

Feature Article

The Current State of Green Building

by Lewis Tagliaferre

After many attempts at energy policy since the infamous oil embargo a generation ago, it seems we are on the verge of the tipping point or critical mass of a major trend called “green building.” Victor Hugo wrote, “Nothing is so powerful as an idea whose time has come.” Nearly, a decade ago, some builders scoffed and called all the hype about green building a fad, like the “hula hoop” or “pet rock.”

Vice President Cheney ridiculed the idea of conservation as national policy in his attempt to sell unlimited production as a solution to the energy crisis in 2001, “Conservation may be a sign of personal virtue, but it is not a sufficient basis for a sound, comprehensive energy policy.” Fast forward to a new administration where President Obama called on Senators to disregard what he called the “misinformation” offered by critics of his energy bill, which has passed the House of Representatives. “We must not be prisoners of the past.”

Indeed, we may be approaching the crest of a wave of change that marks a new generation in building design, construction, and utilization called “green building” and “sustainable design.” But, when it comes to identifying the implications for any one person, the task is like examining a diamond; there are many facets to consider and it depends upon your point of view. Whether your concern is energy, water, air, land use, or occupancy, there is something in green building to consider.

This analytical perspective is designed to help make some sense of it all while offering available resources for more details.

The Prime Movers

Two major facets of green building are the “Energy Star” program at the Environmental Protection Agency (EPA), and the Leadership in Energy and Environmental Design (LEED) program of the U.S. Green Building Council (USGBC). The former was started in 1992 to promote use of energy efficient appliances and products such as windows, insulation, HVAC, refrigerators, stoves, and lighting, to help reduce greenhouse gas emissions from fossil fuels.

Today, more builders recognize the “Energy Star” label as a marketing advantage so more of them are likely to offer an approved package of energy savings. During the past decade of profligate home mortgages, the extra cost was often a deterrent but now it seems more appropriate as a marketing strategy to include an “Energy Star” package in design.

Nearly 17% of all single-family homes built nationally in 2008 earned EPA’s “Energy Star” label, up from 12% in 2007. In 2008, more than 3,300 commercial buildings and manufacturing plants also earned the “Energy Star” label. Washington, D.C. was ranked fourth among the top 25 metro areas for these projects, with 112 properties listed. The list is posted at www.energystar.gov.



Eastern Village Cohousing in Silver Spring, MD is one of the first residential buildings in the U.S. to attain a LEED Silver rating for environmental performance.

The USGBC’s founders scarcely could have imagined ten years ago the present role it plays in green building marketing. LEED certification is available for all building project types including new commercial construction and remodeling, retail, commercial interiors, core and shell, schools, existing buildings, and homes. Almost 21,000 projects, representing more than five billion square feet, have been registered under the system. Municipalities, state governments, and federal agencies have adopted LEED; incorporating it into construction guidelines, legislation, and requirements for incentive programs.

The badge of “Accredited Professional” (LEED AP) now is almost required on the business cards of building professionals, consultants, and constructors. The original format and model for measuring building performance on a 69-point scale in five categories has been enlarged to 100-point scale in six different categories. Buildings that meet the various certification categories ranging through silver, gold and platinum are ranked by the number of points they compile on the rating scale. Certification of a building is provided only after required documentation and operational records of registered properties are provided as well as kept up to date. Until lately, these costs were serious deterrents, but market demand and actual return on investment have all but eliminated complaints about cost. Numerous

Spurring adoption of home energy remodeling are tax credits available at 30% of the cost, up to \$1,500, in 2009 & 2010 (for existing homes only) for: windows and doors, insulation, roofs, (metal and asphalt), HVAC, water heaters (non-solar), and biomass stoves. Tax credits also are available at 30% of the cost, with no upper limit through 2016 (for existing homes & new construction) for: geothermal heat pumps, solar panels, solar water heaters, small wind energy systems, fuel cells, HVAC systems, biomass stoves, water heaters (including solar), solar panels, geothermal heat pumps, wind energy systems, and fuel cells.



developers and builders have adopted as company policy the LEED certification of their buildings, and a few have even designated nothing less than platinum as their operational standard. More details are found at www.usgbc.org.

In addition, certification of building team members nets extra LEED credit, so the independent Green Advantage program trains and certifies on-site project supervisors. Associations of trade contractors provide this benefit to their membership. Employing these certified tradesmen on the job-site can help assure the project runs smoothly without a costly learning curve. Learn more at www.greenadvantage.org.

Government Players

The DC metro area is complex because it straddles state lines and hosts many Federal agencies involved with green building. The Federal government agencies, including the real estate landlord, General Services Administration (GSA), as well as NASA, DOD, and various other departments and agencies all have implemented some form of green building plans. Some of them have adopted a rating system somewhat different from the LEED scale. A comprehensive report titled, "The Federal Commitment to Green Building" issued by the Office of the Federal Environmental Executive lays out the details of the many facets involved. It can be downloaded at www.ofee.gov/sb/fgb_report.pdf.

