GREEN NEIGHBORHOODS

Introduction

As the concern over an energy crisis, global warming and climate changes increases, more cities throughout the U.S. are making efforts to reduce their carbon emissions and their impacts on the environment by initiating green building and neighborhood development. As of July 29, 2009, 965 U.S. Mayors had signed the *U.S. Conference of Mayors' Climate Protection Agreement.* Under the Agreement, participating cities committed to reduce the greenhouse gas emission by 7% from 1990 levels by year 2012.

In the United States, the dominant pattern of development consists of large houses, sprawling and auto-dependent suburban neighborhoods which contribute to catastrophic climate change. Cities are generally considered more sustainable than suburban areas as they accommodate more people on less land and offer a variety of transportation modes including mass transit, biking and walking. However, they still are not less to blame. According to the Congress for New Urbanism (CNU), more than one-third of greenhouse gas emissions are produced by buildings, primarily for heating and cooling; and another third are transportation emissions which are growing much faster. In U.S. approxiamtely 38% of CO2 emissions are produced by buildings. Therefore, it is important to consider the impacts of different human settlement patterns on energy efficiency, global warming and climate change.

The concept of green buildings and neighborhoods has become a big part of environmental movement since 1960s. Several programs and organizations have been established to encourage the development of environment friendly and sustainable buildings and neighborhoods. The movement began to come together more formally in the 1990s. The first local green building program was introduced in Austin, Texas in 1992. With the introduction of the Leadership in Energy and Environmental Design (LEED) by the U.S. Green Building Council (USGBC) in 1993, a new era started in building green buildings and neighborhoods.

1. Leadership in Energy and Environmental Design (LEED)

What is LEED?

LEED is a third-party certification program and the nationally accepted benchmark for the design, construction and operation of high performance green buildings. It provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. LEED, overseen by USGBC, mainly focuses on the following:

- Energy savings;
- Water efficiency;
- CO_2 emissions reduction;
- Improved indoor environmental quality; and
- Stewardship of resources and sensitivity to their impacts.

Third-party certification through the independent Green Building Certification Institute (GBCI) assures that LEED buildings are constructed and operated as intended.

Established in January 2008, GBCI assumes administration of LEED certification for all commercial and institutional projects registered under any LEED Rating System. Several different rating systems are used to evaluate the projects based on the type and the size of the projects such as new constructions, existing buildings, schools, healthcare, homes, etc. Since its introduction, LEED has grown to include more than 14,000 projects only in the United States.

What are other Green Rating Systems?

In California several cities and counties have developed their own point systems using guidelines with a similar approach to LEED.

- GreenPoints Rated Program – focuses on residential development and provides different guidelines for single-family and multi-family buildings. While majority of the cities require the use of LEED for commercial and public project, most local ordinances require GreenPoints Rated for residential development projects in California.

- California Green Builder Program – ensures that buildings exceed state energy efficiency requirements by at least 15%. Currently, no California city requires the use of this point system yet.

2. Can Neighborhoods be Green?

"The LEED for Neighborhood Development integrates the principles of smart growth, urbanism and green building into the first national system for neighborhood design." U.S. Green Building Council

LEED for Neighborhood (LEED-ND)

A neighborhood harmoniously connects its residents and can be defined as imprecisely defined area of a community with characteristics that distinguish it from other areas. Its size usually varies and its identity is often focused around schools, housing types, ethnic or economic bases, parks or some other feature. Green neighborhoods are more compact, livable, diverse, mixed-use communities with green features and network. A green neighborhood ensures a high quality of life and meets the needs of its residents. As part of the LEED-ND program what comprises a neighborhood is not strictly defined.

One of the biggest issues especially in the last 50 years in major U.S. cities has been (sub)urban sprawling which increased the footprint significantly and created auto-dependent communities. This has led to a shift from only green buildings to green neighborhoods taking into account the fact that a green building can not be considered truly green unless it has a positive impact on the environment and the local community. That explains why the focus has been on decreasing auto-dependence, creating mixed used, mixed income neighborhoods that are planned in a way to encourage people walk and use bicycles. This also leads to a healthy society by decreasing health problems especially respiratory and cardiovascular health, fatal and non-fatal injuries, physical activity, social capital and mental health.

