

**Date:** May 5, 2006

**To:** Economic Development and Finance Committee

**From:** Suzanne Frick, Director of Planning & Building

**Subject:** **Sustainable City Activities of the Planning & Building Department**

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In 2001, the Planning & Building Department received one-time funds sponsored by Mayor O'Neill to begin the implementation of elements of a Sustainable City Program as called for by the Long Beach 2010 Strategic Plan. Those funds were dedicated to the preparation of a Green Building Policy for Municipal Buildings and an Environmentally Preferable Purchasing Policy.

In 2002-2003, representatives from a variety of City departments formed the City's "Green Team". This Committee developed the Green Building Policy for Municipal Buildings and the Environmentally Preferable Purchasing (EPP). With the adoption by City Council of these policies on June 17, 2003, the beginnings of a limited Sustainable City Program were put into place. The EPP program fell under the administration of the Financial Management Department, and the Municipal Green Building Program has continued to be administered by the Planning & Building Department.

Since 2003, the "Green Team" has met quarterly with staff participation from a cross section of departments. These meetings have served to educate staff and act as a forum to share lessons learned in the implementation of the Municipal Green Building Program. To date, six City projects are being designed to meet the LEED (Leadership in Energy and Environmental Design) standard. In addition, at least 11 City staff have become LEED Accredited Professionals through training provided at Green Team meetings over the last 3 years. A web page, [www.greenlongbeach.org](http://www.greenlongbeach.org) has also been created.

In 2005, the City of Long Beach was recognized by the U.S. Green Building Council for implementing one of the first Municipal Green Building programs in the Los Angeles region. The opportunity remains to extend Green Building incentives to the private sector.

Green Building is only one component of the Sustainable City Program envisioned by the Environmental Task Force of the Strategic Plan. Many, if not all, of the unrealized environmental recommendations remain as relevant today as they did in 2000, in particular the creation of a Sustainable Development Board.

The General Plan Update currently being undertaken by the Planning Bureau will be an important way to incorporate Sustainable City principles into City policy in the areas of land use, transportation, urban design and historic preservation. The input of a dedicated citizen commission with expertise on the environment and sustainability should be considered a vital component to a successful General Plan update and Sustainable City Program.

This website provides an overview of the City's green building efforts, access to many green building resources, information about green building practices and materials for homeowners and builders, and links to many other green building sites.

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## **Long Beach Green Building Policy**

In June 2002, City Council unanimously adopted the City's new Green Building Policy. The Green Building Policy requires the City to:

- Plan, design, construct, manage, renovate, and maintain facilities and buildings in a sustainable manner.
- Use the US Green Building Council LEED Rating System and achieve LEED Certification for all new City projects and additions of over 7,500 square feet.
- Applies to City constructed and owned new construction & additions of over 7,500 square feet.
- Budget appropriations for projects to include funding to meet the policy requirements.
- 3 year pilot period

The Policy also includes building remodel and retrofit goals, and green infrastructure goals

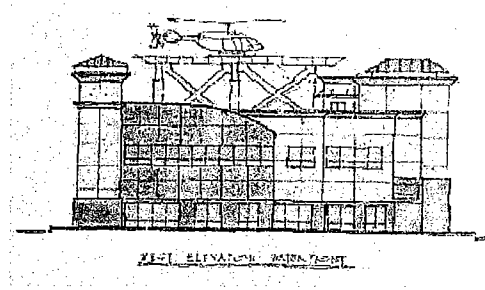
The Policy calls on the City to pilot test private sector incentives such as:

- Making Green Building a selection criteria for city released RFPs
- Provide lower-cost expedited plan check and zoning incentives
- Establishing a Green Building speakers bureau and Mayor's award.

## **What is Green Building?**

Green building practices focus on improving both the environment and the health and comfort of building occupants. Proven green building techniques reduce energy, water, and materials use and improve air quality, temperature control, and access to daylight and views for building occupants. Green buildings have lower operating costs and similar construction costs to conventional buildings. Over the life of the building, significant savings are realized.

[View Long Beach's Green Building Policy](#)



Port Command and Control Center

walking track, playing surfaces, and benches and trash receptacles.

**Command & Control Green Building Features include:**

- Bicycle racks and showers, vanpool parking for building employees
- Post development storm run-off less than pre-development run-off.
- Energy saving high reflectance roofing materials.
- Minimize light pollution.
- No permanent irrigation system and only native plantings
- Potable water use will reduced by 30%
- Perform better than California Title 24 energy standards by 17.5%
- Building commissioning
- Recycle 75% of construction waste
- 10% of the building cost will consist of recycled content in the form of steel, paving and concrete.
- Two week building flush out prior to occupancy
- Low VOC paints, carpets, adhesives and sealants

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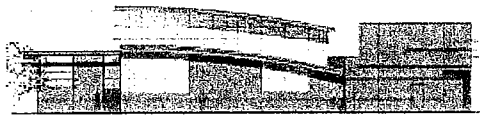
# GreenLongBeach City Projects

## City of Long Beach Green Projects

The City of Long Beach is designing two new LEED Certified Green Buildings.

- The MacArthur Park Library (LEED Certified)
- The Port Command and Control Center (LEED Certified)

Leed Certified Project



MacArthur Park Library

### The FIRST LEED Certified Project

- Setting an example for other City projects
- A building that teaches about green building
- Accessible by many modes of transportation and includes priority parking for carpools and vanpools
- Attention to indoor environmental quality
- Environmentally friendly finishes - paint meets Green Seal and Carpet meets CRI Green Label certification.
- Extensive use of day lighting (natural light to illuminate interior)
- Additional commissioning to improve the building performance and ensure that all systems are installed correctly and perform to specs.
- High energy efficiency

Leed Certified Project

The City is also undertaking a number of other green projects including:

- Boeing's Douglas Park development agreement includes green recommendations from the Green Building Team.
- The Homeland Cultural Center's remodel will include a variety of green building elements.
- The El Dorado Park Nature Center classroom has a new demonstration cork floor.
- The Environmental Services Bureau has drafted a construction and demolition (C&D) ordinance to increase construction debris recycling.
- The Water Department continues to provide incentives and rebates for weather-based irrigation systems, dual-flush toilets, and other water-saving devices.
- The Aquarium of the Pacific is constructing a 900 square foot LEED Platinum education classroom.
- The proposed Sports Park will use reclaimed water and porous pavement systems, and the golf training facility will be LEED Certified.
- The new Main Library roof will consist of an all recycled-content multi-purpose area, with recycled plastic artificial turf, a

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**GreenLongBeach**

## **Green Team**

The **Green Building Team** meets on a quarterly basis to develop and direct the City's Green Building Program. Team members are individually responsible for the City's new green buildings, remodeling and landscaping projects. Team members work together to forward the City's green building and sustainability efforts, staff knowledge, and green building policy.

