

Chicago Community Loan Fund

# A Guide to Building for Sustainability

Introduction to Affordable Sustainable Building

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**The Chicago Community Loan Fund (CCLF)** is a social investment intermediary, providing low-cost, flexible financing to non- and for-profit community development organizations engaged in affordable housing, social service, and economic development initiatives benefiting low- and moderate-income households and neighborhoods throughout the six-county Chicago metropolitan region. CCLF specializes in providing opportunity finance and provides hands-on technical assistance to small/emerging organizations as well as established developers.

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## EXECUTIVE SUMMARY

This *Guide to Building for Sustainability* was developed by a committee of industry experts and sector stakeholders, led by the Chicago Community Loan Fund. This guide is designed to be a resource for a wide audience of community development professionals including those working in design and construction professions, community development corporations, government agencies, and municipalities. This guide seeks to present an overview of the processes, technologies, and benefits associated with sustainable building that can make housing affordable and healthy for its residents and reduce negative environmental impacts. Northeast Illinois is fortunate to have a growing number of local initiatives and resources focused on sustainable building. It is the hope of the Chicago Community Loan Fund that the reader will use this guide as an introduction to these issues, then continue on to learn more by utilizing the expertise and resources of the organizations included in the second half of this guide.

In developing this booklet, the authors wanted to communicate the importance of long-term, operational affordability for everyone. To ensure that the cost of operating our buildings is manageable even as the costs of utilities continue to rise considerably, we all must reconsider how we design them. The term *affordable housing* typically refers to development that utilizes government subsidy and serves specific low-income households. Although this guide is specifically targeted at creating affordable housing, it is intended to be a resource for organizations and municipalities planning any type of residential development. Good sustainable building should result in operational affordability for any owner, and in this guide we will address how sustainable building strategies can be implemented to achieve the goals of all project stakeholders.

For a variety of economic and environmental reasons, green has become a popular theme for development. New technologies and practices emerge every day, making sustainable building more accessible and cost effective to implement. As construction costs in the Chicago region continue to rise and recent economic jolts reduce funding sources, development of quality affordable housing is only becoming more difficult. Community developers have found it both difficult to incorporate these new approaches to development and hard to ignore the rising operating costs.

Many elements of sustainable building do not require extra expertise or resources, and some most likely will become standard practice before long. We are at a point where new industry standards are being established. Depending upon your motivations, green can mean employing new technologies for power generation or specialized building materials for

# How Buildings Impact Us

reduced pollutants. It can mean working with specialized contractors or changing the location of the property to be developed. As decision makers in the residential development process, you have the opportunity to make informed decisions that will result in improved energy performance and operational savings.

Sustainable building strategies have the potential to provide healthy, safe, and economically sustainable living environments for people of all incomes and to make more efficient use of resources for long-term affordability.

In Chicago, the successful Wentworth Commons development in the Roseland community proves that cost premiums for sustainable building and energy efficiency can be minimal even as the results offer considerable benefits for individual residents and the community.

Using the federal energy efficiency standards for the ENERGY STAR, program, for example, certified homes are at least 15% and up to 30% more efficient than a conventional home built to the 2004 International Residential Energy Code, and on average they result in \$200 to \$400 in annual savings. To date, more than 840,000 ENERGY STAR—qualified homes have been constructed. By 2010, more than 2 million homes are expected to earn this rating. These numbers indicate the growing demand for residential energy efficiency and an increasingly wider understanding of the value of sustainable building.

**B**uildings impact our environment, economy, and communities. The health impacts of buildings reach us both inside and outside the home. The Chicagoland area has one of the highest asthma rates in the country, disproportionately affecting low-income, urban populations—particularly children among these populations.<sup>1</sup> While outdoor air pollution from industry, energy generation, and transportation emissions is a significant contributor to health conditions such as asthma, indoor air can be even more toxic. The U.S. Environmental Protection Agency has found that indoor air can be five times as polluted as outdoor air.<sup>2</sup>

To reduce indoor air pollution, building products chosen for use in our homes must meet low- or no-toxicity standards. Toxins such as formaldehyde are often found in conventional fiberboard and furniture, and volatile organic compounds (VOCs) are commonly found in conventional paints and other interior building materials. These same toxins that pollute our indoor air and cause respiratory aggravation manifest in the outdoor environment as smog and greenhouse gas emissions, contributing to global climate change. The decision to use less-toxic building products and materials benefits not only residents but the community as a whole.

A closer look at buildings in which we live and work reveals that they are responsible for almost half of all greenhouse gas emissions annually<sup>3</sup> and that the carbon dioxide emissions from buildings in the United States equal the combined building emissions of Japan, France, and the United Kingdom.<sup>4</sup> The housing market in particular is responsible for close to 20% of the United States carbon dioxide emissions annually.<sup>5</sup>

The economic impacts of energy use are as significant on our wallets as they are on the planet. Buildings account for 72% of all electricity use and account for 80% of all electricity expenditures in the United States.<sup>6</sup>

Of all U.S. greenhouse gas emissions, 16% are generated from the energy used in homes nationwide. Energy generated in our homes comes from the burning of fossil fuels at power plants, which contributes to smog, acid rain, and climate change. Simply put, the less energy we use in our homes, the more money we save and the less pollution we generate, ensuring that many generations to come will have the opportunity to enjoy the planet that we do today. This savings extends to the community as a whole, ensuring that the community, by making more informed decisions today, can prevent having to bear the growing costs of pollution in the future.

As decision makers in the residential development process, you play an important role in reducing resource consumption and waste and in improving health and well-being in homes and communities.

<sup>1</sup>Respiratory Health Association of Metropolitan Chicago, "Chicago Asthma Epidemic: The Status of Asthma in Chicago," 2007. <http://www.lungchicago.org/>.

<sup>2</sup>United States Environmental Protection Agency. "An Introduction to Indoor Air Quality: Organic Gases (Volatile Organic Compounds—VOCs)." September 2008. <http://www.epa.gov/iedweb00/voc.html>

<sup>3</sup>Architecture 2030, from U.S. Energy Information Administration statistics. [http://www.architecture2030.org/building\\_sector/](http://www.architecture2030.org/building_sector/).

<sup>4</sup>United States Department of Energy. "Buildings Energy Data Book." 2007. <http://buildingsdatabook.eren.doe.gov/>

<sup>5</sup>Department of Energy. "Buildings Energy Data Book." 2007. <http://buildingsdatabook.eren.doe.gov/>

<sup>6</sup>U.S. Department of Energy, Energy Efficiency and Renewable Energy, *2007 Buildings Energy Data Book*, September 2007. <http://buildingsdatabook.eren.doe.gov/>.

# Costs and Benefits

A common belief about sustainable building strategies is that they cost too much, particularly when building affordable housing, and that they are difficult to implement. Although available long-term analysis is limited, some recent studies have shown that, as the market for green buildings grows, the incremental capital costs for implementing sustainable building features have decreased. This can make the long-term reduction in operations costs more attractive. Much of the increased attention is attributed to more education and experience around sustainable building strategies throughout the building sector, a higher demand for these products and services, and the rising costs of energy and materials. “The Costs and Benefits of Green Affordable Housing,” a report produced in 2005 by New Ecology and the Green CDC’s Initiative, presents an analysis of 16 green affordable-housing case studies. At that time, their projects showed an incremental cost for sustainable building and green buildings products ranging from 18% below to 9% above total development costs for a similar conventional development. The average across all projects was a somewhat low 2.42%, with this increase primarily consisting of construction costs as opposed to design costs. This wide range of incremental costs is an indicator of the wide range of possible choices among building strategies when deciding to build green. As discussed earlier in this guide, the potential energy and other operational savings that can result from a sustainably designed home may justify some incremental capital costs for sustainable building features. Thinking about costs and benefits in this way—that is, holistically—from design and construction to long-term operations, is known as life-cycle costing. Life-cycle costing requires understanding the total costs over the lifetime of the real estate. When evaluated from a life-cycle costing perspective, the premiums for sustainable building strategies are negligible, as the operating-cost benefits resulting from sustainable building strategies are considerable for residents.