As a response to the one of the major criticisms LEED has attracted was its failure to address this issue. LEED's rating system made it possible for an isolated and auto-dependent building to qualify for the highest rating. The combination of the response of USGBC to this criticism together with the efforts of, Congress for the New Urbanism, and Natural Resources Defense

Council (NRDC) a national standard for neighborhood design was developed in 2003 that integrates the principles of green building and smart growth.

Whereas other LEED products focus primarily on green building practices, with only a few credits regarding site selection, LEED for Neighborhood Developments would emphasize smart growth aspects of development while still incorporating a selection of the most important green building practices.

LEED-ND rating system is a combination of prerequisites and credits. Once the first step (prerequisites) is completed, the efforts shift to the credit points. Based on the total credits earned, a project can get a rating of Certified, Silver, Gold or Platinum, the last one being the highest rating. LEED-ND's main focuses of areas are:

- Smart location and linkage;
- Neighborhood pattern and design;
- Green infrastructure and buildings; and
- Innovation and design process.

It encourages neighborhood development projects that protect and enhance the overall health, natural environment, and quality of life of communities and promotes the location and design of neighborhoods that reduce auto dependence by providing jobs and services that are accessible by foot, bicycle or public transit.

LEED-ND is currently undergoing a development process. Approximately, 240 pilot projects are being tested as part of this process. 205 of these pilot projects are located in the United States. Pilot projects are generally located in more compact development forms and where different transportation modes exist.

Benefits and Disadvantages of LEED-ND

Benefits

- Less traffic congestion and associated air pollution;
- Less urban sprawl;
- Encourages healthy living;
- A potential for reduced fees or fast-tracking from municipal approving authorities;
- Positive publicity;
- Better access to green spaces and active spaces;
- More wildlife; and
- Higher real estate demand and tenancy.

Disadvantages

- High costs of consultation;
- Time consuming documentation that leads to a complex bureaucracy;
- Allows projects to be rated by professional certifiers who may lack background and education in the field;
- May allow private developers to use the certificate primarily as a Public Relations and Marketing tool; and

- Based on a quantitative analysis that gives no credit to aesthetic and art of urban design

3. Government Involvement

Over the years, local, state and federal governments have increasingly supported LEED and become active players. The involvement of the government can be mainly discussed under two categories:

- Mandates; and
- Incentives.

Mandates

Federal Level

U.S. Navy is the first federal entity to certify a LEED project. U.S. Army adopted LEED into its Sustainable Project Rating Tool and required all buildings to meet the rating. The U.S. State Department is committed to using LEED on the construction of 180 new embassies worldwide over the next 10 years. The U.S. General Services Administration requires all building projects meet LEED certified level standards with a target of LEED Silver since 2003. U.S. Environmental Protection Agency participated in pilot testing for LEED.

State Level

New Jersey requires all new school designs to incorporate LEED guidelines. Arizona is requiring all state funded buildings to meet LEED Silver where California requires all new and renovated state-owned facilities to be LEED Silver. Maine also requires all new or expanding state buildings to incorporate LEED guidelines. Nevada, New Mexico, Oregon, Pennsylvania, Rhode Island, Wisconsin, Washington, New York, Missouri, Michigan, Colorado also have similar requirements or other incentives.

Local Level

Austin, Texas requires LEED certification of all public works projects over 5,000 square feet. Boulder, Colorado requires all municipally funded new construction and major addition projects to achieve LEED Silver certification. Bolder is also considering requiring certification for commercial projects. Los Angeles, California requires LEED certification of all public works construction projects over 7,500 gross square feet. San Jose, California requires LEED certification of all municipal projects over 10,000 square feet. Seattle, Washington; Scottsdale, Arizona; San Mateo, California; Portland, Oregon; and New York City, New York are among others.

