**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."[1] 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.

[1] 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.[2] 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.[3] 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.

[2] Green City Buildings: Applying the LEED Rating System, XENERGY Inc., Portland Oregon, June 2000.

[3] "Green Building Cost Premiums and Savings," USGBC, August 2001

## 1.5 Definitions

**US Green Building Council (USGBC)**

The USGBC[4] 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:

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|---|---|
| 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.

[4] The web site for the US Green Building Council is 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.[5]
- 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.

[5] 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,[6] 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[7] 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.

[6] 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.

[7] 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[8] bonus or reduced parking requirements for Green Building projects located along transit corridors.

[8] FAR refers to the Floor-Area-Ratio, which is used by planners to control building balk. 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.[9] 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.

[9] 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. 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)[10] 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.

[10] 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.