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- Planning and Building: **Angela Reynolds, Larry Rich, Dale Wiersma**
- Port of Long Beach: **Nicholas Kozma, Phillip Balmeo, Emile Ueda**
- Parks, Recreation and Marine: **Anna Mendiola, Mary Blackburn, Sharon Gates**
- Energy: **Mike Zuskoski**
- Public Works: **Sandra Gonzalez, Denise Scribner, Michelle Stevens**
- Water: **Matt Lyons**
- Stormwater Management: **Deborah Welsh**
- Community Development: **Amy Bodek, Lisa Fall**



## Green Long Beach

# Green Team Resources

The Green Team has developed a number of tools to help City Staff efficiently contract, manage, and build green projects.

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**[Long Beach's Green Building Policy](#)** -- The City's policy outlines the purposes and requirements of the City's Green Building Program.

**[Green Building Workshop \(Powerpoint\)](#)** -- This two hour powerpoint presentation provides an overview of Long Beach's green building program.

**[Model Green Building RFP Language](#)** -- This model RFP language is designed as a starting point for the City's green building efforts.

**[Model Sustainable Landscaping RFP Language](#)** -- This model RFP language covers every aspect of sustainable landscaping from water systems to plant selection.

**[Green Building Directory](#)** -- This directory provides contact names and websites for architects, contractors, builders, engineering firms, commissioning agents and other professional services firms that have green building expertise (LEED) for commercial and insitutional projects.

**[Green Building Team Contact Info](#)** -- The Green Teams contact list.



# Residential Green Building

The City's Green Building Team has put together materials to help Long Beach residents green our homes. The links below will connect you to everything from best practices in sustainable landscaping to how to select the right paint, carpet and flooring for your remodel job. We hope these resources will help empower you to undertake your own green remodeling efforts and/or to learn enough to feel comfortable asking for these services from your carpenter or contractor.

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## **New Construction**

[Green Guide to New Construction](#). No longer a niche building technique, many home owners and contractors now embrace green building. Check out this resource book to learn the latest in new green materials and techniques for new home construction.

## **Residential Remodeling**

### **[Green Remodeling Workbook](#)**

This short guide, prepared by Alameda County, provides detailed information about readily available residential green building materials and techniques.

## **Sustainable Landscaping**

[Be Water Wise](#) This website provides information about rebates for water efficient appliances and landscaping systems, as well as sustainable landscaping advise.

[LA County Smart Gardening Guide](#) Using the technique of Smart Gardening is an easy way to get a really great looking yard while using less water, energy and wasting fewer resources. Learn the latest in composting, water wise gardening and use of native plants.

### **[Long Beach Green Landscaping Tips](#)**

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## General Questions

Q: I'm shopping for a new home. What green building questions should I be asking the new home sales staff?

Q: What are the top things I can do NOW to green my home without spending any money?

Q: I'd like to remodel my home green, but I'm unsure about what products to use.

Q: What should I look for in a contractor?

Q: What is the best way to save water in my home?

## Cost & Quality

Q: Does building "green" cost more?

Q: How does green building add quality?

Q: How is green building affordable?

Q: Why buy regional or local products?

## Questions on Indoor Air Quality (IAQ)

Q: What is a HEPA filter?

Q: How can I prevent air infiltration into my home?

Q: How can I prevent leaky ducts?

## Questions on Energy Use

Q: What is the Home Performance Rating?

Q: Is solar energy better?

Q: Can I save energy by way of my water heater?

Q: What is the Energy Star sticker on appliances mean?

Q: What is the most cost-effective way to reduce my 1920s vintage home's energy use?

Q: I don't like the way fluorescent light looks—are there other energy efficient lights?

## Questions on Materials

Q: Can I use wood flooring in my home and still qualify under green building criteria?

Q: What is the greenest flooring option I can use?

Q: What is certified sustainably harvested lumber and where can I find it?

Q: Why are "engineered" wood products better?

Q: What is recycled plastic lumber?

## Questions on Windows, Cabinets, Finishes, Adhesives, Siding, Trim, Insulation

Q: What are the benefits of high-performance windows?

Q: What are the alternatives to cabinets made from particleboard (PB) or medium density fiberboard (MDF)?

Q: What is a "less-toxic" finish?

Q: What are "low-toxic, solvent-free adhesives"?

Q: How long do VOCs outgas from paints? How about particleboard?

Q: Why is fiber-cement siding considered to be green? Q: What constitutes fiber-cement siding and other exterior finish alternatives?

Q: What types of green building insulation are available?

Excerpted from [www.stopwaste.org](http://www.stopwaste.org)





# Commercial Projects

The Green Building Team has assembled a set of fact sheets and resources for the public sector to more easily adopt and use green building materials and techniques on commercial projects in Long Beach.

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## Tenant Improvements and Commercial Interiors

**Tenant Improvement G Rated Guide.** This detailed 166 page guide, developed by the City of Portland, provides all the information a commercial tenant needs to green their tenant improvements. A step-by-step handbook for workspace design and construction, it's packed with practical advice for creating high performance workspaces that are not only respectful of the environment, they're efficient and cost effective too.

**LEED CI.** This USGBC standard is designed to help contractors, developers and building owners sustainably complete the interior buildout of a shell building.

## Specifications and Green Building Materials Guides

**GreenSpec Guide.** GreenSpec, BuildingGreen's premiere product information service, contains detailed listings for more than 1,800 environmentally preferable building products with descriptions, manufacturer information, and links to additional resources.

**Green Building Specifications by CSI.** The California Integrated Waste Management Board has created a comprehensive set of model Green Building Specification covering materials and services from all divisions of the CSI.

## New Construction

**LEED NC.** This USGBC guide provides detailed high performance green building standards for new construction.

**New York High Performance Building Guidelines.** These Guidelines outline a range of 'best practices' for planning, designing, constructing and operating healthier, more energy – and resource – efficient facilities.

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1. Why does the City have a Green Building program?
2. What other cities have Green Building programs?
3. What kinds of buildings have been built green?
4. How much will it cost?
5. What are the benefits?
6. What is the USGBC?
7. What is LEED?

### Why does the City have a Green Building program?

Whether we are working, learning, playing, or simply spending time with our friends and families, our time is increasingly spent inside a building. In fact, the United States Environmental Protection Agency estimates that Americans spend about 90 percent of their time indoors. Often without our awareness, buildings and their supporting infrastructure affect our personal interactions, our health, our environment, and our economy.

