Seattle Sets The Standard For US Green Buildings

City
Seattle, Washington

Population
3.1 million

Project Start Date
2000

Annual CO2 Reductions
Average 1,067 CO2e tons per LEED building

Annual Financial Savings
Average $43,000 per LEED building

Initial Investment
Incentives of over $4.3 million between 2001–2005 for projects implementing LEEDTM standards

Project Status
Ongoing

SUMMARY

Seattle seized the opportunity to improve sustainability during a time of unprecedented capital improvement. It did this by requiring all new City buildings over 5,000 square feet to meet new state LEED™ (Leadership in Energy and Environmental Design) building ratings that measure the sustainability of buildings, and by providing financial, height and density bonuses for private projects meeting LEED™. As a result it now has one of the highest concentrations of sustainable buildings in the country and a powerful sustainable building industry worth $671 million.

WHAT IS IT?

A collection of successful regulatory standards, measures and incentives for the building industry that have delivered a national record number of sustainable buildings in the private and public sectors.

ENERGY EFFICIENCY

Average of 35% reduction6.9 million KWh/annually for LEED Municipal buildings

HOW DOES IT WORK?

Having initially established a Green Building Team in 1999, Seattle regrouped its green building experts to form a single business unit called City Green Building in 2005. Its main program is funded through interdepartmental resources and staffed by green building experts in residential, commercial, institutional and city capital projects. Using its strong relationships with the City's water and energy utilities and their incentive programs, it connects developers, design teams and building permit applicants with green building resources and helps eliminate code-barriers to building green.

A fundamental element of the City's green building program is the promotion and measurement of the environmental impact of buildings and third party verification. Standards include:

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- **Commercial Buildings** - LEED™ standards, these are also rapidly being adapted to offer standards for other sectors.
- **Residential Development** - Built Green™ was developed by the Master Builders Association of King and Snohomish Counties and is non-profit. Built Smart exceeds the State Building Code's highest energy efficiency levels and is run by Seattle City Light.
- **Affordable Multifamily Housing** – SeaGreen is for non-profit developers of affordable housing, it promotes and encourages energy conservation, operational savings, and green building practices in multifamily affordable housing projects.

Seattle's successful programs include:

- **Sustainable Building Action Plan** – this identified key strategies for promoting green buildings in the marketplace. The two most important strategies identified were to lead by example and to develop a standard for green building
- **Density Bonus** - offers downtown commercial, residential and mixed-use developments greater height and/or floor area if a green building standard of LEED Silver or higher is met. Projects must achieve LEED Silver rating and contribute to affordable housing and other public amenities. Three projects have so far registered, and five projects are currently considering registration.
- **LEED**
  Launched by the U.S. Green Building Council (USGBC) in 2000, the LEED Rating System is based on well-founded scientific standards. It is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings in the US. LEED-certified buildings demonstrate reduced operating costs, support healthier and more productive occupants, and reduce the impact on natural resources. To earn LEED certification, a building project must meet certain prerequisites and performance benchmarks within each of the five categories:
  - sustainable site development
  - water savings
  - energy efficiency
  - materials selection, and indoor environmental quality
  - innovation and process.

  Projects are awarded Certified, Silver, Gold, or Platinum certification depending on the number of credits they achieve. The rating system is continuously refined via an open, consensus-based process.

- **The Sustainable Building Policy**
  This requires new Municipal buildings over 5000 square feet to meet a minimum of LEED Silver standard. To date, over $500 million investment in state-of the art sustainable buildings has resulted in 10 LEED Certified projects owned by the City (5 Gold, 3 Silver, 2 Certified), with a further 28 projects planned or in development.
- **City LEED Incentive Program 2001 - 2005**
  The City of Seattle provided support to green buildings through its City LEED Incentive Program, with incentives of over $2 million for energy conservation, over $2 million for natural drainage/water conservation, and over $300,000 for design and consulting fees for LEED™ projects. This was launched in 2001 as a joint program of Seattle City Light and Seattle Public Utilities – it provided upfront soft-cost assistance to projects committing to LEED. Funds can be used for additional design and consulting fees and for participation in the LEED program. Funding levels were: $15,000 for LEED Certified, and $20,000 for LEED Silver or above.

  Since program initiation, 18 projects have participated, representing 1.8 million square feet of development, a construction cost of almost $224 million and 874 units of green multifamily housing. Two completed projects are currently LEED certified. Combined with the Built Green multifamily funding, the program has grown from initial funding of $80,000 in 2001 to a total funding level of just over $100,000 annually in 2005. This has been replaced by the Density Bonus.