The distinction between initial premiums (if any) and long-term operational savings is an issue of who pays and who benefits. In most cases the developer will not operate the home to recuperate the long-term savings. Therefore, additional incentives are required to make any initial cost premiums more attractive to the developer. These incentives, described later in this guide, include tax credits, expedited local government services (such as permitting), grants, mortgages, and marketing benefits that can help distinguish your home from others in the marketplace.

Marketing benefits can be significant because of the growing recognition of and demand for buildings that are designed wisely and operated efficiently. These benefits can be best communicated using an industry certification that a consumer recognizes as offering credible additional value. See the section on Standards and Benchmarks for Measuring Results in this guide for more information on some of these certification systems.

## CASE STUDY:

### 500 Hyacinth Place



- Basic details: Affordable Workforce Townhouses and rental flats, infill development in an affluent community, two and three story structures, anticipating LEED for Homes Silver Certification, Transit-Oriented Development
- Co-Developers: Brinshore Development (for-profit) and Housing Opportunity Development Corporation (non-profit).
- Land Owner: Highland Park Illinois Community Land Trust, Unit Owners have a 99 year land lease
- Occupancy: Fall, 2008
- Architect: K2 Studio
- Location: Highland Park, Illinois
- Number and type of units: 14 (ten for-sale townhomes—7 units affordable to 120% AMI, sale price \$239,000, and 3 units affordable to families at 80% AMI, sale price \$165,000; four rental units targeted at households less than 60% AMI. All units include 3 bedrooms and 2 or 2.5 bathrooms.
- Square footage: 20,800
- Completion date: Fall 2008
- Sustainable design strategies:
  - Geo-thermal heating and cooling system for each unit
  - Wind turbine electricity generation for common area lighting
  - Photocatalytic permeable pavers in driveway and parking lot (storm water best management practice and innovative pollution filter)
  - Reflective roofing materials
  - Energy efficient building envelope including low-e glass and blown insulation
  - Daylighting
  - ENERGY STAR appliances

- Renewable flooring & finish materials including bamboo strand board
- Non-toxic paints and stains
- Within blocks of Fort Sheridan Metra station and Greenbay Trail bike path

- Challenges and what other developers can learn:

Leadership and implementation are the two most critical elements of the green development process. As developers, you have to be truly committed and understand what you are doing. We spent a lot of time researching and educating ourselves about all aspects of the process, from the choice of materials and features, to the way these features are integrated into the whole building design, to how they meet code. Once you are armed with this knowledge, you must educate government officials, contractors, and the project team. The City of Highland Park provided much-needed leadership in seeing us through this process. In the end, the hard work has proven to be absolutely worth it, turning negatives into positives and resulting in an exemplary project for the Highland Park community.

- Website, contact, and/or other resource for more information:
  - Adam Natenson  
Brinshore Development, LLC  
666 Dundee Road, Suite 1102  
Northbrook, IL 60062



## CASE STUDY:

# Wentworth Commons

- Basic details: New construction, masonry, four stories, LEED-NC version 2.0 certified.
- Owner/Developer: Mercy Housing Lakefront
- Occupancy: Typically occupied by 138 people, 115 hours per person per week; and 51 visitor per week, 4 hours per visitor per week
- Architect: Harley Ellis Devereaux (Susan F. King, Principal)
- Location: Roseland, Chicago
- Number and type of units: 51 (3 4-bedrooms, 15 3-bedrooms, 9 2-bedrooms, 24 studios): Housing program on upper floors, supportive services on ground floor (including family resource center offering community space, case management, employment training, leadership development).
- Square footage: 65,800
- Total development costs: \$13,738,942 (\$259,391 per unit)
- Hard Construction Costs: \$10,196,328 (\$199,928 per unit)
- Completion date: October 2005
- Sustainable design strategies:
  - Integrated building envelope (airtight drywall approach)
  - Maximized daylighting, double loaded corridors, skylights
  - 33 kWh dynamic photovoltaic system supported by south-facing, exposed roof trusses sloping to south
  - High-efficiency boiler, 28% more efficient than Chicago energy code
  - High-efficiency “air to air” heat recovery system
  - Building Automation System
  - Native plantings, including rain gardens and bioswales to mitigate stormwater and provide natural habitat
  - Highly reflective pavings and ground cover to reduce urban heat island effect
  - Bike storage room on ground floor
  - Proximity to 2 bus lines, Metra accessible by bus
  - 26% of materials were manufactured within a 500 mile radius, including all exterior masonry
  - Regional and rapidly renewable materials and finishes (cork flooring in community spaces and wheatboard wainscot in corridors)
  - Graffiti-resistant exterior
  - Permanent recycling rooms on each floor



PHOTO BY ANTHONY MAY

- Operational benefits:
  - Annual heating savings of \$20-25k based on 2005 gas prices
- Challenges and what other developers can learn:
  - The bioswales were designed to be educational and interactive for residents to enjoy, but the large number of children in the building was underestimated, and the system was overtaxed and unsupervised the first year. The lesson learned is that you should design green features with maintenance and operation in mind, and ideally with the input of those who will operate and manage the building overtime.
  - The originally specified flooring for the Ground Floor Community Rooms (a combination of cork and rubber) was a relatively new product and when the Contractor went to order it, there was going to be a delay due to changes in the manufacturing process, that would affect the construction schedule, so the supplier offered a cork-only alternative. The performance was less than ideal, and in this case it was difficult to determine responsibility for the error. Today there are many “green” materials and products constantly coming into the market, so the lesson learned is that to the extent possible make the Contractor aware of newer products so that orders can be placed ahead of schedule if necessary.
- Other comments:
  - This was the first time everyone on the project team had worked on a LEED project. Times have changed, but still LEED requires commitment and communication, including holding integrated design charrettes early and often. The commitment will be more and more worthwhile as green affordable housing strides into the mainstream.
- Website, contact, and/or other resource for more information:
  - “A Little Sunshine on Chicago’s South Side.” Article by the architect in Environmental Design & Construction. Available online via <http://www.edcmag.com/CDA/>
  - Affordable Housing Design Advisor—Case Study. Available online at <http://www.designadvisor.org/green/wentworth.htm>
  - U.S. Green Building Council—Case Study. Available online at <http://leedcasestudies.usgbc.org/overview.cfm?ProjectID=754>



PHOTO BY ANTHONY MAY

# The Integrated Design Process

The key to any successful sustainably designed affordable home development project is a multidisciplinary integrated design approach. An integrated design process promotes collaboration, encourages innovation, fosters partnerships and synergies, and evaluates performance.<sup>7</sup> As part of an integrated design process, a developer should engage design and building professionals and other stakeholders in the early stages of the planning phase and throughout the entire development process. Nontraditional stakeholders you may consider inviting to participate include future residents, community leaders, government officials, and project funders. This level of engagement will ensure that you consider impacts and opportunities that may otherwise be omitted in the planning process and that can significantly improve your project or minimize potential barriers along the way. The developer is wise to involve all team members and stakeholders at the very start of the planning and design process so that all perspectives may be shared and consensus reached before costly moves are made.

