

Making Green Communities Work

BY STEVE KELLENBERG

THROUGHOUT THE NATION, THE BUILDING AND COMMUNITY development sectors of the real estate industry are looking more seriously at incorporating "Green" solutions into their projects. Of course, all of these programs cost money to implement, but this isn't stopping many of the enlightened builders and developers who believe the benefits of Green far outweigh the costs. But what exactly does "Green" mean?

Also referred to as sustainable development, Green development (or Green communities) offers an opportunity to create environmentally sound and resource-efficient buildings and communities by using an integrated approach to design that is sensitive to natural resources and their protection. Green development promotes resource conservation, including energy efficiency, renewable energy, and water conservation features. It also takes into account environmental impacts and waste minimization with the goal of creating a healthier and more comfortable environment; reducing operation and maintenance costs; and addressing issues such as historical preservation, access to public transportation and other community infrastructure systems.

With Green development, the entire lifecycle of a development and its components is considered, as well as the economic and environmental impact and performance. An increasing number of developers, land planners, designers, and real estate owners are becoming interested and involved in Green development. National and local programs encouraging Green development are growing and reporting successes, while hundreds of demonstration projects and private developments across the country provide tangible examples of what Green development can accomplish in terms of comfort, aesthetics, and energy and resource efficiency.

While there is a lot of information on Green development available for individual buildings, little exists for large-scale, master-planned communities. Major developers everywhere are trying to make sense of the hundreds of products and

applications that could lead to a more sustainable (and hopefully bankable) project. The approach described here attempts to provide a general roadmap for applying Green practices to large, complex, market-driven land development projects. It suggests a process that incorporates market demographics, probes consumer values, and filters Green building and development components through a cost/benefit analysis, all with the goal of assessing from different viewpoints what it would mean to integrate a Green program—or elements of a program—into a project's financial blueprint.

WHY DEVELOPERS ARE INTERESTED IN GREEN COMMUNITIES

Community developers are pursuing Green programs for four key reasons: 1) it is the right thing to do, 2) it improves public and civic image, 3) it accelerates jurisdictional approvals, or 4) it fills an unmet market demand.

About the Author

Steve Kellenberg is a principal with the Irvine, CA office of EDAW—one of the world's largest land and environment-based planning and design firms. Kellenberg is the leader of EDAW's Green Communities Initiative and has master planned a number of large new community and redevelopment projects that are implementing Green development practices at various levels. He has spoken frequently on sustainable planning methodologies for large complex projects and he co-authored an Urban Land Institute book, "Great Planned Communities." Founded in 1939, EDAW's core services—land planning, landscape architecture, urban design, environmental and economic planning—form a continuum of disciplines whose fusion enriches the solutions that it develops with its clients. As a member of the world community, EDAW's goals include responding to critical environmental and social issues by deepening its practice in design, urban regeneration, water resource management, green community planning, and support for federal projects.

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Aside from the financial benefits, such as reduced operating costs, value-added premiums and reduced capital costs, green development is appealing because it is development for the future, not just today. Many people like to be associated with projects or developments that are forward thinking and environmentally sound. Indeed, there is satisfaction and value from doing the right thing, both on the part of the developer/builder and the homebuyer.

Clearly consumers are interested in sustainable design. A 2001 survey for the Cahners Residential Group found that eight of 10 homebuyers interviewed say that new homes do not meet their expectations for environmental sustainability, and 96 percent said they would pay more for a home with "Green features." More than half would pay \$5,000 to \$10,000 extra for a Green home. In a 2001 Housing Zone/Professional Builder survey, consumer belief that new homes do not meet buyers' sustainability needs increased from 60 percent to 80 percent in one year, and the belief that energy efficiency is very important rose from 50 percent to 91 percent during the same period. The same survey noted that the usual new-home upgrades of kitchen cabinets, whirlpools, and exterior trim were on the decline at rates of 30 percent to 50 percent, while indoor air quality and xeriscaping (water-saving landscaping) upgrades were increasing at rates of 18 percent to 50 percent.

Throughout California, government agencies are encouraging, sometimes even requiring, developers to use Green development principles. Every indication is that this is a growing trend and that in many regions a Green program will soon be expected in tandem with the usual master plan and zoning submission. Meanwhile, applying Green measures can definitely win over communities and speed the entitlement process. Voluntarily restoring wetlands and other ecological areas, encouraging alternatives to automobile use, and creating open space for community use go a long way towards building support and reducing legal delays.