- **Density Bonus**
  The Density Bonus, implemented in April 2005, offers downtown commercial, residential and mixed-use developments greater height and/or floor area if a green building standard of LEED Silver or higher is met. Projects must achieve LEED Silver rating and contribute to affordable housing and other public amenities. Three projects have so far registered, and five projects are currently considering registration.

RESULTS

Seattle's Sustainable Building policy has fuelled private sector growth in the green building industry. Seattle currently lead the US in the number of certified LEED buildings within its City Limits –26 projects were certified as of January 2007, representing over 8.1 million square feet and over $2 billion in capital investments.

An economic development study commissioned in 2006 by the Seattle Office of Sustainability and Environment and the Office of Economic Development found that the Green Building Industry is one of the City's strategic economic "Clusters".

Achievements include:

- 17% of all new residential construction are Green Homes
- $671 million gross revenue per year in Green Building Activity
- 1160 LEED Accredited Professionals in Seattle – the highest concentration in the Nation 26 LEED Certified Buildings – the most LEED certified buildings of any other city in the nation/world - 10 City Buildings 9 Private, 4 Non-Profit, 2 County, 1 State
- At least 26 Buildings are registered for LEED (6 City, 4 Non-Profit, 13 Private, 3 State)
- 313 Built Green Residential projects (representing 933 Built Green housing units)
- 251 Built Smart Residential projects (203 market rate projects, 48 affordable housing projects
- 18 SeaGreen projects complete (representing 771 units)

CASE STUDY – SEATTLE CENTRAL LIBRARY

Electricity Savings 4.5 million kWh/yr

CO2 181 tons annually

Avoided mitigation costs ($40/tons) $7,227

Summary
The Seattle Library has an innovative energy saving strategy that saves 4.5 million kWh annually. It is a showcase for Seattle's highly successful green building program, along with the Seattle Justice Centre (See best practice - Eco-Building Seattle)

Water Efficiency
All irrigation is provided by rainwater collected from building exterior and stored in a 40,000-gallon tank; interior water use reduced by metered faucets, no-flush urinals and efficient mechanical equipment.

Design & Energy Savings
The new building is designed to outperform Seattle energy code by 10%: Triple- glazed glass with an aluminium expanded metal mesh sandwiched between two panes to reduce heat build-up from sun on the curtain wall; computer-controlled air movement motor controls maximize energy

efficiencies; control systems, meter HVAC systems, water usage and energy performance of the building; landscaping and exterior design to reduce "heat island effect"; automatic lighting controls to reduce light pollution; located on major bus routes; bicycle parking spaces.

Materials & Resources
More than 75 percent of demolition and construction waste was recycled; erosion and sedimentation control during construction; re-building on same site; a minimum of 20 percent of the building products used in the Central Library were manufactured within 500 miles of Seattle.

NEXT STEPS

To continue the substantial green building market growth, the City is:

- Devising strategies to support the City's burgeoning green building industry, as a result of the 2006 economic development study commissioned by the Seattle Office of Sustainability and Environment and the Office of Economic Development.
- Integrating sustainable design principles within the City's design review process
- Integrating green building features within the regions MLS - Multiple Listing Service – the real estate database of homes for sale in order to educate homebuyers and increase the demand for homes with green features.
- Providing technical support to implement the City's LEED policy on 17 planned neighbourhood fire stations, three solid waste facilities and a historic restoration of the railway station, King Street Station.
- Establishing "Urban Green" a sustainable development resource centre to accelerate environmentally sustainable design and construction practices in the private sector through education and advocacy.
- Recycling building waste, which constitutes 15% of Seattle's landfill waste (67,000 tons)
- Reviewing how City Policies and Codes relate to the ability for the industry to meet the new architectural and buildingstandards.
- Future growth in construction through 2009 is expected to include over 13 million square feet of residential construction and 5 million of commercial and industrial. Seattle wants to trigger market transformation of the construction activity toward increased conservation.

APPLICATION

Seattle believes that strong, clear building regulations are the key to creating green buildings. While energy audits can help existing buildings become more efficient, they believe that implementing green building standards for city-funded projects ensures that future buildings will be efficient and environmentally friendly.

There is strong evidence that there is a correlation between cities that have green building policies and those that have the highest concentrations of private green building development – the 10 strongest green building markets in the nation are in cities that have established public policies that promote green building.

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The facts and figures in this case study have been provided by the highlighted city governments to the Clinton Climate Initiative.