It is widely believed that conventional building processes cannot achieve the same level of sustainable building excellence, based on their linear nature and a tendency toward a disconnected and uncommunicative project team. A successful integrated design process meets the team's diverse goals while ensuring that expectations around budgets, timelines, and deliverables are met. This process inherently requires frontloading the project budget so that more time and money is allotted at the beginning for planning and meetings, rather than allotting more of the budget at the end for change orders.

An integrated design approach typically begins with a design session, the outcomes of which are subsequently reviewed throughout the course of the project. This problem-solving process, a design charrette, allows everyone to share inputs on strategies to achieve a common goal. Such a focused and collaborative brainstorming session held at the beginning of a project encourages an exchange of ideas and information. Team members and all project stakeholders are encouraged to discuss project issues and address problems beyond their field of expertise. A charrette is particularly helpful in situations where many people represent the interests of the client and conflicting needs and constituencies. Participants are educated about the issues, and resolution enables them to “buy into” the schematic solutions. A final solution is not necessarily produced at the charrette, but important, often interdependent issues are explored.<sup>8</sup> Although traditional charrettes are generally more appropriate for larger development projects where many stakeholders are involved, the principles of communication between project team members and the importance of integrated design that underlie the charrette remain true for projects of any size.

The following is an example of an integrated design solution to arise from a charrette:

The mechanical engineer on a project is thinking about how to size the heating and cooling system for the building and is in the process of considering all of the design and environmental factors that affect this decision. She also would like to use in the project some renewable energy systems, such as solar thermal hot water heating equipment, but knows the client is trying to keep capital costs down. She brings this up at the design charrette with the entire team and a future resident who has joined them. As the architect and resident begin discussing paint selection, the engineer realizes that if they go with a light color of paint throughout, the space will reflect more light and absorb less heat, making it possible to reduce the capacity of the air-conditioning system. Because the team has a platform for discussing this issue, the engineer is able to reduce the size of the equipment and free up some funds for a renewable energy system such as solar thermal.

By using the charrette platform to perform an analysis of these interdependent building strategies, the team can achieve multiple benefits and produce a much more efficient and cost-effective building.

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<sup>7</sup>Playbook for Green Building and Neighborhoods. [www.greenplaybook.org](http://www.greenplaybook.org).

<sup>8</sup>Whole Building Design Guide. [www.wbdg.org](http://www.wbdg.org).

# Measuring Results

## Standards and Benchmarks

Several rating systems have been developed over the past years. In addition to professional certifications, some municipalities or independent finance sources have established their own benchmarks and checklist requirements. Each of these systems has been developed from slightly different industry perspectives and sometimes with slightly different motivations. The most well recognized in the United States is the LEED (Leadership in Energy and Environmental Design) system.

In most cases these certification systems are concerned with the design and building process and the materials used in construction. This is typically confirmed using a commissioning process to test the quality of construction and the completed building systems. To truly realize the benefits of sustainable design, measurable improvements must be found in the building's economics and operations and in the lives of the building's residents. Some developers have incorporated extensive monitoring systems into their buildings to track utility use and other indicators. The growing amount of data supports the use of many sustainable techniques, but such information is still limited and can be expensive to collect.

### City of Chicago—Green Homes

The Chicago Green Homes Program provides the tools and strategies for building homes and multifamily buildings that are energy efficient and environmentally responsible. By encouraging the use of new technologies, products, and practices and certifying those efforts, the program also creates choice in the marketplace for buyers and renters and gives builders and developers a way to distinguish their products.

Most residential projects are eligible, including new construction and renovations of single-family homes (including town homes) and multifamily buildings (less than 80 feet in height). The program is voluntary; however, if you are seeking financial assistance from the City, your participation may be required.

To use the Chicago Green Homes Program, you can refer to the program checklist and choose from a range of building options and strategies, each with an associated point value. The

*Chicago Green Homes Program Guide* provides detailed explanations and technical information for these point values. You can achieve a one-, two-, or three-star rating based upon the number of points earned and receive a Chicago Green Homes Certificate for your project upon review and approval by the Chicago Department of Environment. You can achieve points in the following categories: sustainable sites, energy efficiency, materials, health and safety, resource conservation, homeowner education, and innovation.

To participate in Chicago Green Homes, applicants must complete an applicant agreement, enrollment form, and checklist and submit all necessary drawings and documentation. Enrollment prior to beginning construction is preferred. For more information, go to [www.cityofchicago.org/environment](http://www.cityofchicago.org/environment) and click on “Chicago Green Homes.”

### U.S. Green Building Council—Leadership in Energy and Environmental Design (LEED)

The U.S. Green Building Council is a national nonprofit organization whose mission it is to make the built environment more environmentally sustainable, healthy, and energy efficient. The council developed the LEED Green Building Rating System as a tool for designing and building sustainable green buildings and communities.

LEED is a voluntary, consensus-based national rating system for developing high-performance, sustainable buildings. LEED addresses all building types and emphasizes state-of-the-art strategies in five areas: sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality. For more information, go to [www.usgbc.org](http://www.usgbc.org).

### Enterprise—Green Communities

Green Communities is a national green building program developed by the Enterprise Foundation strictly for affordable housing. By 2009, Green Communities will provide \$550 million in Green Grants, financing, and equity investment to create 8,500 affordable rental and for-sale homes nationwide.

The initiative is designed to help developers, investors, builders, and residents make informed sustainable building decisions for affordable housing and to provide a number of tools that help developers and builders implement sustainable building strategies. These tools include grants, loans, tax-credit equity, training and technical assistance, and the Green Communities Criteria developed in partnership with a number of national industry experts including the American Institute of Architects, Natural Resources Defense Council, American Planning Association, U.S. Green Building Council, and Southface Energy Institute. The Green Communities Criteria are based on the LEED rating system.

More information can be found at [www.greencommunitiesonline.org](http://www.greencommunitiesonline.org).

### NAHB—Model Green Home Building Guidelines

The National Association of Home Builders' (NAHB's) voluntary Model Green Home Building Guidelines are designed to be a tool kit for the builder to engage in green building practices and home builder associations (HBAs) to launch their own local green building programs.

The guidelines contain six primary sections: lot preparation and design (including a site planning appendix); resource efficiency; energy efficiency; water efficiency and conservation; occupancy comfort and indoor environmental quality; and operation, maintenance, and education. They provide prescriptive strategies for implementing green home and sustainable building practices and use a point system for benchmarking. HBAs around the country are using the guidelines to build local, voluntary green home-building programs.

For more information, please visit [www.nahb.org/gbg](http://www.nahb.org/gbg).

