying projects are new or expanding businesses in an Enterprise Zone that increase employment opportunities.

[Learn more: www.chathamcounty.org/Chatham/uploads/Agn2006/m2006_05_12.PDF](http://www.chathamcounty.org/Chatham/uploads/Agn2006/m2006_05_12.PDF)



Montgomery County, MD (930,813 pop.) – Provides property tax credits for commercial buildings that achieve LEED Silver, Gold and Platinum certification, or achieve the equivalent rating under another rating system. New construction or major renovations over 10,000 sq. ft. can earn five-year tax credits of 25%–75% for achieving Gold-Platinum levels of certification, and or for achieving Silver-Platinum certification for smaller buildings. For existing buildings over 10,000 sq. ft. three-year tax credits of 10%–50% are available for achieving Gold-Platinum levels of certification, and for achieving Silver-Platinum certification for smaller existing buildings.

[Learn more: www.montgomerycountymd.gov/content/council/pdf/bill/2007/37-06.pdf](http://www.montgomerycountymd.gov/content/council/pdf/bill/2007/37-06.pdf)

El Paso, TX (606,913 pop.) – The Green Building Grant Program provides grants for commercial projects greater than 5,000 sq. ft. and multi-family residential projects that obtain LEED certification. Grants are awarded at increasing intervals based on level of certification. Maximum grant allowance is \$200,000 for LEED Platinum for new construction and \$400,000 for LEED Platinum for multi-story existing buildings that are mixed use and that have been 50% vacant for 5 years, or as further defined by the City.

[Learn more: www.ci.el-paso.tx.us/muni_clerk/agenda/09-11-07/09110714A.pdf](http://www.ci.el-paso.tx.us/muni_clerk/agenda/09-11-07/09110714A.pdf)

Baltimore County, MD (788,994 pop.) – Provides tax credits for new residential construction that earn a minimum of LEED Silver certification. Projects earning LEED Silver will earn a 40% property tax credit, 60% for LEED Gold, and 100% for LEED Platinum. The tax credits will be in effect for 3 years or for up to \$1 million in total incentives.

[Learn more: resources.baltimorecountymd.gov/Documents/CountyCouncil/bills/b02808.pdf](http://resources.baltimorecountymd.gov/Documents/CountyCouncil/bills/b02808.pdf)

Tampa, FL (336,823 pop.) – Offers developers of commercial and multi-family residential buildings a 20–80% rebate on building permit fees, depending on the level of LEED certification that the building earns. The City further offers developers of single family homes a 50% rebate on building permit fees if the building meets the current Green Home Designation Standards of the Florida Green Building Coalition. Tampa further encourages developers of affordable multi-family and single family homes to follow the Florida Green Building Coalition’s Green Home Standard.

[Learn more: docserver.tampagov.net/cache/00001/880/Ordinance%20No.%202008-111%20to%202008-118.pdf](http://docserver.tampagov.net/cache/00001/880/Ordinance%20No.%202008-111%20to%202008-118.pdf)

3 STEP THREE: ADVANCED – GREENING OUR CITIES THROUGH SMART FINANCING AND BUILDING CODES

To lower real or perceived cost barriers to green building and to achieve even greater market penetration, innovative local governments are developing creative financing models to help residents and other building owners invest in green building. In addition, leading local governments are implementing and enforcing better building codes to support sustainability goals. These localities are out at the forefront, blazing a trail for others to follow.

I. COST EFFECTIVE HOME ENERGY EFFICIENCY FINANCING

Babylon, NY (216,125 pop.) – The Town of Babylon, under the Long Island Green Homes (LIGH) initiative, offers residents low-interest loans for retrofitting their homes at no out-of-pocket cost to the homeowner. Through a \$2 million revolving loan fund, the Town subsidizes up to \$12,000



of upgrades per home, obliging the homeowner to pay a monthly benefit assessment fee which is, generally, lower than the monthly energy savings realized from the improvements. Should the monthly obligation be in arrears, it is assigned to the property tax. The Town levies a 3% administrative fee incorporated into the monthly payments. Should the homeowner move before the obligation is satisfied, the obligation stays with the home.

[Learn more: ligreenhomes.com](http://ligreenhomes.com) and www.TheBabylonProject.org

Milwaukee, WI (573,358 pop.) – Launching in 2010, the Milwaukee Energy Efficiency (Me2) program offers financing of home energy retrofits for building owners and occupants with immediate savings and no upfront costs. Using both public funds and private capital, Me2 offers long-term repayment for retrofits through additional small fees on municipal service bills. Homeowners still save money every month because the small monthly payback fee is less than the monthly energy cost savings. Repayment schedules are attached to the home so the obligation transfers to the future homeowner in the event the home is sold.

[Learn more: www.cows.org/collab_projects_detail.asp?id=54](http://www.cows.org/collab_projects_detail.asp?id=54)

Sonoma County, CA (466,741 pop.) – The Sonoma County Energy Independence Program gives commercial and residential property owners the opportunity to borrow funds to increase their property's energy efficiency. Qualifying retrofits include insulation, cool roofing, heating and air conditioning systems, waterless urinals, solar panels and energy efficient windows. The money is paid back as an assessment on the property, due at the same time as the property taxes. Five, ten, and twenty year terms are available at 7% interest.