As part of the American Recovery and Reinvestment Act of 2009 the GSA's Public Building Service was authorized to invest \$4.5 billion dollars to transform federal facilities into exemplary, high-performance green buildings. The allocated money is scheduled to be awarded in its entirety within the next two years. Federal contractors interested in these green construction projects may have to deal with factors that were not previously considered when putting together your proposal and project team. These factors that are unique to green building include: unfamiliar project specifications, rating systems, new materials, and installation techniques that could impact your estimates. A resource for federal contractors interested in performing green building is the "Federal Green Construction Guide for Specifiers." The Guide can be found at www.wbdg.org/design/greenspec.php

Maryland, Virginia, and the District each have a green building program, although they approach it somewhat differently. Maryland has appropriated funds for several years to stimulate green building development in brown zones needing upgrades. The Maryland Green Building Task Force home page is at www.dnr.state.md.us/ed/.

Although Virginia cities and counties cannot require green building through a building code, there are ways for Virginia locales to create green building regulations. Arlington County established a Green Building Fund and a policy of having site plan developers who do not commit to achieving a LEED rating contribute to the Fund at a rate of \$0.045 per square foot. The Green Building Fund is used to provide education and outreach to developers and the community on green building issues. If a project receives LEED certification from the USGBC, the Fund contribution is refunded.

The DC Green Building Act, passed in 2006, phases in requirements over a six-year period. It applies to public buildings and will apply similar standards to private buildings above 50,000 square feet beginning in January 2012. The Act also launched a green building incentive program, a green building fund, and green building advisory coun-



The USGBC's new Washington, DC headquarters earned LEED Platinum certification. The Council outgrew its previous space as a result of the explosive growth it experienced over the last few years. Currently, more than 35,000 projects participate in the LEED system, comprising over 5.6 billion square feet of construction space in all 50 states and 91 countries.

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cil. The District Department of the Environment (DDOE) and the Department of Consumer and Regulatory Affairs (DCRA) are organizing for full implementation the Act. Local building industry organizations are pushing the District to clarify aspects of the Act, including the performance bond requirement used to secure the obligation of developers whose projects are subject to the Act. The District clarified its intent to update the Act to meet currently applicable standards to LEED 2009 and Green Communities 2008. On May 21, 2009, the District Office of Property Management announced the release of the “LEED Certification Guidebook: Process Management Guidebook for Projects in the District of Columbia.” The Guidebook assists District Government project managers in complying with the LEED standards.

Twenty two local area independent jurisdictions have organized into the Metro Washington Council of Governments (COG). COG appointed an intergovernmental green building group that meets regularly to help coordinate its members. Green building plans vary somewhat among them, and vary from none to a lot. So COG compiled all the variations into a comprehensive 10-page “Regional Green Building Policies and Programs Overview.” It can be downloaded free at www.mwcog.org/uploads/committee-documents.

New legal concerns are associated with green building. One of the most comprehensive free ongoing reviews of legal concerns in green buildings is provided in a blog by lawyer, Chris Cheatham at www.greenbuildinglawupdate.com. The ability to recognize and address the risks inherent in green building construction contracts will minimize the potential for disputes and exposure.

A checklist of some factors to review follows. *This list is for guidance only, seek qualified legal counsel in case you run into trouble.*

- Identify which party is responsible for documenting and achieving LEED certification.
- Identify the damages associated with failing to obtain the required LEED certification.
- Confirm that the insurance coverage on the project takes into account the green nature of the project.
- Check the warranty and guaranty language to ensure that new green construction procedures or installation materials do not void the warranty or guaranty for a product.
- Investigate the availability and price of green construction materials, and be sure to estimate acquisition and labor costs accordingly.

Non-Government Players

Most building related trade and professional associations now include some form of green activities in their programming. They provide continuing education, some green-related certifications, and of course many networking opportunities. National Association of Home Builders launched its Green Standard in January 2009, the only ANSI industry green consensus standard as such to date at www.nahbgreen.org. The Virginia Building Industry Association has conducted a strong “Energy Star” outreach program among its builders. Its Parade of Homes, scheduled for October 24-25,



PHOTO BY ADAM OSIELSKI (5TH YEAR APPRENTICE)

5th year electrical apprentice George Stulock, sponsored by Kelly & Sons Electric, works atop the Puerto Rican team's entry in the 2009 Solar Decathlon on the National Mall. Six electrical apprentices and two instructors from the Joint Apprenticeship Training Committee (JATC) provided the competing 20 teams with electrical services on an as-needed basis during the setup period October 1-5. Other apprentices included Patrick Brodis (Perlectric), Richard King (Dynalectric) Adam Osielski (J.E. Richards), Sean Mooneyham (Commercial Power) and Maruice Hanciles (Birkhead Electric). The JATC is sponsored by the National Electrical Contractors Association and Local 26, IBEW. More information, including videos and blogs, is available at www.washdcjatc.org.