*continued*

# Sustainable Strategies Table

Category	Strategy	Applicable to Rehab, New Construction, or Both	Initial Cost Premium	Opportunities to Offset Initial Cost Premium	Cost Savings Over Time	Benefits	Difficulty	Maintenance Considerations
Planning, Predevelopment, and Site Selection	Integrated design process	Both	0-\$	Green Communities planning grant	Results in fewer change orders in the field and better building performance	All	Moderate	Should result in a better system design and easier maintenance
	Adaptive reuse of existing building	Rehab	\$-\$	Tax credits	Can save money on development costs with existing infrastructure and materials	M, N, E	Moderate	N/A
	Infill development in dense urban area	Both	0-\$	Tax credits	Can save money on development costs with existing infrastructure	M, N	Moderate	N/A
	Proximity to public transportation	Both	0-\$	Location-efficient mortgage	Reduces occupant transportation costs	E, L	Easy	N/A
	Access to amenities (e.g. grocery stores)	Both	0	Higher sale price	Reduces transportation costs	E, L	Easy	N/A
Energy Efficiency	Building orientation and passive solar design	New	0-\$		Reduces energy costs	E	Moderate	N/A
	Compact light bulbs (CFLs or LEDs)	Both	\$	Rebates	Reduces energy costs	E	Easy	Less frequent light bulb replacement
	Energy-efficient building envelope	Both	\$-\$	Tax credits	Reduces energy costs	E	Moderate	N/A
	Energy-efficient HVAC system	Both	0-\$	Tax credits	Reduces energy costs	E	Moderate	Preventive maintenance will result in highest energy efficiency benefits
	ENERGY STAR appliances	Both	0-\$	Tax credits	Reduces energy and water costs	E, W	Easy	Preventive maintenance will result in highest energy efficiency benefits
	Double-paned ENERGY STAR windows	Both	\$	IL DCEO**** grants	Reduces energy costs	E	Easy	No different from conventional
	ENERGY STAR rating	Both	\$	Tax credits	Reduces energy and water costs	E, W	Moderate	Various
	Solar thermal hot water heating	Both	\$-\$	Federal and IL tax incentives; IL DCEO grants and loans	Reduces energy costs	E, T	Moderate	Moderate routine/preventive maintenance
	Geothermal electricity generation or heat pumps	Both	\$	Federal tax incentive; IL DCEO grants and loans	Reduces energy costs; rapid payback	E	Moderate	Moderate routine/preventive maintenance
	Photovoltaic system for electricity generation	Both	\$	Federal tax credits; IL Clean Energy Community Foundation grants and DCEO grants and loans	Reduces energy costs	E, T	Moderate	Moderate routine/preventive maintenance
Water Efficiency and Stormwater Management	Building integrated wind turbine	Both	\$	IL DCEO grants and loans	Reduces energy costs	E, T	Difficult	Moderate routine/preventive maintenance
	Low-flow/water-saving plumbing fixtures	Both	0-\$		Reduces energy and water costs	E, W	Easy	Same as conventional
	Rainwater harvesting	Both	\$-\$		Reduces water costs	W, S, T	Moderate	Moderate routine/preventive maintenance
	Graywater reuse	Both	\$		Reduces water costs	W, S	Moderate	Moderate routine/preventive maintenance
	Native landscaping	Both	0-\$		Reduces water and maintenance costs	W, S, H, T	Easy	Low maintenance
	Permeable paving or concrete	Both	\$	Reduced design/build cost of engineered curb and gutter drainage systems	Reduces stormwater costs	W, S, H, T	Moderate	Varies with technology, low to moderate
Materials and Waste Reduction	Vegetative roof	Both	\$	City of Chicago grant	Increases life of roof	W, S, H, T	Moderate for new construction; Difficult for rehab	Routine inspection and maintenance; minimal for extensive roofs, moderate for intensive roofs
	Rapidly renewable materials	Both	\$			M, T	Easy	Varies, typically same as conventional
	FSC*-certified wood	Both	\$			M, T	Easy	Same as conventional
	Occupant recycling	Both	0		Reduces waste hauling costs	E, M, T	Moderate	Low maintenance
	Construction and demolition waste recycling	Both	0	Potential income source	Reduces waste hauling costs	E, M, T	Moderate	Low maintenance
	Recycled-content products (postconsumer or postindustrial)	Both	\$-\$			E, M, T	Easy	Same as conventional
Indoor Environmental Quality	Salvaged materials	Both	0-\$	Potential income source		E, M, T	Moderate	Same as conventional
	Filtration media with high MERV** rating	Both	\$		Reduced healthcare costs	P, I	Easy	Less or same as conventional
	Ductwork covered during construction	Both	0		Reduced healthcare costs	P, I	Easy	
	Low VOC*** paints, sealants, caulks, adhesives	Both	0		Reduced healthcare costs	P, I	Easy	Same as conventional
	Formaldehyde-free products	Both	\$		Reduced healthcare costs	P, I	Easy	Same as conventional

## Key

**Initial Cost Premium**  
**0** Cost Neutral  
**\$** Low Cost 0-2%  
**\$** Medium Cost 2-5%  
**\$** High Cost > 5%

Estimated as a percent premium above comparable traditional strategies. Actual costs may vary.

## Benefits (to Occupants, Community, and Environment)

- M** Reduces need for new material production, preserving natural resources and biodiversity
- N** Redevelops neglected and/or contaminated sites, for community improvement
- E** Reduces energy use (from car travel, home energy demand, materials production, or landfilling), thereby reducing pollution and utility costs
- P** Reduces pollution (air, water, land) for a healthier outdoor environment and to preserve natural resources and biodiversity
- W** Reduces potable water use and wastewater generation, reducing utility costs, preserving water resources, and reducing stress on water treatment infrastructure
- S** Mitigates stormwater runoff, preventing flooding and stress on stormwater infrastructure
- H** Reduces urban heat island effect for a healthier and more comfortable outdoor environment
- I** Improves indoor air quality for a healthier home environment, reducing healthcare costs
- L** Promotes healthy lifestyle through exercise, reducing healthcare costs
- T** Constitutes a tangible green feature that can generate discussion or buzz

All strategies reduce carbon footprint (climate change impact) through reduced direct and indirect energy use.

\*Forest Stewardship Council.  
 \*\*Minimum Efficiency Reporting Value.  
 \*\*\*Volatile organic compounds.  
 \*\*\*\*Department of Commerce and Economic Opportunity



# Incorporating Sustainable Building into Your Development

Fundamental to sustainable building is the need to approach the building design as entirely context and site specific. This means that any and every building and development project will ask the same questions about which sustainable building strategies can work for that project, but will undoubtedly get very different answers. For each project, the design team must analyze the economic, social, and environmental benefits of every sustainable building strategy, weighing priorities based on project impacts, expected return on investment, and stakeholder needs and interests.

For example, if your development is in an area where water resources are limited, you may choose to focus your design team on water-efficient building systems and plumbing fixtures. This will protect limited water resources and reduce operating costs for the users. Or perhaps you have a vacant site, where you can control the orientation of the building footprint. You can orient the building to the south to maximize solar heat gain in the winter, thereby significantly lowering the operating costs of heating the building and making residents more comfortable. This analysis of context-specific building can be daunting for some, as it requires a familiarity with the costs and benefits associated with sustainable building strategies and necessitates being informed on a wide variety of environmental and health impacts of the building and its ongoing operations.

Over recent years, a number of green/sustainable building standards and certifications have evolved and hit the marketplace. These rating systems often make the decision-making process easier and provide an excellent menu of options to a developer, although the pursuit of a high rating has at times caused developers to spend extra time and money on features that did not benefit their original motivations.

To get you started, below are some recommendations for first steps toward sustainable building. For more information to help you make informed cost-effective design decisions, you can refer to the information table at the center of this guide. There you will find a summary of common sustainable building elements and the costs and benefits associated with each.

1. Incorporate sustainable strategies into your planning from the beginning to increase building systems efficiency and take full advantage of sustainable design elements.
2. Use only ENERGY STAR appliances to reduce electricity use.
3. Use low-emission paints and finishing materials to reduce air toxins.
4. Construct a solid building envelope. Consider panel construction, tight insulation, and efficient windows to reduce heating and cooling costs.
5. Incorporate recycled and locally produced materials when possible and recycle the construction waste produced by your project to reduce your environmental footprint.
6. Landscape with permeable paving and native plants to address water conservation and stormwater management.

# Policy Recommendations

## for Promoting Sustainable Building in Your Community

### U.S. EPA and U.S. DOE — ENERGY STAR & HERS Ratings

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE). The program promotes energy-efficient products and practices to result in reduced costs and environmental protection.