The building industry is the largest manufacturing activity in the United States. According to the United States Department of Energy's Center of Excellence for Sustainable Development, buildings in the United States consume over 30 percent of America's energy, 67 percent of all electricity, and produce over 35 percent of the nation's carbon dioxide emissions (the chief greenhouse gas). In California, buildings generate about 30 percent of the State's solid waste materials. In addition buildings are a major source of the pollution that causes urban air quality problems and the pollutants that many scientists believe trigger climate change. Traditional building practices allow such environmental degradation and resource inefficiency by failing to integrate essential design elements at the outset.

Green building, by contrast, prescribes an integrated design approach, in which the project team – architects, interior designers, engineers, operations and maintenance staff, occupants, and the client – view the building as a whole system. From the start, design, construction, operations and maintenance, and demolition are considered and evaluated to optimize the environmental and economic performance of the building. This involves evaluating the building and its components over the entire life cycle of the building in order to accurately measure its economic, environmental and social costs.

The built environment has a profound impact on our natural environment, economy, health, and productivity. Green building practices provide the framework and tools to build in an efficient, healthy, and ecologically responsible manner. Encouraging green building practices is in the public's interest because these techniques maximize environmental, economic and social benefits.

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GreenLongBeach

## Green Building Links

This list contains links to national and local websites that can be used to facilitate the growth of the green building industry in the Long Beach area. This list will remain a work in progress as the adoption of green building practices and materials continue to grow in our area. The City of Long Beach may not be held liable for the contents of the referenced Web-sites nor the inclusion and/or omission of Web-sites in this list.

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### **Categories**

#### **Building Codes and Standards**

**American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)**

**American Society for Testing and Materials (ASTM)**

**Building Codes Assistance Project** – The Building Codes Assistance Project, or BCAP, provides custom-tailored assistance on building energy code adoption and implementation. We assist state and local regulatory and legislative bodies and help coordinate others representing environmental interests, consumers, labor, and industry.

**Development Center for Appropriate Technology - codes**

**International Code Council** – The International Code Council (ICC) was established in 1994 as a nonprofit organization dedicated to developing a single set of comprehensive and coordinated national model construction codes.

**U.S. DOE BTS - Codes and Standards program** – A gateway to hundreds of Web sites and thousands of online documents on energy efficiency and renewable energy

#### **Green Building Materials Guides**

**Advanced Buildings** – A building professional's guide to more than 90 environmentally-appropriate technologies and practices. Architects, engineers and buildings managers can improve the energy and resource efficiency of commercial, industrial and multi-unit residential buildings through the use of the technologies and practices described in this web site.

**Building for Environmental and Economic Sustainability (BEES 2.0)** – The BEES (Building for Environmental and Economic Sustainability) software brings to your fingertips a powerful technique for selecting cost-effective, environmentally-preferable building products.

**CIWMB Recycled Content Product Database** This directory has been set up to assist individuals, small business owners, state agencies, and corporate buyers in the

commitment to buy recycled. The RCP Directory lists thousands of products containing recycled materials as well as information about the manufacturers, distributors and re-processors of these products.

Concrete Network – Earth's largest directory of concrete services

Environmental Design + Construction magazine

GreenGuard (interior products emissions testing) – The GREENGUARD Certification Program<sup>SM</sup> is an independent, third-party testing program for low-emitting products and materials. Access to the GREENGUARD Product Guide, an indoor air quality (IAQ) resource, is provided at no charge. The guide features products, which are regularly tested to ensure that their chemical and particle emissions meet acceptable IAQ pollutant guidelines and standards.

Greenroofs.com - Use our online directory to locate green roof professionals and materials in your area or the world.

Green Sage – Shop for green building materials on line.

GreenSpec – GreenSpec is BuildingGreen's premiere product information service. It contains detailed listings for more than 1,800 environmentally preferable building products with descriptions, manufacturer information, and links to additional resources.

Oikos - Green Building Source

Sustainable Design Resource Guide – Website dedicated to sources green building materials in Denver Colorado

U.S. EPA Environmentally Preferable Purchasing – Environmentally Preferable Purchasing (EPP) is a federal-wide program that encourages and assists Executive agencies in the purchasing of environmentally preferable products and services.

## **Relevant Associations and Non-Profit Organizations**

### **California Associations & Non-Profit Organizations**

Build It Green— partnering with public agencies, building industry professionals, manufacturers, suppliers, and non-profits, Build It Green offers education and training, unbiased product information, technical assistance, and networking opportunities. Build It Green links consumers, building professionals, and green product manufacturers. Build It Green is building its presence in Southern California and is currently working towards adoption of a state-wide voluntary residential green building standard.

California Integrated Waste Management Board – CIWMB provides information on State funding, training and resources to support Green Building in California, including detailed environmental specifications for green building projects.

Southern California Building Resources – This site provides a limited listing of green building professionals/businesses in Southern California including architects, builders, landscapers, etc.

### **National Associations**

American Indoor Air Quality Council

American Solar Energy Society

Architects, Designers and Planners for Social Responsibility (ADPSR) – Established in 1981, Architects / Designers / Planners for Social Responsibility (ADPSR) works for peace, environmental protection, ecological building, social justice, and the development of healthy communities.

Business for Social Responsibility (BSR) –BSR equips its member companies with the expertise to design and implement successful, socially responsible business policies, practices and processes.

Climate Action Network (CAN) – A worldwide network of over 340 Non-Governmental Organizations (NGOs) working to promote government and individual action to limit human-induced climate change to ecologically sustainable levels.

Community Greenhouse Foundation – The Foundation acts as a service management clearinghouse for the professionals, materials, and vendors on a green project.

Congress for the New Urbanism – a Chicago-based non-profit organization that was

founded in 1993. We work with architects, developers, planners, and others involved in the creation of cities and towns, teaching them how to implement the principles of the New Urbanism.

[Construction Materials Recycling Association](#) – The first association devoted exclusively to the needs of the rapidly expanding North American construction waste & demolition debris processing and recycling industry.

[National Association of the Remodeling Industry \(NARI\)](#) – NARI provides a "Certified Remodeler" designation to identify remodelers that are aware of green building.

[Soil and Water Conservation Society \(SWCS\)](#) – Soil and Water Conservation Society (SWCS) is a nonprofit scientific and educational organization<sup>3/4</sup>founded in 1943<sup>3/4</sup>that serves as an advocate for conservation professionals and for science-based conservation practice, programs, and policy.