As seen through these numerous examples, in any government level most mandatory LEED certifications are for publicly owned and funded buildings and projects. Connecticut adopted a law in 2007 which requires that all privately financed construction with project cost exceeding $5 million meet standards set by LEED.

Incentives

Numerous cities throughout the States have incorporated green building incentives to encourage private development of green buildings and neighborhoods. Some cities have made a LEED certificate mandatory based on the size, location and the type (public vs. private) of the projects and some created incentives such as:

- Tax incentives;
- Density bonuses;
- Expedited permitting;
- Net metering by allowing renewable energy facilities, such as wind and solar power;
- Grants to offset some of the increased development costs of a green building project;
- Permit fee reduction/ waiver;
- Free consultation/technical assistance;
- Rebates and discounts on environmental products; and
- Low interest loans to be used specifically for green development and improvement projects.

The American Institute of Architects (AIA) identifies the following as the most attractive incentives:

- Tax Incentives: temporarily reduce taxes for specific levels of green measures and certification;

- Density/Floor Area Ratio Bonuses: implement height bonuses, floor/area ratio bonuses, reductions in landscaping requirements, and count green roof space as landscaping/open space in return for achieving levels of green building ratings; and

- Expedited Permitting: streamline the permitting process for building, plan, and site permits on projects that achieve a certain level of sustainability.

The following table is an excerpt from an AIA report entitled *Local Leaders in Sustainability, Green Incentives.*

City, State	Year Program Began	Applies to: 1–Municipal 2–Commercial 3–Multifamily 4–Single-Family	Web Site	Notes
Phoenix, Arizona	2005	1		Buildings must only be certifiable. The city has LEED-accredited engineers.
Scottsdale, Arizona	1998	1, 2, 3, 4	www.scottsdaleaz.gov/ greenbuilding/	The city requires LEED Gold for munipal buildings and periodically updates its checklists to stay current with technology.
Tucson, Arizona	2005	1	In development	There is another landscape ordinance that addresses commercial buildings as well. There are several water-specific regulations. They also have an office of conservation and sustainable development.
Anaheim, California	2007	1, 2, 3, 4	www.anaheim.net (dept. of public utilities/ green connection	
Berkeley, California	2004	1, 2, 3, 4	www.cityofberkeley.info/ sustainable/	The city is also looking into pushing its energy requirements beyond Title 24.
Burbank, California	2003	2, 3, 4	www.burbankca.org/ building/bgreen.htm	It started as a voluntary program. The ratings are 3-tiered and focus more on getting developers to participate rather than worry about the level that is actually attained.
Carlsbad, California	2007	1		New program with plans to continue developing.
Chula Vista, California		4		
Fremont, California	2006	1	www.freemont.gov/ Environment/GreenBuilding/ default.htm	Applies to Municipal Buildings over 10,000 square feet. Alameda County also offers free consulting to developers shooting for certification.
Glendale, California	2007	2	www.ci.glendale.ca.us	LEED Silver, Gold, and Platinum buildings can earn density bonuses.
Irvine, California	2006	1, 2, 3, 4		Irvine has its own 100 pt. rating system for commercial and residential recognition.
La Mesa, California	2007	1		
Livermore, California	2006	1, 2, 3, 4	In development	The mandatory program will require 20 LEED points for commercial and 50 Build It Green Points for residential.
Long Beach, California	2006	1	www.longbeach.gov/plan/ pb/apd/green/default.asp	The city is also looking into options for a policy regarding private development.
Los Angeles, California	2002	1	eng.lacity.org/projects/sdip/ about_us.htm	The city has a sustainability task force.
Mission Viejo, California	2006	2, 3, 4	cityofmissionviejo.org/depts/ cd/green_building/	The program is still in its pilot phase until 2008.
Novato, California	2005	4	www.ci.novato.ca.us/cd/forms/ CDP047.htm	The policy is mandatory for new construction and requires 50 GreenPoints.
Oakland, California	2005	1, 2	sustainableoakland.com	Voluntary for commercial projects. The city has had a Sustainable Community Development initiative since 1998.