ENERGY STAR ratings can be applied to household products, such as appliances, as well as to residential and commercial buildings. The program also offers online tools for evaluating the energy efficiency of your building, through the ENERGY STAR Portfolio Manager for commercial buildings, and provides support for the Home Energy Rating System (HERS) which is the basis for a residential ENERGY STAR rating.

A home energy rating involves an analysis of a home's construction plans and onsite inspections. Based on this information, a certified Home Energy Rater performs an energy analysis of the home's design. This analysis yields a projected HERS Index. Upon completion of the plan review, the rater will work with the builder to identify the energy efficiency improvements needed to ensure that the house will meet ENERGY STAR performance guidelines. The rater then conducts onsite inspections, typically including a blower door test (to test the leakiness of the house) and a duct test (to test the leakiness of the ducts). Results of these tests, along with inputs derived from the plan review, are used to generate the HERS Index score for the home.

Within the HERS Index scoring system, a home built to the specifications of the HERS Reference Home (based on the 2006 International Energy Conservation Code) scores a HERS Index of 100, while a net zero energy home scores a HERS Index of 0. The lower a home's HERS Index, the more energy efficient it is in comparison to the HERS Reference Home. In the Chicago region, a HERS index of 85 will ensure that a home receives ENERGY STAR certification.

For more information, go to [www.energystar.gov](http://www.energystar.gov).

### Green Globes

The Green Globes system uses an online questionnaire to evaluate green building and sustainable design performance. Once the questionnaire has been completed, an automatically generated report provides ratings, a list of achievements, and recommendations for sustainable building strategies. The Green Globes system is suitable for large and small buildings including offices, multifamily structures, and institutional buildings such as schools, universities, and libraries. Its low cost makes it especially attractive to smaller, lower-budget buildings. The system applies to new and existing buildings and can be used for portfolio management to assess and compare a variety of properties. Certification is achieved by undergoing third-party verification by trained regional verifiers.

For more information, go to [www.greenglobes.com](http://www.greenglobes.com).

This section provides an overview of best practices for promoting sustainable building in your community. These examples come from programs from around the country. For more information and ideas for sustainable building policies, the *Playbook for Green Buildings and Neighborhoods* provides local governments with guidance and resources to rapidly advance green buildings, neighborhoods, and infrastructure. For more information, visit [www.greenplaybook.org](http://www.greenplaybook.org).

### Grants for Integrated Design Planning Process

Because of increased meeting time between project stakeholders for design collaboration, planning for a sustainable building project can sometimes require more time than for a traditional project. Ultimately, in a well-designed project, these slightly higher soft costs should pay off in a more efficient construction phase, requiring fewer change orders in the field. One can typically also expect a more efficient and higher-performing building.

Providing planning and design grants for sustainable building projects creates an incentive to developers to consider making such a project investment. Planning grants for sustainable building projects are available from organizations such as the Kresge Foundation and the Enterprise Foundation. They provide funding to support some of the following activities: professional services to facilitate the building planning meetings during the predesign period, energy analysis and modeling, water use analysis and modeling; ecological site planning, commissioning expenses associated with the planning process, and initial documentation and LEED registration with the U.S. Green Building Council.

### Permitting Incentives

To incentivize sustainable building in our community, by fast-tracking or waiving the cost for permits for a sustainable building project, you can reduce the developer's costs. This saves time and money and is a positive incentive as oppose to a regulatory one. The City of Chicago's green permit process has been a successful model of this type of incentive and promises an expedited permit process and, in some cases, reduced fees if a project meets certain levels of sustainable building excellence. This program is based primarily on the LEED Green Building Rating System for commercial projects and the Chicago Green Homes Program for smaller, residential projects.

### Sales Tax Rebate for Green Building Materials\*

Similar in concept to certain kinds of rebates offered in enterprise/empowerment zones, a sales tax rebate for green building materials would allow for a rebate on city and/or state sales taxes. Qualifying developments would receive a rebate on all building materials needed for the construction of the project. Qualification could be LEED certification, for example, or acceptance into fast-track permitting procedures. This incentive would have the potential added benefit of encouraging developers to buy local products in order to receive the rebate, itself a core sustainability concept as well as contributing to the local economy.

### Rebates for Stormwater Runoff Diversion

Reducing the amount of stormwater that leaves your property has a significant impact on water quality, habitat restoration, and pollution prevention. Stormwater management practices are an integral piece of sustainable building and can include reduced building footprints, green roofs, native landscaping, permeable paving, bioswales, filter strips, and rain cisterns. The City of Minneapolis, Minnesota has developed a progressive stormwater policy that allows developments to reduce their local utility payments if a certain amount of stormwater runoff is diverted. In this way, projects that use stormwater management strategies can realize a financial benefit in the way of rebates for water service payments.

### Energy Code Requirements

Communities can achieve significant energy efficiency, and as a result reduce their carbon footprint, by requiring standards of sustainable building in all new developments and major rehabs. One way to do this is incorporating energy efficiency requirements in the local energy code. Many local governments have adopted the 2006 International Energy Code and ASHRAE 90.1 for this purpose.

For example, the City of Albuquerque has passed energy code amendments that reflect the goals of the Architecture 2030 Challenge. Architecture 2030, a nonprofit, nonpartisan, and independent organization, was established by architect Edward Mazria in 2002 in response to the global-warming crisis. Architecture 2030's mission is to rapidly transform the U.S. and global building sector from the major contributor of greenhouse gas emissions into a central part of the solution to the global-warming crisis.

The standards require that commercial and multifamily residential projects be 30% more energy efficient than a baseline building, using the 1999 edition of ASHRAE Standard 90.1 as the baseline. Projects that achieve a LEED Silver rating with four energy performance credits are exempt, and projects smaller than 20,000 square feet are allowed to follow a prescriptive path. For smaller residential development, Albuquerque will adopt and amend the 2006 International Energy Conservation Code and include performance requirements of the ENERGY STAR program. Projects are exempt that achieve a LEED Homes Silver rating or above, and buildings certified as Build Green New Mexico Silver or above.

### Variance for Parking Requirements

Parking requirements for new developments often do not address opportunities for alternative transportation options and thus ultimately reduce the sustainable design opportunities of a project. If parking requirements can be reduced for developments that are sited near public transportation nodes or that use innovative transit options such as car sharing programs, sustainable design goals can be more easily met. Possible promotions as part of a parking requirement variance can include car sharing programs, locating developments within a quarter mile of a public transit node, providing secure bicycle parking and shower facilities, and designating parking spots for car pools and alternative-fuel vehicles.

### High-Performance Green Building Practices for All Government Construction Projects as a Model for the Private Sector

Government agencies should consider incorporating green building principles and practices into the planning, design, construction, management, renovation, operations, and demolition of all government facilities. This provides a model for the private sector and shows leadership on the part of local government.

The Chicago Center for Green Technology on Chicago's west side is a great example of a government-sponsored LEED Platinum project that serves as a model for the private-sector building community. Completed in 2002 and one of the first LEED projects in the country, it showcases green products and technologies, offers building tours, and hosts over 100 free green building education courses each year as part of its Green Tech U program. Chicago has also adopted the "Chicago Standard," which requires all public construction projects to meet LEED Silver standards.

### Continuing Education for Local Government Officials

Sustainable building is an emerging field, and new information and technologies are being introduced into the marketplace regularly. As the private sector is learning more about sustainable building and beginning to implement these strategies, local government officials, particularly in departments that deal directly with aspects of development and urban infrastructure, must understand how these strategies and technologies work.

