



Cleaner Energy – Green building standards



Issue Primer

Background

Green building design, also referred to as sustainable design or high performance design, is part of a strong and increasing trend over the last few years changing and influencing the business of commercial architecture and construction. There have been two primary drivers, an increased awareness of how buildings affect people and our environment, and the rapid growth of a rating system called Leadership in Energy and Environmental Design (LEED™). The LEED™ Green Building Rating System™ is a voluntary, consensus-based national standard for developing and constructing high-performance, sustainable buildings. Before this rating system, it was difficult to compare one “green” building to another, so this provides an agreed upon platform of topics for that comparison. The system was developed by the U.S. Green Building Council (USGBC), the nation’s foremost coalition of building industry leaders, representing all segments of the industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work.

The LEED Green Building Rating System™ is a voluntary, third-party rating system where credits are earned for satisfying specified green building criteria. Based on well-founded scientific standards and proven strategies, projects are evaluated within six environmental categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environment and Innovation. Four levels of green building certification are awarded based on the total credits earned. The LEED standard has been adopted nationwide by federal agencies, state and local governments, and many interested private companies as the industry standard for measurement of green buildings.

Sustainable design does not have to be more expensive, though it is often erroneously assumed to be more expensive. A minimal increase in up-front costs of about 2% (the average premium) to support green design, on average, results in life cycle savings of 20% of total construction costs - more than ten times the initial investments. Integrating “sustainable” or “green” building practices in the construction of state buildings is a solid financial investment. The financial benefits include lower energy, waste disposal, and water costs; lower environmental and emission costs; lower operations and maintenance costs; and savings from increased productivity and health of workers/occupants of the buildings. A variety of successful projects have been completed, including low-income housing without changing the budget. In fact, many developers have created green buildings with no change in budget, just a change in attitude. Studies have shown that any increase in the short-term

costs (which would primarily cover design and construction) results in dramatic reductions in the long-term costs.

Green design is about careful integration of goals and ideas during the planning and construction of our built environment. High performance or “green” buildings have many components and methods of reaching sustainability goals, accounting for where everything comes from and goes to. High-tech solutions can include photovoltaics, to provide electricity from panels on the roof of the building, or complex mechanical systems, that cycle air-conditioning and heating to maximize the energy used. Lower tech solutions have been around a long time and are getting a new focus, such as building orientation to harness sunlight, intentional use of efficient light fixtures and designing buildings to last for decades instead of years. In a contemporary world, where 20% of the earth’s population doesn’t have access to safe water and 50% live in water stressed countries, reducing the impact that our built environment has on these countries and global resources improves our standing as a global participant and leader.

Commercial buildings and housing in the U.S. accounts for over 65% of total U.S. electricity consumption, over 36% of total U.S. primary energy use and 30% of total U.S. greenhouse gas emissions. The construction process uses 40% (3 billion tons annually) of raw materials used globally, producing 50% of CFC production and 40% of landfill material as a result of construction waste. That is 136 million tons of construction and demolition waste in the U.S. (approx. 2.8 lbs/person/day)! Ninety-five percent of total energy use in a building is used during the construction process.

The benefits of green building standards also translate into a healthy work environment. Many people are familiar with the term “sick building syndrome”, 30% of buildings suffer from this. One area of focus in green buildings is the interior environment. Low odor paints, access to daylight and more, have contributed to reduced sick-times and increased productivity as well as improved health and lower insurance premiums. By simply incorporating green building standards, buildings can be healthier places for people to work and live.

The state legislature created the Biofuels and Renewable Energy Task Force to analyze the existing industry, programs, incentives and market in Ohio for the use of cleaner renewable energy. The Task Force offered two recommendations on high performance “green” buildings. The first encouraged the state of Ohio to require energy efficiency and renewable energy usage for state owned buildings, including schools. The second recommendation included a feasibility study on the possible adoption of the Leadership in Energy and Environmental Design (LEED™) rating system for state building construction.