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Albuquerque, New Mexico	2005	1		The city has a strategic plan to meet the 2030 Challenge with goals for each department. Recently the city began working with a Vancouver consultant to update and expand the green building program.
New York, New York	2005	1	www.nyc.gov/planyc	PlaNYC is a comprehensive sustainability plan with 10 goals and 170 specific initiatives to help meet them. Much of the plan revolves around renovating existing buildings, since about 85 percent of the buildings that will exist in 2030 have already been built.
Asheville, North Carolina	2007	1		This new program was passed as a first step with serious plans to expand it in the next year.
Wilmington, North Carolina	2005	2, 3, 4	www.stewardshipdev.com	Currently the Lower Cape Fear Stewardship Development Award Program is voluntary and only provides a building award as an incentive.
Winston-Salem, North Carolina	2006	2, 3	www.city of ws.org/Home/Departments/Planning/Legacy/Articles/LegacyToolkit	Winston-Salem is a Sierra Club Cool City. It is currently focused on mixed-use planning and walkability.
Cincinnati, Ohio	2006	2, 3, 4	www.cincinnati-oh.gov/cdap/pages/-16936-/	Cincinnati provides a property tax abatement for private developers. The city is also working with a developer to construct a 68 acre neighborhood to help gather data on pervious pavement and green roofs in particular.
Cuyahoga Falls, Ohio	2005	2, 3, 4		The city provides a density bonus for green development.
Hamilton, Ohio	2007	2, 3		For LEED projects the city amended the code to allow a density bonus and reduced landscaping requirements.
Eugene, Oregon	2006	1		There has also been an ongoing pilot project to expedite plan checks and provide consulting to developers. The city now has a few accredited staff members and are considering extending the pilot to more projects.
Portland, Oregon	2000	1, 2, 3, 4	www.portlandonline.com/osd	One of the few cities in the country to require new municipal buildings to be Gold rated. Numerous green building initiatives.
Philadelphia, Pennsylvania	2007	1	www.phila.gov/green/index.html	The city has maintained a sustainability commission which has recently recommended more transit-oriented development. The planning department is in the process of updating the zoning code as well.
Nashville-Davidson (balance), Tennessee	2007	1, 2, 3		Municipal buildings over 2000 square feet and $2 million must be LEED Certified. Other projects are offered density bonuses to meet the same standard.
Austin, Texas	1991	1, 2, 3, 4	www.ci.austin.tx.us/citymgr/default.htm	The program has been around so long it is just an accepted part of the building process. Planning and permitting have a lot of flexibility with what to offer developers depending on the part of the city they will be in.
Dallas, Texas	2003	1		Dallas has a pilot program that has partnered with Habitat for Humanity to develop green low income housing.

Source: Local Green Buildings Incentives, Quick Reference Matrix, AIA

4. Conclusion

LEED has not become a complete system and it is not meant to be, it is an ongoing process. As it becomes more widely used, increased involvement of non-profit organizations, local, state, and federal governments, developers, tenants, material suppliers, contractors, consultants, and the local communities is expected. LEED will be improving by taking into account the input provided by these parties. It will also be modified by considering the improvements in the technology and will adjust locally based on the varying local needs.

With the increased demand for the LEED certificates, a future threat is becoming more apparent. The outsourcing of the certification to the private third parties by a non-profit organization (USGBC) eliminates the chance of disputing the decisions that are available to property owners through the normal channels of due process when made by the government authorities.

Despite the shortcomings within its rating system, LEED has a very positive impact on the subject by developing standards and allowing the use of a common vocabulary and also encouraging government involvement.

USGBC also needs to raise public awareness about the importance of working and living in green buildings and green neighborhoods. The tenants of any neighborhood are the biggest stakeholders since they are the ones who are affected the most by their environment. It is very important to explain to the public that slightly higher costs to build/buy green buildings in green neighborhoods will pay off in the long term by lower monthly costs. We, people will determine the success of these programs by being conscious of the environmental problems our planet is facing and making smart decisions as to where to live/buy property/work. Go Green!

Evren Ulker-Kacar
Frederick P. Clark Associates, Inc.
United States of America

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