[Sustainable Buildings Industry Council \(SBIC\)](#) –SBIC is an independent, nonprofit organization whose mission is to advance the design, affordability, energy performance, and environmental soundness of America's buildings.

[Urban Ecology](#) – Urban Ecology was founded in 1975 by visionary architects and activists who believed that cities should serve both people and nature. From the beginning, Urban Ecology has used urban planning, ecology, and public participation to help design and build healthier cities.

[US Green Building Council](#) –The U.S. Green Building Council is the nation's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work.

[World Green Building Council](#) – The World Green Building Council, together with it's members (made up of Green Building Councils from around the world) is committed to changing the property industry, those who produce, develop, plan, design, build, alter, or maintain the built environment, and includes building materials manufacturers and suppliers as well as clients and end use occupiers.

#### **Product Certification and Testing**

[American Society for Testing and Materials \(ASTM\)](#)

[Certified Forest Products Council](#)

[Forest Stewardship Council \(in U.S., with international links\)](#)

[GreenGuard](#)

[Green Seal](#)

[Scientific Certification Systems](#)

#### **Commissioning and Post-Occupancy Evaluation**

[Portland Energy Conservation Inc. - Commissioning Resources](#)

[Post Occupancy Evaluation](#)

[Post-Occupancy Evaluation of Higher Education Teaching Spaces - A Methodological Approach](#)

[The Power of POE \(Facilities Design & Management article\)](#)

#### **Design and Simulation Tools**

[Building Design Advisor](#)

[Building Energy Simulation Tools](#)

[Energy Design Tools](#)

[Environmental Support Solutions](#)

[EQUER \(France\)](#)

[Green Building Advisor](#)

[Green Buildings \[Center of Excellence for Sustainable Development\]](#)

[International Association for Impact Assessments \(IAIA\)](#)

[Introduction to OTTV and Simulation Tools](#)

[U.S. DOE Building Energy Software: Tools Directory](#)

[Whole Building Design Guide](#)

#### **Design Resources**

[Alternative Architecture and Sustainable Development](#)

[Architectural Resource Collaborative \(ARC\)](#)

[Architecture and Building](#)  
[Architecture and Community](#)  
[Earthship Architecture](#)  
[EBN](#)  
[Environmental Design and Sustainability](#)  
[Environmental Resource Guide - American Institute of Architects](#)  
[Environmental Sustainable Architecture](#)  
[Field Guide to Sustainable Construction](#)  
[Green Building Primer](#)  
[greendesign.net - Green Building Resource Center](#)  
[Green Design Sustainable Architecture](#)  
[LISA \(LCA in Sustainable Architecture\)](#)  
[Natural Ventilation - A strategy for sustainability \[MIT\]](#)  
[Sustainable Architecture](#)  
[Sustainable Architecture Building and Culture](#)  
[Sustainable Architecture Resource](#)  
[Sustainable Building Resource](#)  
[Sustainable Building Sourcebook](#)

### **Economics**

[Green Economics Website](#)  
[Natural Capitalism](#)

### **Energy**

[Alliance to Save Energy](#)  
[Center for Renewable Energy & Sustainable Technology \(CREST\)](#)  
[The Energy Foundation](#)  
[Renewable Energy Policy Project](#)  
[State Energy Offices \(U.S.\)](#)  
[Sustainable Energy Coalition](#)  
[U.S. DOE Energy Efficiency and Renewable Energy Network \(EREN\)](#)  
[U.S. DOE and U.S. EPA – Energy Star program](#)  
[U.S. Department of Energy Library](#)  
[U.S. Department of Energy - EnergyFiles](#)  
[U.S. National Energy Policy](#)  
[U.S. National Renewable Energy Laboratory](#)  
[World Bank energy projects](#)

### **Funding**

[Bridgmer: Funding and Investing in Green Buildings](#)  
[Center of Excellence for Sustainable Development - funding sources](#)  
[Funding Green Buildings](#)  
[Kresge Foundation](#)  
[State Energy Offices \(U.S.\)](#)

### **Local Government**

[Alameda County, CA, Waste Authority - Green Building programs](#)  
[Arlington County, VA - Green Building Incentive](#)  
[Austin, TX, Green Building Program](#)  
[Battery Park City Authority, NYC - High-Rise Residential Green Guidelines](#)  
[Boulder, Colorado - Green Points Program](#)  
[Cambridge Sustainable City](#)  
[Hennepin County, MN - Sustainable Design Guide and Rating System](#)  
[Issaquah, WA - Sustainable Building](#)  
[King County, WA - Sustainable Building program](#)  
[Kitsap County, WA - Build a Better Kitsap](#)  
[Los Angeles, CA - Green Building Guidelines](#)  
[Miami-Dade County, FL - Green Coalition](#)  
[New York City High Performance Building Guidelines](#)

[Oakland, CA - Green Building Resource Center](#)  
[Philadelphia, PA – Schools: Save Energy Campaign](#)  
[Portland, OR - Green Rated](#)  
[Portland, OR - Office of Sustainable Development](#)  
[San Francisco, CA - Green Building Program](#)  
[San Jose, CA - Green Building Program](#)  
[Santa Barbara, CA - Innovative Building Design initiative](#)  
[Santa Monica Green Building Guidelines & Ordinances](#)  
[Scottsdale, AZ, Green Building Program](#)  
[Seattle City Light - Built Smart program](#)  
[Seattle Sustainable Building](#)  
[Triangle J Council of Governments - High Performance Building Guidelines](#)  
[Washington, DC - Metropolitan DC Council of Governments](#)

### **Life Cycle Analysis and Costing**

[Activity-Based Management](#)  
[ATHENA Sustainable Materials Institute](#)  
[BEES \(Building for Environmental and Economic Sustainability\) \[NIST\]](#)  
[BuildingGreen.com](#)  
[Buildings and Life-Cycle Costing \[Canadian Building Digest\]](#)  
[Carnegie Mellon – Green Design Initiative \(GDI\)](#)  
[Comparing the Environmental Effects of Building Systems \[Canadian Wood Council\]](#)  
[Life Cycle Analysis for Residential Buildings \[Canadian Wood Council\]](#)  
[Life Cycle Costing and Stainless Steel - ASSDA](#)  
[LISA \(LCA in Sustainable Architecture\)](#)

### **Media**

[Environmental Building News](#)  
[Environmental Design + Construction Magazine](#)  
[Environmental News Network](#)  
[Green@work Magazine](#)