Fast Facts

1. Operating commercial and residential buildings in the US account for 65.2% of total U.S. electricity consumption.
2. The process of getting the materials to the construction of buildings and constructing the buildings accounts for 40% of total energy flows, and the production of those materials accounts for 40% of global raw material use.
3. U.S. commercial and residential buildings contributes up to 50% of CFC production, 40% of landfill material as a result of construction waste, and 30% of total U.S. greenhouse gas emissions.
4. Green buildings are good for our kids; studies show improved performance in schools with day lighting.
5. The standards really work; Ford’s River Rouge plant has 10 acres of planted vegetation on roof providing storm water control, bird habitat, pollution reductions and increased insulation to the building
6. LEED™ provides a framework for green building standards. Emphasis is on state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

Status of Legislation

House Bill 298

Sponsor: Skindell (D-13 Lakewood)

Co-sponsor: Seitz (R-30 Cincinnati), McGregor (R-20 Gahanna), Distel (D-99 Conneaut), Carano (D-59 Youngstown), Miller (D-14 Cleveland), Allen (D-39 Dayton), Ujvagi (D-47 Toledo), Chandler (D-68 Kent), Yates (D-33 Cincinnati), Strahorn (D-40 Dayton), Harwood (D-65 Niles), D. Stewart (D-25 Columbus)

Status: Introduced into Ohio House on October 14, 2003. The bill is currently pending in the Homeland Security, Engineering and Architectural Design Committee.

OEC Position: OEC Green Paper, 3 Frogs

Senate Bill 143

Sponsor: Fingerhut (D-25 Cleveland)

Co-sponsors: Dann (D-32 Youngstown), Miller (D-15 Columbus), Fedor (D-11 Toledo), Prentiss (D-21 Cleveland)

Status: Introduced into Ohio Senate on November 4, 2003. The bill is currently pending in the Finance and Financial Institutions Committee.

OEC Position: OEC Green Paper, 3 Frogs

Summary: These similar bills seek to require that all buildings constructed with state funding meet Green Building Standards, ensuring energy efficiency in operations, as well as health and safety for building occupants.

Position Statement

The State of Ohio should become a leader in high performance "green" buildings, by adopting energy efficiency and renewable energy practices to improve the integrity of state buildings.

1. The state should encourage energy efficiency and renewable energy usage for state owned buildings including new school construction, by adopting a Green Building Standard.
2. The state of Ohio should adopt the LEED™ rating system for use in public building design and construction.
3. The state should require construction that uses state funds to meet energy efficiency standards that meet or exceed the LEED Green Building Rating System™
4. A target goal should be established of state buildings supplying 10% of their own energy on site.

Talking Points

- .. Ohio would go a long way in conserving energy, supporting the renewable energy market, and providing healthier buildings by employing sustainable design standards in the construction and renovation of government owned buildings.
- .. Green buildings are good for our kids. Studies show improved performance in schools that incorporate daylighting into the design of classrooms. This affirms that daylight has a positive and highly significant association with improved student performance and does not vary by grade.
- .. Constructing new buildings to green building standards ensures that the operation costs of state buildings are minimized over the life of the structure. While the initial cost of a building may be higher, the long-term costs will be lower.
- .. Many completed buildings with a variety of green design approaches have been built with no increase to the budget, or for no additional cost, when compared to similar commercial structures.

- .. Green building standards ensure high indoor air quality, reducing negative impacts on human health.
- .. Green building standards promote higher quality construction, ensuring that the skills of Ohio's tradesmen are consistent with state-of-the-art building techniques.
- .. The state of Ohio should be doing more to promote green building standards. Will you support the adoption of a state green building standard and the use of the LEED™ rating system for building construction?

Questions and Answers

Q: Do sustainable design standards really make a difference?

A: Buildings employing sustainable design standards can utilize less energy from the grid. The amount varies from project to project and reflects owner and design team commitment, but by balancing current needs with a long-term vision of efficient operation one reduces the demands for energy. The owner/operator of the building saves money and allows for smaller production sources to be used efficiently, reducing a need for large polluting power generation.

Q: Why talk about daylight in school?

A: Student scores and attention in the classroom improves with windows and daylight. The same personal triggers that make you feel good when you read a book while sitting in the sun contribute to student performance. One study documented that students with the most daylighting in their classrooms progressed 20% faster on math tests and 26% faster on reading tests over the course of one year. Combined with the energy savings of not having to leave electric lights on all day every day, we get better students while reducing pollution.

Q: Who else supports Green Building Standards?

A: Columbus Green Building Forum
 Cleveland Green Building Coalition
 US Green Building Council
 US EPA
 US General Services Administration
 Investment funds such as Calvert and Covenant
 Labor unions
 Insurers
 A variety of businesses, ethics organizations, religious organizations/ orders, and nonprofits

For more information contact:

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U.S. Green Building Council
 Website: www.usgbc.org

Visit <http://www.odod.state.oh.us/cdd/oe/> to view the Biofuel and Renewable Energy Task Force Report.