Because some Green program elements add costs, it's important to identify the degree to which buyers value the benefits and are willing to pay a sales premium, resulting in higher revenue. This "Green premium," supplemented by tax incentives and lower operating costs, is crucial to developing a balanced Green program. The challenge is to select the right mix of elements that will result in better financial performance in both the short and long run. In

regards to Leadership in Environmental Energy and Design (LEED™), one professional had this to say: "You really have to evaluate which products/techniques you want to concentrate on. It's a case-by-case analysis because each project is so different. It's impossible to achieve all 69 of the LEED points, but you don't need to—this is where you pick and choose," said Jorden Segraves, senior level job captain, TCA (Thomas P. Cox: Architects, Inc. of Irvine, Calif.).

The following six steps are suggested in developing a Green program at a community level. Not all projects will use every Green component equally—each region, market, and site is different.

1. Identify an Evaluation Process—The biggest challenge is developing a systematic approach to balancing and weighing the vast array of technologies, products, and systems. Several tools exist to assess a project's Green potential. For environmental planning, the Audubon Signature Cooperative Sanctuary Program provides comprehensive assistance and education, from design through construction. For balancing the environmental and economic performance of specific building products, the National Institute of Standards and Technology Building and Fire Research Laboratory has developed the Building for Environmental and Economic Sustainability (BEES) software. It provides environmental and economic performance data for nearly 200 building products. The popular LEED Green Building Rating System, developed by the U.S. Green Building Council, provides an accreditation system for individual buildings (commercial, office, industrial and residential over four stories).

The Sustainable Project Appraisal Routine (SPeAR™) Rating System developed by the engineering firm Arup measures sustainability more broadly. The system provides easy-to-understand exhibits illustrating the degree to which the Green program balances environmental, societal, natural resource, and economic aspects of a project, rather than addressing only easily achieved components. The systems cost evaluation tool is especially valuable in comparing Green component costs. Here each of the Green components, such as low-e windows ("low-emissivity" windows that slow the flow of heat through glass) or R-24 insulation, is categorized into one of four categories of cost recapture: no additional cost, cost recaptured within the current phase of development, cost recaptured at some point during the development process, and lastly, no

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Exhibit 1 CASE STUDIES

Ladera Ranch—Terramor, Orange County, CA

Responding to extensive consumer research, the Ladera Ranch's fifth village, Terramor, is planned to serve a target market searching for tightly knit, socially progressive neighborhoods that have a strong Green orientation and that are not focused around automobile use. Two cores of higher density housing are organized around the central open space for activities and recreation. The cores are linked by a bio-filtration open space corridor that serves as the central pedestrian and activity spine of the village. Automobiles are kept to the periphery, enabling residents to go almost anywhere in the village without crossing a street. The village represents one of the most ambitious Green building programs in Southern California. Ten builders are participating in a uniform program, which includes umbrella Energy Star rebate programs, energy-use reductions and cost savings exceeding 20 percent, neighborhood electric vehicle (NEV) promotion, photovoltaic panels, and coordinated waste management.

Stapleton Development Plan, Denver, CO

The redevelopment of the former Stapleton airport site provides one of the largest urban infill opportunities in the US. Surrounded by established residential neighborhoods, the 4,500-acre site lies directly east of downtown Denver. The challenge was to create a plan that would link economic and social objectives with development, integrate nature and wildlife with the urban environment on a permanent basis, and implement a more sustainable pattern of development that consumes fewer natural resources and impacts the natural environment less. The project required extensive environmental remediation: removal and recycling of existing runways, management and integration of water on site, and the creation of a strong open space system. All residential development must meet or exceed the requirements of the Home Builders' Association Green Builder Program.