To facilitate the transition to sustainable building, the newly created Office of Sustainable Design of New York City's Department of Design and Construction (DDC) has developed a training program for DDC staff. Training covers the city's sustainable building requirements and goals and the department's self-published design manuals, including DDC's *High Performance Building Guidelines*, *High Performance Infrastructure Guidelines*, a manual on energy-efficient lighting, a geothermal manual, and a construction and demolition waste manual.<sup>10</sup>

<sup>9</sup> Geoffrey Moen & James Henderson, *Sustainable Affordable Housing Development Guidebook: A Report on the Current Sustainable Development Practices in the Affordable Housing Industry*, July 2006.

<sup>10</sup> New York City Department of Design and Construction. <http://www.nyc.gov/html/ddc/html/ddcgreen/>

## CASE STUDY:

# New Homes for South Chicago



- Owner/Developer: Claretian Associates
  - Architect: Jeff Bone, Landon Bone Baker Architects
  - Location: 9108 S. Brandon
  - Number and type of units: 23  
(16 Single Family and seven 2-Flats)
  - Square footage: 36,524
  - Total development costs: \$5,423,712
  - Completion date: 12/2010
- Sustainable design strategies:
    - Approximately 30% savings on electric bill with the use of solar panels
    - Recycled content and regional materials—homes have included cork flooring and carpeting made from recycled products such as ketchup bottles. Also the Structural Insulated panels are made in Indiana and utilize gypsum board which is a recycled product .
    - Rain gardens and bioswales—each home developed to have catch basin that contain swales
    - Energy Star appliances—refrigerator, washer and dryer are energy star rated.
    - Low VOC-emitting finishes and materials—Low VOC primer and paints for all interior painting: Pristine Ecospec Interior Latex Primer Sealer 231; Pristine Ecospec Interior Latex Flat 219; and Pristine Ecospec Interior Latex Semi-Gloss Enamel 224 by Benjamin Moore—these primer and paints have minimal odor and, in the color white, no Volatile Organic Compounds (VOCs); the colorants have minimal amounts of Volatile Organic Compounds.
    - Integrated envelope and high efficiency mechanical equipment coupled with heat recovery—During the last phase, developer used 3 different types of HVAC systems, (including one with a heat recovery system) to evaluate which worked better for the home.
  - Operational benefits:
    - Last phase of homes were documented to be 33% better than energy star; also, the solar panels provided approximately one third of the homes energy.
  - Challenges and what other developers can learn:  
Although much has been said about the use of “green” products many homebuyers are still unfamiliar with what it means to be green versus what is energy efficient. When working with low-moderate income buyers, the green aspect is not as important as energy efficiency is.
  - Other comments:  
The developer learned, through trial and error that the biggest savings was the use of high efficiency furnaces and a high efficiency window with a U-Value of 0.35 or better. While the use of solar panels is impressive, they are costly to install and do not give as great “a bang for the buck.”
  - Website, contact, and/or other resource for more information:  
[www.claretianassociates.org](http://www.claretianassociates.org)

# Resources

## Opportunity Finance Institutions (CDFIs)

The following Community Development Financial Institutions offer loan products that will support green building initiatives in the Chicago area:

### Chicago Community Loan Fund

29 E Madison Street, Suite 1700  
Chicago, IL 60625  
Phone: (312) 252-0440

Email: [info@cclfchicago.org](mailto:info@cclfchicago.org)

Web: [www.cclfchicago.org](http://www.cclfchicago.org)

### Community Investment Corporation

222 S Riverside Plaza, Suite 2200  
Chicago, IL 60606-6109  
Phone: (312) 258-0070

Email: [info@cicchicago.com](mailto:info@cicchicago.com)

Web: [www.cicchicago.org](http://www.cicchicago.org)

### IFF

1 N LaSalle Street, Suite 700  
Chicago, IL 60602  
Phone: (312) 629-0060

Email: [general@iff.org](mailto:general@iff.org)

Web: [www.iff.org](http://www.iff.org)

### Local Initiatives Support Corp (LISC/Chicago)

1 N LaSalle Street, 12th Floor  
Chicago, IL 60602  
Phone: (312) 360-0800

Web: [www.liscnet.org/chicago](http://www.liscnet.org/chicago)

### ShoreBank

7054 S Jeffrey Boulevard  
Chicago, IL 60649  
Phone: (800) 905-7725

Web: [www.sbk.com](http://www.sbk.com)

## Private Support

The following private funders may provide financial support for green building initiatives in the Chicago area:

### Boeing Global Corporate Citizenship

100 N Riverside Plaza  
Chicago, IL 60606  
Phone: (312) 544-2000

Email: [nora.e.morenocargie@boeing.com](mailto:nora.e.morenocargie@boeing.com)

Web: [www.boeing.com/companyoffices/aboutus/community](http://www.boeing.com/companyoffices/aboutus/community)

*Provides grants to programs that protect and conserve the environment. Grant seekers should contact the local representative listed above for more information.*

### ComEd Smart Ideas for Your Business Program

Phone: (888) 806-2273

Web: [www.exeloncorp.com/ourcompanies/comed/comedres/save\\_energy\\_money](http://www.exeloncorp.com/ourcompanies/comed/comedres/save_energy_money)

*Assistance with energy efficiency upgrades are available to owners of residential buildings in which the space heating and water heating are electric. Honeywell technicians will also perform an energy assessment of common areas.*

### The DuPage Community Foundation

2100 Manchester Road, Building A,  
Unit 303  
Wheaton, IL 60187-4584  
Phone: (630) 665-5556

Email: [bheydorn@dcdn.org](mailto:bheydorn@dcdn.org)

Web: [www.dcdn.org](http://www.dcdn.org)

*Provides environmental grants of up to \$15,000 to not-for-profit organizations involved in environmental initiatives. Priority is given to organizations that address current and future environmental needs and issues in DuPage County.*



## RESOURCES

### Enterprise Green Communities

10227 Wincopin Circle, Suite 500  
Columbia, MD 21044  
Phone: (410) 715-7433

Email: [greencommunities@enterprisecommunity.org](mailto:greencommunities@enterprisecommunity.org)

Web: [www.greencommunitiesonline.org](http://www.greencommunitiesonline.org)

*Green Communities is the first national green building program developed for affordable housing. Enterprise provides green grants, loans, tax-credit equity, training, and technical assistance to developers and builders.*

### Evanston Community Foundation

1007 Church Street, Suite 108  
Evanston, IL 60201  
Phone: (847) 492-0990

Email: [info@evcommfdn.org](mailto:info@evcommfdn.org)

Web: [www.evanstonforever.org](http://www.evanstonforever.org)

*Provides grants to not-for-profit organizations for one-year periods in many areas, including programs involved in housing and the environment.*

### Fannie Mae

Energy-Efficient Mortgages  
1 S Wacker Drive, Suite 1400  
Chicago, IL 60606-4614  
Phone: (312) 368-6200

*Allows borrowers to qualify for a larger mortgage as a result of the energy savings. Benefits those buying new, energy efficient homes or those purchasing existing homes that need energy improvements. Many large Chicago area banks offer Energy Efficient Mortgages. Ask your lender about the availability of this mortgage product.*

### Field Foundation of Illinois

200 S Wacker Drive, Suite 3860  
Chicago, IL 60606  
Phone: (312) 831-0910

Email: [jross@fieldfoundation.org](mailto:jross@fieldfoundation.org)

Web: [www.fieldfoundation.org](http://www.fieldfoundation.org)

*Funds new and established organizations for efforts in many fields; including site-based projects and public engagement to prevent and reduce pollution of the environment, protect and restore the natural environment, and promote sustainable growth, land use, and development.*

### Grand Victoria Foundation

230 W Monroe Street, Suite 2530  
Chicago, IL 60606  
Phone: (312) 609-0200

Web: [www.grandvictoriafdn.org](http://www.grandvictoriafdn.org)