[Learn more: www.sonomacountyenergy.org/energy-improvements.php](http://www.sonomacountyenergy.org/energy-improvements.php)

New Orleans, LA (223,338 pop.) – In partnership with the local utility Entergy, the City will launch the Energy Smart New Orleans Plan in 2010. This plan will invest \$3.1 million over three years to provide incentives and financing for residential energy audits and efficiency retrofits. Programs will be made available for existing and new residential buildings, tuning and upgrading cooling and lighting systems, small commercial HVAC systems, large commercial and industrial buildings, and solar hot water projects. The City of New Orleans is enhancing its Energy Smart program through the use of stimulus dollars from the Department of Energy. The city is also developing plans for a Property Assessed Clean Energy Program, which will tie energy efficiency and clean energy to property tax assessments.

[Learn more: www.entergy-neworleans.com/content/IRP/energysmart_brochure.pdf](http://www.entergy-neworleans.com/content/IRP/energysmart_brochure.pdf)

II. BETTER BUILDING CODES

A growing number of state and local governments are analyzing and revising their building codes to better align with their sustainability goals and green building programs. Even in states where codes are determined at the state level, many local governments are finding that regulatory minimums for the private sector may need upgrades and more comprehensive enforcement strategies to improve public health, safety and environmental quality.

Because building codes are highly-detailed requirements of local and regional priorities, there are no “one-size-fits-all” solutions. However, a comprehensive building code should incorporate high standards for energy efficiency, indoor environmental quality and resources, construction practice, building operations, transportation, and land use.



The most common code improvements relate to improved energy efficiency. The cities of **Boston, Houston, Albuquerque, Boulder, and Seattle**, for example, have all upgraded their codes by meeting or exceeding some of the most recent versions of the model energy codes for residential and/or commercial buildings.

The most widely-accepted code for minimum residential and commercial¹⁴ energy performance is the most recent version of the International Energy Conservation Code (IECC).¹⁵ The 2009 IECC is reported to increase energy efficiency by 12–15% over the previous code from 2006. Just as important as energy code upgrades is a focus on energy code enforcement, which, according to a recent study, was a lower priority for code officials, resulting in lower likelihood of compliance.¹⁶

Beyond municipal efforts, states and the federal government are developing minimum standards for better, safer, healthier and more environmentally-responsible building construction, operations, and maintenance. In addition, USGBC is helping to develop a commercial building code template known as Standard 189 for state and local jurisdictions. More information on Standard 189: www.usgbc.org/ShowFile.aspx?DocumentID=6338

Learn more: U.S. Department of Energy’s Building Energy Codes Program (www.energycodes.gov) and the Building Codes Assistance Project (bcap-energy.org/node/157).

TAKING ACTION

As the model practices in this document demonstrate, cities and counties across the U.S. are moving forward with practical and innovative green building solutions. These actions are creating new green jobs, expanding markets for clean energy technology, and lowering energy demand and resulting emissions. However, to fulfill its promise to become a major clean energy solution, the green building movement has to be scaled up dramatically and rapidly.

That’s where you come in.

Green building policies are local issues, and we need your help to organize in your community with fellow concerned citizens and activists. The Sierra Club’s Cool Cities Program and USGBC are asking their members to launch joint, local green building campaigns to promote the many benefits of building green, and to encourage local communities and public officials to take action.

Please contact your local Sierra Club (cool.cities@sierraclub.org) and USGBC chapters (publicpolicy@usgbc.org) today to get started. Whether your community will be taking its first step or is looking to strengthen its commitments to green buildings, you can help lead your community towards a healthier, more productive and greener future.



ABOUT THE SIERRA CLUB AND THE U.S. GREEN BUILDING COUNCIL



The Sierra Club is America's oldest, largest, and most influential grassroots environmental organization, with more than 1.3 million friends and supporters. The club's Cool Cities Program supports hundreds of local communities in their efforts to reduce global warming with a wide range of practical and cost-effective solutions. To learn more about how you can make your community cool, see www.coolcities.us.



The U.S. Green Building Council is committed to a prosperous and sustainable future for our nation through cost-efficient and energy-saving green buildings. With a community comprising 80 local affiliates, more than 19,000 member companies and organizations, and more than 134,000 LEED credentialed professionals, USGBC leads a diverse constituency of builders and environmentalists, corporations and nonprofit organizations, elected officials and concerned citizens, and teachers and students. To learn more about greening the buildings in your community, see www.usgbc.org.

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- ¹⁰McGraw-Hill Construction, Ibid.
- ¹¹McGraw-Hill Construction, Ibid.
- ¹²McGraw-Hill Construction, Ibid.
- ¹³U.S. Green Building Council and Booz Allen Hamilton. "Green Jobs Study" (2009).
- ¹⁴The most widely-accepted standard for minimum commercial building energy performance is the most current version of ASHRAE Standard 90.1. The 2007 version is reported to be 20% more efficient than its previous version from 2004. This standard is referenced in Chapter 5 of the 2009 IECC. ANSI/ASHRAE/IESNA Standard 90.1-2007 – Energy Standard for Buildings Except Low-Rise Residential Buildings, and is a product of the American Society of Heating, Refrigeration and Air-Conditioning Engineers, a standards-writing organization. www.ashrae.org
- ¹⁵2009 International Energy Conservation Code, a product of the International Code Council, a code developing organization. www.iccsafe.org
- ¹⁶Building Codes Assistance Project and North American Insulation Manufacturers Association. "Residential Building Energy Codes – Enforcement & Compliance Study" (2008).





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