### **Rating Systems**

[Alameda County, CA, Multifamily Green Building Guidelines](#)  
[Austin, Texas, Green Building Program](#)  
[British Columbia University – Facilities Branch Environmental Guidelines](#)  
[Built Green Colorado](#)  
[EarthCraft House™](#)  
[Scottsdale, Arizona, Green Building Program](#)  
[U.S. Green Building Council – LEED™](#)

### **Research Centers**

[Carnegie Mellon University Center for Building Performance and Diagnostics](#)  
[Center for Energy Efficiency & Renewable Technologies \(CEERT\)](#)  
[Center of Excellence for Sustainable Development \(CESD\), USDOE](#)  
[Center for Maximum Potential Building Systems \(CMPBS\)](#)  
[Center for Resourceful Building Technology \(CRBT\)](#)  
[Center for Sustainable Systems - Environmental Energy Technologies Division](#)  
[Centre for Sustainable Design](#)  
[FICUS-Florida Internet Center for Understanding Sustainability](#)  
[Green Resource Center, Berkeley](#)  
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[National Renewable Energy Laboratory](#)  
[Oak Ridge National Laboratory-Buildings Technology Center](#)  
[Pacific Energy Center](#)  
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[Rocky Mountain Institute \(RMI\)](#)  
[Sandia National Laboratories Renewable Energy Office](#)  
[Simulation Research Group](#)  
[Sustainability Research Profiles \[Second Nature\]](#)  
[The Vital Signs Project](#)

### **Sustainability**

[Applying Sustainable Development](#)  
[Center for Renewable Energy and Sustainable Technology](#)  
[Consulting the Public Interest](#)  
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[Sustainable Energy Authority of Victoria, Australia](#)  
[Sustainable Measures](#)  
[Sustainable USA](#)  
[The Natural Step](#)  
[The Sustainability Report](#)  
[Towards Sustainability](#)  
[United Nations Environment Programme](#)  
[United Nations Sustainable Development Programme](#)  
[U.S. House of Representatives' Livable Community Task Force](#)  
[U.S. House of Representatives' Sustainable Development Caucus](#)  
[World Bank](#)  
[Wuppertal Institute for Climate, Environment and Energy](#)

### **Urban Sustainability**

[Congress for the New Urbanism](#)  
[European Union's Database on Good Practice in Urban Management and Sustainability](#)  
[Florida Internet Center for Understanding Sustainability \(FICUS\)](#)  
[Global Development Research Center - Virtual Library on Urban Environmental Management](#)  
[Green Communities Assistance Kit](#)  
[Livable Communities](#)  
[New Urbanism](#)  
[Smart Growth Network](#)  
[SURBAN \(database on sustainable urban development in Europe\)](#)  
[Sustainable Communities Resource Package \(SCRIP\)](#)  
[Sustainable Urban Design and Climate](#)





## GreenLongBeach Contact Us

If you want additional information about the Green Building Team or City of Long Beach green building activities, please feel free to contact us.

You can send us an e-mail at: [larry\\_rich@longbeach.gov](mailto:larry_rich@longbeach.gov) or [marie@mariejonesconsulting.com](mailto:marie@mariejonesconsulting.com)

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Contact Us

Or you can reach Larry Rich at:

City of Long Beach

Advance Planning

City Hall

333 W. Ocean Blvd.

Long Beach, Ca. 90802

Phone: (562) 570-5839

## **City of Long Beach Green Building Policy for Municipal Buildings**

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### **1 Purpose**

The City of Long Beach's 2010 Citywide Strategic Plan identifies "Becoming a Sustainable City" as a primary strategic goal. More specifically the Strategic Plan calls upon the City to "Develop Green Building Development Guidelines to ensure aesthetic and environmental compatibility of new projects."<sup>1</sup> The strategic plan also calls for related sustainable City goals including: ensuring environmental responsibility in all City purchases and contracts; using full-cost accounting in decision making; establishing a sustainable City board; developing baseline data and benchmarks against which program progress will be measured; and using financial incentives to motivate participation in sustainability initiatives. This Green Building Policy has been developed in response to the City's sustainability goals as articulated in the 2010 Citywide Strategic Plan.

#### **1.1 Municipal Building Focus**

By focusing on municipal buildings, this Green Building Policy demonstrates the City's commitment to environmental, economic, and social stewardship, to cost savings for the City's taxpayers through reduced operating costs, to a healthy work environment for staff and visitors, and to the City's goals of protecting, conserving, and enhancing the region's environmental resources. Through the implementation of Green Building Guidelines, the City's new construction, remodel and tenant improvement projects will help to set a community standard and model of sustainable building.

The City of Long Beach is dedicated to development that accomplishes a wide range of City goals, including providing housing that matches the City's income distribution, facilitating job creation and retention, preserving historic buildings, and developing vibrant communities in which to live, work and play. Incorporating green building techniques and, more broadly, sustainable development goals into City development projects complements and affirms the City's other priorities. Making buildings more efficient also lowers operating costs, provides a better environment in which to work and live, and translates into a more productive and competitive work force.

#### **1.2 Why Build Green?**

Whether we are working, learning, playing, or simply spending time with our friends and families, our time is increasingly spent inside a building. In fact, the United States Environmental Protection Agency estimates that Americans spend about 90 percent of their time indoors. Often without our awareness, buildings and their supporting infrastructure affect our personal interactions, our health, our environment, and our economy.

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<sup>1</sup> Long Beach 2010 Strategic Plan, Page 26

The building industry is the largest manufacturing activity in the United States. According to the United States Department of Energy's Center of Excellence for Sustainable Development, buildings in the United States consume over 30 percent of America's energy, 67 percent of all electricity, and produce over 35 percent of the nation's carbon dioxide emissions (the chief greenhouse gas). In California, buildings generate about 30 percent of the State's solid waste materials. In addition buildings are a major source of the pollution that causes urban air quality problems and the pollutants that many scientists believe cause climate change. Traditional building practices allow such environmental degradation and resource inefficiency by failing to integrate essential design elements at the outset.

Green building, by contrast, prescribes a holistic, integrated design approach, in which the project team – architects, interior designers, engineers, operations and maintenance staff, occupants, and the client – view the building as a whole system. From the start, design, construction, operations and maintenance, and demolition are considered and evaluated to optimize the environmental and economic performance of the building. This involves evaluating the building and its components over the entire life cycle of the building in order to accurately measure its economic, environmental and social costs.