Hidden Springs, Boise ID

In 2000, the Hidden Springs "green community" was selected for the prestigious Best Smart Growth Award from the National Association of Home Builders. The founding vision for Hidden Springs is to build a rural community in the tradition of Idaho's small towns, while carefully preserving the natural surroundings of Dry Creek Valley. This is reflected in the Hidden Springs land plan, which includes numerous environmental precautions and improvements, over 800 acres of permanent open space, and on-site retail and educational facilities to minimize car travel. The town is built by its founders and residents upon eight principles: 1. Rural character and farming traditions: To maintain the rural traditions of the property by incorporating older out buildings into landscape designs where practical, and allowing some of the open space for appropriate agricultural uses. 2. Small town: Traditional neighborhood design will be the foundation for the small-town lifestyle. 3. Natural environment: Respect the natural environment. 4. Traditional homes: Encourage the design and construction of homes that are comfortable and long-lasting; homes that will use energy and resources efficiently and responsibly. 5. Quality of life and healthy living: Set aside, and care for, large and diverse areas for outdoor living and recreation. 6. Education: The developer believes quality education starts at home, and will support neighborhood schools and lifelong learning opportunities. 7. Diversity: The community offers a variety of homes so that people of many ages, incomes, and backgrounds can live at Hidden Springs. 8. Value and values: Create a community that provides enrichment, enjoyment, and value for many generations to come; a place where residents will "be proud to watch your grandchildren grow up."

recapture of cost. This allows logical trade-offs to be made and the costs kept in perspective.

2. Using Market Analysis to Identify a Green Revenue Stream—Every developer knows that costs are more easily predicted than revenues, especially when dealing with less tangible amenities and their premiums. Given the lack of precedent in Green consumer spending, demographic and value-based consumer research is helpful in projecting a Green premium. First, demographics can suggest the level of Green innovation a target market can support. Higher-income, more sophisticated markets have the discretionary

buying power to better express their Green preferences than lower income, more value-oriented markets.

An emerging rationale is that there is a measurable, unmet demand for Green communities in the market place. Basic economic theory suggests that if a significant segment of the market is searching for greener living at the home and community levels, and little if any is being offered, then the projects that step forward should enjoy either higher pricing, faster absorption, or both.

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Exhibit 2

EDUCATING THE TEAM

Building a Green community may require educating a broad spectrum of audiences. Contractors may need education about construction techniques and materials, as well as environmental regulations. For builders to support Green techniques, they must understand the rationale for changing some of their time-tested practices. Fresh market data, cost estimates, premium revenue assumptions, product availability, and logistical shortcuts provided early on can help build a sense of confidence for those new to Green building. Residents, workers, and other users may need education on their responsibilities. Educating government agencies and the surrounding community can facilitate permitting.

Educational components include:

Master developer—Experience has shown that some level of passion for greener building must go all the way to the top of the development organization for a project to be successful. This requires education at every level, not so that all become experts, but that all generally understand what and why a new initiative has been undertaken.

Builder—Senior management gives the green light, but the design team, purchasing, and field supervision also need to buy in.

Sub-contractor—Builder subcontractors need to be informed about why they are changing standard practice or products.

City staff and Public Works—Many Green technologies and practices differ from what the plan checkers and field inspectors are used to seeing. Early workshops with the jurisdiction are key.

End User Residents and Workers—The residents must be trained how to operate the sustainable living environment once it is completed. Recycling, waste management, irrigation practices, landscaping, and use of energy-saving devices require an ongoing education program funded and maintained by the master association.

Interpretation—Many Green communities have preserved or reconstructed wetlands and wildlife corridors, and preserved native and sensitive species. Interpretive centers, educational exhibits, nature trail systems, and stewardship programs can make the community aware of these elements.

Buyers seem to invest in Green measures for one of two reasons. Either they believe it is important to lead a more sustainable lifestyle, or they believe they can save money. The long-term savings delivered by some Green elements can be partially reflected in increased sales price if carefully communicated to the buyer. Increased insulation, overhangs/shades, ENERGY STAR® rated appliances, operable windows, and natural daylighting can reduce energy costs significantly. Water-saving measures include water-efficient fixtures and appliances, native and drought tolerant landscaping that requires less watering, efficient irrigation systems, and water reclamation programs. Visible Green features are the easiest to sell. Brooke Warrick, the founder of the market research firm American Lives, and a consultant to Green developers, comments, "All Green features are not equal in the consumers' eye. The cost and the perceived value need to be weighed. For example, in California, photovoltaic panels on a 2,000 square-foot house could reduce an energy bill by as much as 60 percent. With all of the incentives and credits, it may be possible for a Green homeowner to break even in a period as short as one year."