The curriculum for electrical apprenticeship training, cosponsored by IBEW Local 26 and D.C. chapter of National Electrical Contractors Association (NECA), was expanded to include renewable power generation with photovoltaics, bio-mass, wind turbines, and fuel cells, plus installation of building automation systems for the “smart grid” technology. Information about the program can be found at www.washdcjctc.org.



will showcase the latest custom home building innovations. For details visit www.vaparadeofhomes.com.

Architectural training programs now include sustainable design and alternative building materials in their curriculums. The University of Maryland has added courses such as light clay and straw-bale; bamboo; earthen finishes; adobe and cob; natural conditioning; recycled energy technologies; sun, wind, and light strategies; photovoltaics; renewable energy generation; plus rammed and modular earth among others to its training. Through accredited distance learning, you can earn an MBA in green building online from Marylhurst University at www.greenmbamarylhurst.edu.

The Virginia Sustainable Building Network, headquartered in Arlington, provides green building case studies, including homes, schools, and office buildings, and also offers a mid-Atlantic directory of green products, suppliers, and services on its Web site at www.vsbnet.org. In Maryland, The Green Building Institute is dedicated to “providing information resources to educate anyone interested in green building techniques, creating ways for participants to integrate these concepts into their structures to increase efficiency and decrease environmental toxicity.” Beginning as an old farm house, its building in Jessup “has evolved into an environmental jewel that not only preserves and sustains, but also actively offers positive benefits to its residents and surrounding environment.” Details are found at www.greenbuildinginstitute.org.

The USGBC National Capital Region Chapter is the omnibus metro organization for green building professionals. Complete information is provided at www.usgbcncr.org. Among its functions is granting annual awards for special accomplishments in green buildings. Its most recent awards include the area’s leading LEED projects:

- Retail Project of the Year Award: Forrester Construction for their Founding Farmers Restaurant in Washington, DC.
- Office Project of the Year Award: Fox Architects for their project, BP America, Inc. Government Affairs Office in Washington, DC.
- Core & Shell Project of the Year Award: SmithGroup for their project, 1331 L Street in Washington, DC.
- Existing Buildings Operation and Maintenance Project of the Year Award: American Association for the Advancement of Science for their headquarters in Washington, DC.

- Major Renovation Project of the Year Award: The Christman Company in recognition of their entry, the Robert H. Smith Education Center at President Lincoln’s Cottage.
- New Construction Project of the Year Award: SmithGroup for their project St. Mary’s College of Maryland Goodpaster Hall located in St. Mary’s City, MD.

A New Kind of Community

A new kind of sustainable residential community is emerging in the metro area. Called “cohousing” and also “ecovillage,” these innovations attempt to construct a living environment that is energy efficient and socially interdependent and ecologically responsible. The ecovillage concept embodies the “Gaia Hypothesis,” first proposed by J.E. Lovelock in 1965, in which housing is an interrelated system integrated with the earth. Through personal commitment to the community and prescribed lifestyle, ecovillagers build living models of sustainability in harmony with nature. They live independently in their own properties, but they are less isolated. Residents of these communities agree to stipulated participation in more communal mutual support than most Americans have experienced. Mid-Atlantic Cohousing is a regional resource for individuals seeking cohousing and for aiding in developing cohousing communities. You can find detailed descriptions of the lifestyle in twelve of these communities in MD, VA, and PA at www.midatlanticcohousing.org. They are linked to such developments throughout the country and internationally.

The first cohousing development in Northern Virginia, Blueberry Hill is located in a country setting in Vienna, near Tysons Corner and the Dulles Toll Road. EcoVillage, located in rural Loudoun County; reports construction of a new straw-bale house is underway. Two homes recently constructed at EcoVillage will likely be the first LEED Certified homes in Northern Virginia. Tours of the site are available on Saturdays, and also by appointment. Eastern Village Cohousing is located in Silver Spring, MD and was developed by Eco Housing Corporation of Bethesda. The USGBC has certified that Eastern Village meets the LEED Silver rating for environmental performance, making it one of the few residential buildings in the U.S. to attain this rating.

Conclusion

It is difficult to assure selection of the most important green building news for this readership, but hopefully the resources included will provide the additional information you may need. One additional resource is a file of all LEED registered properties in the metro area, including the developer and constructor. This Excel file is compiled by the Electrical Alliance, cosponsored by IBEW Local 26 and NECA. It may be requested by emailing kmiller@frostmiller.com. **B**

About the Author

Lewis Tagliaferre is a retired association executive and freelance writer on energy policy and sustainable marketing strategies.