The built environment has a profound impact on our natural environment, economy, health, and productivity. Green building practices provide the framework and tools to build in an efficient, healthy, and ecologically responsible manner. Encouraging green building practices is in the public's interest because these techniques maximize environmental, economic and social benefits. Specific benefits include:

#### **Social Benefits**

- Improved air, thermal, and acoustic environments
- Enhanced occupant comfort, well being and health
- Increased worker productivity
- Reduced employer liability due to healthier indoor environments
- Promotion of Long Beach's energy, land use, environmental and growth-management policies
- Strengthened established goals related to increased housing, mixed-use and transit oriented development, storm water and erosion control, Brownfield redevelopment, and improved bicycle and pedestrian access
- Contributions to community health, vitality and aesthetics

#### **Economic Benefits**

- Annual savings to building owners/tenants through reduced operation costs and increased operation and maintenance efficiencies of 20 to 60 percent over conventional buildings
- Enhanced asset value and profits
- Improved employee productivity and satisfaction
- Creation of new local industries and jobs, by keeping construction dollars in the local community

#### **Environmental Benefits**

- Minimization of local ecological degradation (habitat, air, soil, and water) by enhancing and protecting natural habitats through efficient site and building design, sustainable construction practices, low impact building materials, sustainable landscaping, and operational practices

- Improved air and water quality
- Reduction of solid waste
- Conservation of energy, water and other natural resources

### **1.3 Green Building Track Record**

By adopting this Green Building Policy, the City of Long Beach will join a number of leading cities which have also adopted municipal green building guidelines, including: Austin, TX; Portland, OR; New York City, NY; Seattle, WA; Fairfax County, VI; Boulder, CO; Chicago, IL; San Francisco, CA; San Jose, CA; Santa Monica, CA; San Mateo County, CA; and Los Angeles, CA.

A variety of facilities have been built or are being built in accordance with LEED, including:

- Office buildings
- Hospitals
- Airport and ferry terminals
- Museums, performance halls and libraries
- Community and recreation centers
- Police stations and court houses
- Fire stations and public service facilities
- Convention and conference centers
- Commercial office, industrial, retail, and laboratory facilities
- Schools, universities, child care facilities
- Multi-family housing

For a more comprehensive list of a sample of LEED registered projects by each category, see Appendix A.

### **1.4 Reducing Costs**

While green building principles are based on sound environmental policies, they are also grounded in economics. Because the City owns and operates its facilities, it is in a unique position to maximize the advantage of life cycle cost analysis. Under this approach, the construction, operating, maintenance and decommission costs of a building are calculated over its expected useful life, looking at the net present value of design options as investments. Architects, engineers and maintenance staff can figure the cost-effectiveness and performance of specific systems and components (e.g., electrical and mechanical systems) over a longer time frame, rather than specify systems based simply on the lowest up-front expenditure. For example, a space conditioning system with a higher initial cost may prove to have a higher return on investment due to energy savings and lower operating costs. When the building is viewed as a whole system, complementary systems and components are chosen, ultimately reducing maintenance and long-term operational costs. From a fiscal perspective, developing sustainably can have a positive impact, especially over the long term. Reviewing current policies from a “whole system perspective” can help save money over time and lead to a community more aligned with natural systems.

The quantity of information regarding both first cost and life cycle cost differentials between green buildings and conventional buildings is growing. Research completed by Xenergy Inc for

the City of Portland Oregon found that the additional cost to build three sample buildings according to the LEED certified standard was -0.3 to 1.3 percent from a first cost perspective in comparison to developing the buildings without regard to LEED. This same study found that constructing these buildings to the LEED certified standard would save the city approximately 15 percent of the total construction costs over the life of the building.<sup>2</sup> The US Green Building Council has also collected information with regard to a variety of LEED certified buildings and has found that building to LEED resulted in from 0 percent to 2.2 percent increase in first costs.<sup>3</sup> The US Green Building Council is currently compiling information about the cost savings of building green over the life-cycle of a building.

### **Green Building Payback**

Green buildings pay for their green components quickly through reduced operating costs and improved performance. Even if one considers only the impact of going green on utility costs, the typical green building project will pay for all green components through lowered utility bills in four to eight years.

New construction typically costs around \$200/per square foot for office space. Building to a LEED certification level can increase that cost by between \$2 and \$4 per square foot. However, incorporation of green building components can reduce utility costs from \$1.50 per square foot per year to less than \$1.00 per sq ft per year. Thus the payback on green building will average between four and eight years even if utility savings are the only item considered.

The implementation of this policy will:

1. Yield cost savings to City taxpayers through reduced operating costs over the life cycle of City buildings;
2. Provide a healthy work environment for City employees and visitors to City facilities and buildings;
3. Advance the City's stated goal of environmental stewardship, which includes protecting, conserving, and enhancing the region's environmental resources, and
4. Help establish a community standard of sustainable building for the City of Long Beach.

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<sup>2</sup> Green City Buildings: Applying the LEED Rating System, XENERGY Inc., Portland Oregon, June 2000.

<sup>3</sup> "Green Building Cost Premiums and Savings," USGBC, August 2001

## 1.5 Definitions

### **US Green Building Council (USGBC)**

The USGBC<sup>4</sup> was formed in 1993 as a national non-profit to accelerate the adoption of green building practices, technologies, policies, and standards. The USGBC developed LEED to help stimulate green building market transformation. USGBC membership consists of more than 600 organizations including product manufacturers, environmental non profit organizations, institutions, building and design professionals, building owners, and local and state governments. The City of Long Beach is a member of the USGBC.

### **LEED Rating System**

The US Green Building Council's LEED (Leadership in Energy and Environmental Design) Rating System is a self-assessment system designed for rating new commercial, institutional, and high-rise residential buildings. It is a voluntary, consensus-based, market-driven building rating system based on existing proven technology. It evaluates environmental performance from a "whole building" perspective over a building's life cycle, providing a definitive standard for what constitutes a "green building". LEED is based on accepted energy and environmental principles and strikes a balance between known effective practices and emerging concepts. It is a feature-oriented system where credits are earned for satisfying each criterion. Different levels of green building certification are awarded based on the total credits earned. The system contains relatively few prerequisites and a wide-range of possible credits in five categories: Sustainable Site Planning, Improving Energy Efficiency, Conserving Materials and Resources, Embracing Indoor Environmental Quality, and Safeguarding Water.

The four LEED rating levels are certified by the USGBC based on the total credits a building is eligible for out of a possible total of 64 credits. The LEED rating levels are:

Certified	26 credits
Silver	33 credits
Gold	39 credits
Platinum	52 credits

### **Life Cycle Cost Analysis**

Life Cycle Cost Analysis is an inclusive approach to costing a program, facility, or group of facilities that encompasses planning, design, construction, operation, and maintenance over the useful life of the facilities and includes decommissioning/disassembly costs. Life Cycle Cost Analysis looks at the net present value of design options as investments. The goal is to achieve the highest, most cost-effective environmental performance possible over the life of the project.