*Makes grants to support projects in the Chicago Metro area that reduce and prevent pollution; preserve, restore, expand, and connect natural lands and waterways; implement best land use practices; and increase public awareness of and participation in these issues. Supports initiatives that create a variety of housing options and home ownership opportunities as well as those that strategically utilize land and well planned community growth models.*

### The Home Depot Foundation

2455 Paces Ferry Road  
Atlanta, GA 30339  
Phone: (770) 384.3889 or  
(866) 593-7019

Email: [hd\\_foundation@homedepot.com](mailto:hd_foundation@homedepot.com)

Web: [www.homedepotfoundation.org](http://www.homedepotfoundation.org)

*Partners with affordable housing developers that take a comprehensive approach to creating healthy communities through building homes that are affordable, efficient, and healthy over long-term periods. Also supports organizations and builders who are involved in urban tree-planting.*

### Illinois Clean Energy Community Foundation

2 N LaSalle Street, Suite 950  
Chicago, IL 60602  
Phone: (312) 372-5191

Email: [info@illinoiscleanenergy.org](mailto:info@illinoiscleanenergy.org)

Web: [www.illinoiscleanenergy.org](http://www.illinoiscleanenergy.org)

*Invests in clean energy development and land preservation efforts, working with communities and citizens to improve environmental quality in Illinois. Supports programs and projects that will improve energy efficiency, develop renewable energy resources, and preserve and enhance natural areas and wildlife habitats throughout the state.*

### The Kresge Foundation Green Building Initiative

3215 W Big Beaver Road  
Troy, MI 48084  
Phone: (248) 643-9630

Email: [info@kresge.org](mailto:info@kresge.org)

Web: [www.kresge.org](http://www.kresge.org)

*Offers grants and educational resources to non-profits interested in integrating green design elements into their planning phases.*

### Tellabs Foundation

1415 W Diehl Road, Mail Stop 10  
Naperville, IL 60563  
Phone: (630) 798-2506

Email: [meredith.hilt@tellabs.com](mailto:meredith.hilt@tellabs.com)

Web: [www.tellabs.com](http://www.tellabs.com)

*Makes direct grants which encourage understanding and the protection of the environment. Primarily supports organizations concerned with local and national protection and improvement programs, but also those which protect the environment in areas of public health, clean air, clean water, recycling, and waste reduction will also be considered.*

### Professional Services / Technical Assistance / Advocacy

#### American Institute of Architects Chicago

Committee on the Environment –  
Carbon Reduction Cool Tool

Web: [www.aiachicago.org/cote.asp](http://www.aiachicago.org/cote.asp)

*The AIA Chicago Cool Tool is for anyone interested in reducing their carbon footprint, but has a focus on measures building professionals can implement to decrease global warming through energy efficient building design and management.*

#### Alberti Group, LLC

233 E Wacker Drive, Suite 3011  
Chicago, IL 60601  
Phone: (312) 810-1008

*An interdisciplinary consultancy specializing in emerging issues in the building industry. With expertise in sustainable building, BIM, alternative delivery systems, and construction legal issues, Alberti Group provides clients with consulting in areas of risk management, performance, and delivery of building projects.*

#### Alliance for Water Efficiency

P.O. Box 804127  
Chicago, IL 60680  
Phone: (773) 360-5100

Web: [www.allianceforwaterefficiency.org](http://www.allianceforwaterefficiency.org)

*Serves as an advocate for water efficient products and practices, and provides information and assistance on water conservation efforts.*

### Center for Neighborhood Technology

2125 W North Avenue  
Chicago, IL 60647  
Phone: (773) 278-4800

Web: [www.cnt.org](http://www.cnt.org)

*Works with urban communities to encourage them to develop more sustainably through resource efficiency, economic value, and environmental performance. Provides resources for developers who work towards urban and regional systems that minimize economic risks and reduce costs, improve ecological quality.*

### CNT Energy Savers Program

2125 W North Avenue  
Chicago, IL 60647  
Phone: (773) 269-4037

Email: [info@cntenergy.org](mailto:info@cntenergy.org)

*Offers complete energy assessments and recommendations for residential buildings of 5 or more units. Program includes financial assistance and construction oversight for retrofitting buildings.*

### Delta Institute

53 W Jackson Boulevard, Suite 230  
Chicago, IL 60604  
Phone: (312) 554-0900

Email: [delta@delta-institute.org](mailto:delta@delta-institute.org)

Web: [www.delta-institute.org](http://www.delta-institute.org)

*Provides technical assistance for green building projects, including energy conservation and pollution prevention. Provides financing for green building projects and resources from the Chicago Regional Green Purchasing Network.*

### Domus Plus

Paul Knight  
408 N Grove Avenue  
Oak Park, IL 60302  
Phone: (708) 386-0161

Email: [domusplus@comcast.com](mailto:domusplus@comcast.com)  
*A residential-energy consulting firm involved with a broad range of activities throughout Illinois assisting in weatherization, rehab, and construction of energy-efficient affordable housing.*

### EcoGardens

1937 N Winchester Avenue  
Chicago, IL 60622  
Phone: (312) 550-5577

Email: [info@ecogardens.com](mailto:info@ecogardens.com)

Web: [www.ecogardens.com](http://www.ecogardens.com)

*Green roof construction / rainwater harvesting / stormwater management*

## RESOURCES

### Emergency Picnic

Kevin Pierce  
1474 N Milwaukee Ave, Suite 200  
Chicago, IL 60622  
Phone: (312) 933-5254

Email: kevin@emergencypicnic.net

Web: [www.emergencypicnic.net](http://www.emergencypicnic.net)

*Provides consulting services for architecture, green building planning and visioning, Leadership in Energy and Environmental Design (LEED) consulting, and facilitation and brainstorming.*

### Greenmaker Supply

2500 N Pulaski Road  
Chicago, IL 60639  
Phone: (773) 384-7500 or  
(866) 702-7500

Email: info@greenmakersupply.com

Web: [www.greenmakersupply.com](http://www.greenmakersupply.com)

*A wholesale and retail supplier serving homeowners and the building and design community with energy intelligent, environmentally sensitive and healthy building materials.*

### Harley Ellis Devereaux/ GreenWorks Studio

Susan King, AIA, LEED, AP  
401 W Superior  
Chicago, IL 60654-3430  
Phone: (312) 951-8863

Email: sfking@greenworksstudio.com

Web: [www.hedev.com](http://www.hedev.com)  
[www.greenworksstudio.com](http://www.greenworksstudio.com)

*Provides architectural services, including planning, engineering, interior architecture, landscape architecture, construction services, and historic preservation.*

### Indie Energy

Phone: (312) 753-7831

Email: info@indieenergy.com

Web: [www.indieenergy.com](http://www.indieenergy.com)

*Designs and manufactures clean energy systems. We deliver complete geothermal-based renewable HVAC systems from engineering, to drilling, to interior build-outs and commissioning for commercial developments, adaptive re-use, institutional and governmental buildings, and large scale residential.*

### Informed Energy Decisions, LCC

4730 N Hamlin Av  
Chicago, IL 60625  
Phone: (773) 463-6767

Email: informs@energydetectives.com

Web: [www.energydetectives.com](http://www.energydetectives.com)

*Services include "condition surveys" and "energy ratings" for commercial, institutional, and residential buildings. Also works with owners, developers, builders, and architects to design and incorporate energy efficiency for rehab work and new green construction.*

### Midwest Energy Efficiency Alliance

645 N Michigan Avenue, Suite 990  
Chicago, IL 60611  
Phone: (312) 587-8390

Web: [www.mwalliance.org](http://www.mwalliance.org)