3. Select Horizontal (Land Development) Practices—Horizontal land development elements are found at both a community (master developer) and neighborhood (builder) levels. The community level includes backbone systems such as the following: Ecologically Sensitive Areas; Land Use Planning; Transportation; Cultural Resources; Site Planning; Storm Water; and Community Landscape.

4. Select Vertical (Builder) Technologies—In a multi-builder new community or redevelopment project, the master developer must take the lead in selecting a concise set of Green vertical building practices. The most effective marketing impact comes from a uniform, consistent application by all builders, which is possible only when regulated, reviewed and implemented by the master developer. Given the hundreds of Green products and practices available, an evaluation process must sort out those most effective and rewarding for that particular target market and set of builders. Typical vertical building elements include: energy conservation, resources conservation, construction waste reduction, architectural design and indoor air quality.

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6. Monitor Compliance—Having promised Green measures, a developer must ensure they are delivered. A commissioning authority is a third party that assists in monitoring builder to the Green guidelines. Design review during the various stages of design and spot-checking during construction are necessary to make sure the Green claims stand up to public scrutiny. A Green report card can be developed to inform builders of their compliance and manage success and failures in the field. "This is one of the hardest things," according to Jordan Segraves, senior level job captain, TCA (Thomas P. Cox: Architects, Inc. of Irvine, CA). "All of the subs don't necessarily use all of the products specified in green programs. You have to get your general contractor to understand and buy in from the beginning—all the way back to schematic design. If all parties aren't properly educated and involved, it's going to be difficult," said Segraves.

COST/BENEFIT ANALYSIS

A key step in designing a Green program is to initiate a cost-benefit analysis. After the Green team has developed an initial array of Green elements, the additional revenue, cost savings, or other compensating factors are identified for each element. Using the SPeAR™ evaluation program, elements can be categorized by timing of cost recapture, if there is any. The Green program can then be modified to better align not only the environmental objectives, but the market, political, and economic goals of the developer. On several projects this process has helped focus efforts on Green elements most likely to succeed, while jettisoning those that sounded good but were extremely expensive relative to either marketing or environmental impact.

To further refine the vertical building program, another tool—the residual impact analysis—can be used. The additional cost per square foot of each Green element is

adjusted by the projected increase in sales price. The remaining uncaptured cost is converted to the impact on the residual value per acre. The master developer determines its acceptable buy-down or risk level and adjusts the program to include those elements with the best cost-benefit relationship. The master developer often engages in price participation with the builders to later recapture the initial reduction on residual value. The total additional cost of Green can also be offset by other cost adjustments.

As the program goes into implementation, the builders will have many questions and comments about the program. This can have a tendency to disassemble the program if it is not channeled into a positive, constructive dialogue. With some projects, builders have been brought together in workshops to share their experiences and techniques with other builders.

SALES AND MARKETING

Communicating the value of the Green features to homebuyers is key. For example, a bamboo floor or a photovoltaic panel is readily visible, but water run-off is harder to see. It's important not to promise more than can be delivered. The type of consumer interested in Green communities is very sophisticated, educated, and questioning; they want quantifiable information. Minimizing the gap between expectations and delivery is critical for sales. Authenticity is often a shared value with sustainability. Sales and marketing must be careful not to commercialize or oversell Green design. Instead, marketing programs should communicate Green benefits as part of a larger quality-of-life proposition. Some builders seem to struggle when they market Green as the primary selling point, but when combined with others, such as trails, open space, and good neighborhood design, it's much more effective.

Since a number of Green items will probably be options, information on choice, cost, and benefit to the consumer must be clear and accurate. The master developer must take a hands on approach to assist builders in setting up an effective Green sales program, which should not be fully dependent on an individual project's sales staff.

The U.S. Green Building Council is currently developing a certification process for individual homes and neighborhood development. Until then, there is no uniform standard to measure the greenness of a new master-planned community, or more importantly, provide a methodology

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for balancing a project's unique environmental, market and economic objectives.

THE BEST STRATEGY

The best strategy is a step-by-step process that integrates local demographic and value based market drivers, identifies both a cost and a revenue stream for Green elements, and then uses a cost/benefit methodology to create a customized Green program consistent with the master developer's objectives and business plan.

Successful Green communities arise from a holistic approach that incorporates the marketplace. They are livable, healthy, enduring, human-scale places that are compatible with and considerate of the earth's natural ecosystems. If planned correctly Green communities will be viable—environmentally and economically. ■