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<sup>4</sup> The web site for the US Green Building Council is [www.usgbc.org](http://www.usgbc.org)

## **2. Green Building Policies**

### **2.1 Green Building Policy for New Municipal Building Projects**

It is the policy of the City to plan, design, construct, manage, renovate, and maintain its facilities and buildings in a sustainable manner. The US Green Building Council's LEED rating system and Reference Guide shall be the design and measurement tools used to determine what constitutes sustainable building under this policy. (For a detailed description of LEED, see Appendix B.) This policy applies to new construction and additions to existing buildings and facilities whenever the gross area of the new construction is over 7,500 square feet.

**2.1.1 Policy #1:** The City of Long Beach shall adopt Green Building Policy goals and incorporate green building principles and practices into the planning, design, construction, management, renovation, operations, and disposal of all City facilities that are constructed and owned by the City.

**2.1.2 Policy #2:** The City of Long Beach shall adopt the US Green Building Council's LEED Building Rating System as the green building design standard for its ongoing and future program areas and incorporate this system into all City facility projects that are constructed and owned by the City.

- During the first two years of policy implementation, all departments that are undertaking any new construction project of over 7,500 square feet will be required to build at least one pilot project to the LEED certification standard. The use of pilot projects during the first two years of policy implementation will allow each department, the Department of Public Works, and building contractors and subs to familiarize themselves with green building implementation before rolling out the policy for all new municipal projects.
- This policy sets a minimum standard of LEED Certified and a policy goal of LEED Silver for all new construction municipal projects with over 7,500 square feet of occupied space.<sup>5</sup>
- The budget appropriations for all new construction projects subject to this policy shall include funding to meet the requirements of this policy. Budget planning and life cycle cost analysis to achieve the highest LEED rating is encouraged under this policy.
- By 2007 or before, the City Council may consider upgrading the minimum certification standard to LEED Silver.
- Projects for which design or construction are already underway at the time this policy is adopted are released from compliance to the policy.

**2.1.3 Policy #3:** The City of Long Beach shall provide leadership and guidance to encourage the application of green building practices in private sector planning, design, construction, management, renovation, operations, and disposal of buildings by promoting the voluntary application of the LEED Green Building Rating System.

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<sup>5</sup> This policy applies to a wide variety of municipal projects including but not limited to: office and administration buildings, libraries, multi-family affordable housing, hospital and medical facilities, police stations, port facilities, etc.

## **2.2 Green Building Policy for Municipal Remodel and Tenant Improvements**

The US Green Building Council is currently developing a LEED standard for remodel and tenant improvement projects. Since neither of these standards is final at the time of adoption of this policy, the City of Long Beach adopts the following policy with regard to rehabilitation and tenant improvement projects within City owned buildings.

**2.2.1 Policy #1:** The addition of a wing, room, or floor of more than 50 percent of a building's existing total square feet shall be considered under this policy as a new construction project and consequently such a project must be certified according to the LEED standard for Existing Buildings.

**2.2.2 Policy #2:** For municipal remodel projects which affect less than 50 percent of a buildings total square feet, and which cost more than \$35 per square foot,<sup>6</sup> the City will apply the following policy:

If a green material or technology costs the same or less than the conventional material or technology, and performs comparably then it shall be incorporated into the remodel or retrofit project.

Remodel and retrofit projects shall consider a systems approach. For example, a remodeling project which significantly alters one component of a system (such as the HVAC system, landscaping, roofing, or lighting system) should explore the full life-cycle cost of upgrading the entire system to the green standard at the same time.

**2.2.3 Policy #3:** It is the policy of the City of Long Beach that all municipal building rehabilitation and retrofit projects, to the degree feasible, adopt the green building best practices as outlined in Appendix E.

**2.2.4 Policy #4:** It is the policy of the City of Long Beach that all tenant improvements<sup>7</sup> in municipal buildings shall apply with the following principle:

If a green material or technology costs the same or less than the conventional material or technology, and performs comparably, then it shall be incorporated into the tenant improvement project. However, no department, agency or contractor is required by this policy to procure products for tenant improvements that do not perform adequately for their intended use or are not available at a reasonable price in a reasonable period of time.

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<sup>6</sup> Remodel projects are defined as projects which require significant building systems, and or structural retrofit at a cost of more than \$35 per square foot.

<sup>7</sup> Tenant improvement projects include any changes to the interior of a municipal building normally considered as a tenant improvement (such as painting, replacing carpet, moving non-structural interior walls, etc.) that costs between \$10 and \$35/ square foot.



### **2.3 Infrastructure, unoccupied buildings, park, and industrial projects**

It is the policy of the City of Long Beach that infrastructure projects (streets, parking garages, etc.), unoccupied buildings, park equipment and recreation facilities (docks, playgrounds, etc.) and city industrial projects are not required to conform to the LEED standard as the standard does not address these types of projects. It is the policy of the City of Long Beach that green building techniques, methods and materials be incorporated into such projects as much as practicable.

### **2.4 Green Building Policy Exceptions**

The following projects can apply for an exception to the green building retrofit and green tenant improvement policies from the Green Building Team (see section 3.1.1), which will make decisions on a case by case basis.

- Buildings of less than 7,500 square feet of occupied space.
- Buildings for which LEED certification will significantly reduce the effectiveness of the building's primary purpose, as perhaps with incarceration facilities.
- Historically designated buildings with design considerations which limit the inclusion of green materials or building techniques.
- Projects for which achieving LEED certification would increase costs such that the project is no longer financially feasible. Some projects may be burdened with other extraordinary up-front costs that act as a financial barrier to development, for example development on Brownfield sites, development on sites without infrastructure, historic preservation projects, or affordable housing projects. In cases where development is already only marginally financially feasible, additional costs incurred by implementing LEED certification may make an already difficult project not viable. In such cases, projects will be required to prove that the financial feasibility of the project is jeopardized by building to the LEED standard by providing detailed proformas to the Green Building Team for review.
- No practical green alternative for the proposed tenant improvement project.

It is the policy of the City of Long Beach that projects that are granted exceptions from conforming to the LEED standard incorporate green building techniques, methods and materials as much as practicable.