*Raises awareness, facilitates energy efficiency programs and strengthens policy across the nine-state region through a network of members, partners, board, and staff.*

### OWPP/P Consultants

111 W Washington Street, Suite 2100  
Chicago, IL 60602-2714  
Phone (312) 332-9600

Email: rekman@owpp.com

Web: [www.owpp.com](http://www.owpp.com)

*OWPP provides architecture, engineering, planning and consulting services for sustainable design building.*

### Shaw Environmental & Infrastructure

444 N Wells Street, Suite 602  
Chicago, IL 60610  
Phone: (312) 499-3500

*Services range from project planning and permitting services to design, construction, and demolition. The Shaw Group subsidiary, which brings together the resources of former environmental firms The IT Group and Envirogen, specializes in industrial and municipal construction and environmental services involving infrastructure and remediation.*

### U.S. Green Building Council – Chicago Chapter

Chicago Center for Green Technology,  
2nd Floor  
445 N Sacramento Boulevard  
Chicago, Illinois 60612  
Phone: (773) 265-5911

Web: <http://chapters.usgbc.org/Chicago/>

*Strives to lead the regional transformation of the built environment to ecologically sustainable, profitable, healthy places through education.*

### Worn Jerabek Architects

212 W Superior Street, Suite 600  
Chicago, IL 60610  
Phone: (312) 642-5587

Email: dianeb@wwap.com

Web: [www.wwap.com](http://www.wwap.com)

*Architecture firm which develops multi-family and senior affordable housing. Many members of the firm are LEED certified.*

## Government

### City of Chicago Department of Environment

30 N LaSalle Street, Suite 2500  
Chicago, IL 60602-2575

Phone: (312) 744-7606

Email: environment@cityofchicago.org

Web: [www.cityofchicago.org](http://www.cityofchicago.org) (click City Departments—Environment)

*Offers a variety of initiatives and programs that address air quality, brownfields, energy, green building, green roofs, natural resources, recycling and waste management, and urban heat island mitigation. Makes environmental grants and loans, runs workshops, and provides residential energy audit tools and information resources.*

### Department of Environment's Chicago Center for Green Technology

445 N Sacramento Boulevard  
Chicago, IL 60612-1711

Phone: (312) 746-9642

Email: greentech@cityofchicago.org

Web: [www.cityofchicago.org](http://www.cityofchicago.org)

(click City Departments—Environment—Green Building—Chicago Center for Green Technology)

*Provides environmental products and services, including Greencorps Chicago, the city's community landscaping and job training program; Spire Solar Chicago, a*

*manufacturer of solar panels; and WRD Environmental, an urban landscape company. Open for visitors to explore and to learn how to incorporate environmentally friendly and cost saving features into their home or business. Offers 2-3 free seminars per week.*

### Department of Housing

33 N LaSalle Street, 2<sup>nd</sup> floor  
Chicago, IL 60602

Phone: (312) 742-8400

Email: alberta\_johnson@cityofchicago.org

Web: [www.cityofchicago.org](http://www.cityofchicago.org) (click City Departments—Housing)

*Gateway site to housing development and assistance programs sponsored by the City of Chicago. Requires several energy efficient components in all new and rehabbed housing developments, including improvements to the building's thermal envelope, plumbing, HVAC, interior finishes, appliances, and water management. Five-year plan beginning January 1, 2009 will include property tax incentives for energy efficiency, green mortgages and underwriting, and green building capacity-building for trade groups.*

### Department of Planning & Development

121 N. LaSalle Street, #501  
Chicago, IL 60602

Phone: (312) 744-4190

Email: planning@cityofchicago.org

Web: [www.cityofchicago.org](http://www.cityofchicago.org) (click City Departments—Planning and Development)

*Offers an array of financial assistance programs including land sale opportunities, façade rehabilitation rebates, and green space/building programs. Green/Green Roof policy applies to construction projects that receive public assistance; all projects reviewed by DPD are encouraged to use storm water best management practices, LEED and Energy Star building standards, and residential green building standards where applicable.*

## RESOURCES

### State of Illinois

#### Department of Commerce & Economic Opportunity

Director: James R. Thompson  
100 W. Randolph  
Chicago, IL 60601

Phone: (312) 814-7179

Web: [www.commerce.state.il.us/dceo](http://www.commerce.state.il.us/dceo)

*Contains information on Illinois's statewide energy efficiency, sustainability, and low-income housing finance opportunities and programs.*

#### Illinois Energy Efficient Affordable Housing Construction Program

Maureen Davlin

Phone: (217) 785-2373

Email: [maureen.davlin@illinois.gov](mailto:maureen.davlin@illinois.gov)

*Grants are provided to Illinois based non-profit housing developers to include energy efficient building practices in the rehab or new construction of affordable housing units.*

#### Bureau of Energy & Recycling

620 E Adams Street  
Springfield, IL 62701

Phone: (217) 785-3416

Web: [www.commerce.state.il.us/dceo/Bureaus/Energy\\_Recycling/](http://www.commerce.state.il.us/dceo/Bureaus/Energy_Recycling/)

*Resources, tools, technical services, as well as grant programs that promote energy-efficiency, clean energy, renewable fuels, and recycling in affordable housing, manufacturing and small business sectors.*

#### Illinois Housing Development Authority

401 N Michigan Ave., Suite 900  
Chicago, IL 60611

Web: [www.ihda.org](http://www.ihda.org)

*Finances the creation and the preservation of affordable housing throughout the state to increase the supply of decent and safe places for people of low or moderate means to live. IHDA has incorporated sustainable building incentives into scoring of applications for Low Income Housing Tax Credits.*

### Federal Government

#### Department of Energy – Chicago

Argonne Area Office – East  
9800 S Cass Avenue  
Argonne, IL 60439

Phone: (630) 252-2000

Web: [www.ch.doe.gov](http://www.ch.doe.gov)

*Chicago-based office branch offering information concerning energy-related inventions, doing business with the Department of Energy, educational materials, and community events.*

#### Energy Efficiency & Renewable Energy (EERE)

Phone: (877) 337-3463

Web: [www.eere.energy.gov](http://www.eere.energy.gov)

*Gateway to hundreds of websites and thousands of documents addressing energy efficiency, sustainability and building green. Building Technologies Program information resources page is particularly interesting and useful. Contains link to information on federal tax credits for new homes and improvements to existing homes and commercial buildings, as well as energy-efficient appliances and products purchased.*

#### Environmental Protection Agency

77 W Jackson Boulevard  
Chicago, IL 60604

Phone: (312) 814-6026

Web: [www.epa.gov/epahome/grants.htm](http://www.epa.gov/epahome/grants.htm)

*Gateway site to federal EPA programs, partnerships, research, statistics, as well as financial grants, including the brownfields remediation and environmental justice grant programs.*

Web: [www.epa.gov/iaq/homes/index.html](http://www.epa.gov/iaq/homes/index.html)

*Contains valuable links to articles, research and policy decisions regarding indoor air quality, including radon-resistant construction techniques and the benefit of EnergySTAR appliances.*

#### Internal Revenue Service Energy Tax Incentives Act of 2005

Web: [www.energytaxincentives.org](http://www.energytaxincentives.org)

*A 2005 tax law change provides a tax credit to improve the energy efficiency of existing homes. The law provides a 10% credit for buying qualified energy efficiency improvements. To qualify, a component must meet or exceed the criteria established by the 2000 International Energy Conservation Code and must be installed in the taxpayer's main home in the United States.*



## Chicago Community Loan Fund

29 East Madison Street, Suite 1700

Chicago, Illinois 60602

*Tel 312.252.0440 Fax 312.252.0419*

*[www.cclfchicago.org](http://www.cclfchicago.org)*

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