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Greene on green

Attorney Michael Greene explores the potential significance “green building” can have on energy use, water consumption, pollution levels and other quality of life factors. According to Greene, Florida has lagged at least five years behind California, Minnesota and other states in the adoption of standards or incentives for sustainable building design. He believes that Florida’s climate and resources make it a natural for sustainable and environmentally-friendly design and construction.

Perspectives

Green buildings will produce long-term improvements in Florida’s quality of live

By Michael S. Greene

The concept of green buildings has been gaining traction in many areas of the U.S. but Florida has lagged at least five years behind California, Minnesota and other states in the adoption of standards or incentives for sustainable building design. Florida’s climate and resources, however, should make the state a natural for

sustainable and environmentally friendly design and construction.

Why have buildings become such an environmental concern? According to the U.S. Environmental Protection Agency,

buildings in the U.S. generate 39 percent of total energy use, 12 percent of the total water consumption, 68 percent of total

electricity consumption and 38 percent of the carbon dioxide emissions.

The historic focus on the automobile has misplaced some of the blame for some environmental degradation. With more than one-third of all carbon dioxide, and the adverse impact of these greenhouse gases on global climate, being the result of buildings, more attention must be paid to the effect that our offices, schools and homes have on the environment.

How can going green solve some of these problems? What benefits can green bring to Florida? In order to answer that question, we must first define “green.”

Like “organic” and “natural,” “green” is an evolving and loosely applied term. Let’s first take a look at government’s definition. EPA defines green construction as: . . . [the] practice of creating healthier and more resource-efficient models of construction, renovation, operation, maintenance, and demolition. Research and experience increasingly demonstrate that when buildings are designed and operated with their lifecycle impacts in mind, they can provide great environmental, economic, and social benefits. *Elements of green building* include energy efficiency and renewable energy, water stewardship, environmentally preferable building materials and specifications, waste reduction, toxics, indoor environment, smart growth and sustainable development.

While the EPA has set out a list of goals, it has provided no specific definition, standards or detailed criteria for determining whether a building is indeed “green.” Notwithstanding this non-mandatory set of broad concepts, the federal government has sought to implement energy-saving and sustainable measures in its own buildings.

Both Executive Order 13423, “Strengthening Federal Environmental, Energy and Transportation Management” and the “Federal Green Construction Guide for Specifiers” are intended to set a bar for project managers to enhance the sustainability of federal buildings.

EO 13423 requires agencies to reduce greenhouse gases through a reduction in energy intensity of three percent a year or thirty percent by 2015. One-half of energy must come from new renewable sources and water consumption must be reduced by two percent per year through 2015.

Minnesota has also been at the forefront of the sustainable building movement. In 2001, the Minnesota legislature adopted the “Minnesota Sustainable Building Guidelines,” which apply to public buildings funded by state bonds. The Guidelines are region-specific and are organized into five categories: performance management, site and water, energy and atmosphere, indoor environmental quality, and materials and waste.

What are the criteria to guide architects, engineers and specifiers in planning and designing for green? While many of the governmental guidelines incorporate broad concepts, the LEED standards, promulgated and applied by the United States Green Building Council, are often incorporated into these guidelines. LEED (Leadership in Energy and Environmental Design) guidelines, while not the only green standard, are the most widely recognized and implemented. The LEED point system (and the resulting bronze, silver, gold and platinum certifications) is more well-known to the general public than the criteria established by other organizations.

The bottom-line question is, how does the application of green standards, whether LEED or others benefit air and water quality and the environment in general? Given the impact of buildings on our environment, some of the results can be immediate while representing significant benefits over the life of a typical building.

Energy savings is a substantial part of the LEED and other standard criteria, in part because it is easier to quantify than more “ethereal” concepts. In addition to the energy cost savings, the less energy used to operate, cool and heat a building, the less pollution, including sulfur dioxide, nitrous oxide, carbon dioxide and particulates emitted into the air.

In one Minnesota study, 41 green buildings reduced sulfur dioxide emissions in an amount equivalent to taking 445,700 cars off the road. Carbon dioxide reductions were equivalent to 12,200 fewer cars. The benefits to air quality, human health, and climate change concerns are clear in this example.

The use of sustainable, recycled materials, and less potentially harmful chemical-based components, reduce energy costs in manufacturing and reduce the likelihood of illness in building occupants.

In Florida in particular, water use reduction not only reduces current operating costs, with longer drought periods, water rationing and use limits, and salt water intrusion becoming more pervasive, more innovative water management must be implemented. One example of this is the use of greywater for irrigation and other non-potable uses. This reduces the energy used in water purification and puts less strain on the aquifer and water supply.

Another example that could have a significant impact in South Florida is the use of rainwater harvesting and retention. In one office project in West Palm Beach, retained and primary treated rainwater will be used to flush toilets, irrigate landscaping, and provide source water for cooling towers. The estimated annual water savings from these measures is almost two million gallons. The amount of water therefore available for Everglades restoration increases with less required for urban areas.

One reported effect of urban development is the “heat island effect.” With increased, drought-tolerant landscaping, “grass” roofs, and other green components, it is possible to reduce the effect, bringing the added benefit of reduced air conditioning use.

The more widespread implementation of certified green building methods can have quantifiable benefits beyond local air and water quality all the way to long term global climate stability. Rather than merely being the construction equivalent of “natural” potato chips, green buildings will add long-term improvements in the Florida quality of life.

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