### **2.5 Pilot Test Green Building Program for City-Influenced Projects**

Projects, which receive direct City funding or benefit from other direct City incentives, should be encouraged on a voluntary basis to achieve certification to the LEED standard. In order to identify effective programs, the City of Long Beach will pilot test the following methods to encourage the use of LEED by private sector partners:

1. Incorporate LEED certification as one of many selection criteria for City released RFPs (Request for Proposals) for commercial development projects on City land.
2. Provide a project-appropriate mix of incentives which could include, for example zoning techniques like an FAR<sup>8</sup> bonus or reduced parking requirements for Green Building projects located along transit corridors.

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<sup>8</sup> FAR refers to the Floor-Area-Ratio, which is used by planners to control building bulk. For example an FAR of 9:1 would allow a developer to build 9 times the square footage of floor space as the area of the

3. Use the Environmental Impact Review process, in cases where the City is the lead agency for a development project that may have significant environmental impacts, to recommend sustainable design strategies to mitigate environmental impacts.

## **2.6 Private Sector Green Building Incentives**

Participation in the Green Buildings program will be voluntary but encouraged for developers of private sector and non-municipal projects. Developers may view the use of green building materials and techniques as an additional risk. To counteract this perception, the City will provide information about green building and develop green building incentives.

### **2.6.1 Process-based Incentives**

Time and money are the driving forces behind most development projects. Delayed schedules often account for increased costs, and measures to facilitate permit approval are the equivalent of cash to most developers. The following process-based incentives can be developed within the City to overcome the regulatory obstacles associated with green building.

- The Department of Planning and Building will develop a small Green Building Code Check Team to consider the adoption of proven green technologies and techniques in municipal and private construction projects which may not presently be allowed by the Department's interpretation of the UBC (Uniform Building Code). Specifically, this team will consist of at least three people with green building experience and knowledge of the City's building code who will have responsibility for reviewing all private sector green building plans.
- The Department of Planning and Building will provide expedited plan check at no additional charge for buildings that meet LEED™ compliance.<sup>9</sup> The Department has made significant strides to facilitate the building permitting and approval process, and by continuing to improve its customer service and adopting a fast-track process, the City can erase one of the primary obstacles to adopting green building practices.
- The Department of Planning and Building will craft zoning code incentives for projects that incorporate sustainable design practices. For example, the City could reduce parking requirements for green projects within specified transportation zones or provide a FAR bonus to a project which satisfies LEED certification requirements.

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development lot. In an area zoned with height limits, which allow nine floors, the result would be a bulky square building, in an area with height limits of 15 floors, the developer might develop a tall slender building with many step-backs.

<sup>9</sup> The Department currently provides expedited plan check if a customer pays for the service.

## **2.6.2 Public Awareness and Education**

### **Education and Outreach**

The City will develop a Green Building Speakers Bureau to advise developers, architects and builders with regard to new green building procedures, materials and design strategies.

### **Website and Information**

The City will connect the City of Long Beach's website to the USGBC LEED website, which provides downloadable copies of the LEED guidelines, training schedule, certification costs and process, etc. The City will also develop a web-based list of architects and contractors familiar with green building design and construction methods or connect to [www.greendesign.net](http://www.greendesign.net). The City shall make available information regarding "life cycle cost analysis" to assist developers in the evaluation of the net present value of green building design options.

### **Mayor's Award for Green Building**

By incorporating a Mayor's Award for Green Building Design Excellence into the "Building a Better Long Beach Design Award Program," the City can further encourage the private and public sector to build sustainably. The award will encourage the private sector, and demonstrate clearly to all, the City's commitment to green building.

### **Job Site Signs**

The City can install job site signs which indicate that a project is LEED certified and list key green building features of the project. These job-site signs will increase public awareness of the City's commitment to environmentally responsible building and the long-term health of the community.

## **3 Implementation Strategy**

### **3.1 Program Development and Evaluation**

#### **3.1.1 Green Team**

The City will form a Green Building Team composed of nine City staff representatives from the Departments of Public Works, Planning and Building, Energy, Water, Community Development, Port of Long Beach, Harbor, Fire, and Parks Recreation and Marine and five public appointees with green building knowledge including a licensed architect, licensed engineer, a developer, a representative from the Chamber of Commerce, and a representative from the environmental community. The Green Building Team will assist with the successful implementation of this policy. The Green Building Team will:

- Review and make decisions about exceptions to the policy under Section 2.4 of this policy.
- Meet as necessary to facilitate the successful completion of municipal construction and remodel projects. These meetings will also serve to facilitate information sharing across projects.
- Meet at least once per year to review the program and resolve problems with the program.
- Report program outcomes/accomplishments to City Council every two years.

### **3.1.2 Education**

All project personnel likely to manage projects within the purview of this policy will attend a LEED Intermediate or Advanced Workshop through the US Green Building Council. In addition, the City will offer inter-departmental green building training programs to strengthen the interactions and team building for the Green Building Team and consequently improve the implementation of this policy. The implementation of these green building guidelines touches all City departments and inter-departmental team building will ease and improve the implementation of this policy.

### **3.1.3 Demonstration Projects**

The City of Long Beach shall, within the first two years of adopting this Green Building Policy initiate a minimum of three demonstration projects (see Section 2.1.2).

- The demonstration projects may consist of new construction, remodel or tenant improvement projects.
- The demonstration projects should be easily accessible to all City staff as well as to the public, such as a city library or recreation center.

The demonstration projects will give the Planning and Building Department's Technical Advisory Committee (TAC)<sup>10</sup> an opportunity to incorporate the green building policy into its existing review procedures as well as associated administrative project review procedures.

### **3.1.4 Program Evaluation**

City staff will develop and produce an annual set of program evaluation metrics to track participation and overall green building program effectiveness. The program evaluation should include:

- A rank order of the most common LEED criteria employed by the City to meet LEED Certification
- An estimate of both first costs and life-cycle analysis costs associated with complying with each LEED criteria over conventional construction techniques and materials
- An estimate of staff time contributions to project completion
- Estimate of non-cost benefits accrued through LEED certification

The evaluation data should be shared with city staff, the public and City Council.

### **3.1.5 Continuous Improvement**

The Green Building Team and others involved in the implementation of the Green Building Policy will meet at least twice per year with the express purpose of reviewing program evaluation data, exploring ways to improve the program, and implementing corrective action (problem solving of issues as they arise) if necessary.

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<sup>10</sup> The Technical Advisory Committee consists of representatives of all City departments that have review authority over development.

### **3.2 Program Goals**

- Within three years of adopting the Green Building Policy for the City of Long Beach, all new municipal projects of over 7,500 square feet will meet the LEED Certified criteria.
- Within six years of adopting the Green Building Policy for the City of Long Beach, 60 percent of all new municipal construction projects will meet LEED Silver criteria.