

AUSTIN'S GREEN BUILDING PROGRAM
A TOOL FOR SUSTAINABLE DEVELOPMENT

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ABSTRACT

In a new approach to home rating systems, Austin's Green Building Program was designed in 1991 as a marketing approach to encourage builders, architects, and designers to incorporate sustainable building practices, systems, and materials into residential construction. A secondary goal of the program was to encourage "green" business development in the Austin area. A rating system of accumulated points translates to a "sustainability rating" of one to four stars. Four resource areas relating to the home are considered: water, energy, building materials, and solid waste. Seventeen criteria were used to develop points for more than 130 building options listed under the four categories. The criteria for evaluating the options included consideration of the source, process (i.e. from raw material to finished product), use, post-life (recyclability, disposal), integration (with other systems), and difficulty in offering the option.

The options are presented in the *Green Building Guide*, which includes an overview of the program, a discussion of sustainability and local and regional resources, the rating worksheets, and a comprehensive glossary of terms. The *Green Building Guide* is supplemented by a *Sustainable Building Sourcebook* which gives more detailed design and source information for each option listed in the *Guide*. The *Green Building Guide* is being revised in a simpler format, and the marketing package is being evaluated based upon our experience of the past two years of program operation. The Green Building Program supports participants through general marketing and technical seminars.

Response to the Green Building Program has indicated pent-up demand from the market for more environmentally sensitive building practices. Reaction from the building industry has shown a desire for a mechanism to present building and development in a more positive light to an environmentally aware public. The broad acceptance of this strategy was highlighted at the United Nations Conference for Environment and

Development (UNCED), called the "Earth Summit," when the Green Building Program was selected as one of twelve finalists worldwide for the United Nations Local Government Honours Programme. The most recent of several awards was the Award for Innovation presented by the Association of Demand Side Management Professionals in November, 1993. This paper will follow the implementation and operation of the Green Building Program, with discussions on the successes, challenges, and modifications of the program since its introduction to the public in early 1992.

ENERGY RATING PROGRAMS

Characteristics.

Since the late 1970's energy rating and certification programs have been, with varying levels of success, a part of the national effort to reduce energy consumption in housing. The goal of an energy rating program is essentially to get people to choose a home shown to have increased energy efficiency, which benefits the individual and the community, both local and global. The potential of rating programs is based upon several assumptions.

First, most home buyer surveys have shown that energy efficiency is consistently near the top of a list of important factors in choosing a home. While it may not be the most important, given similar homes, energy efficiency could be the deciding factor.

Second, builders are most responsive to their customers, and will provide the features that best sell the home. Most builders take great pride in providing the best product possible, and if the market is demanding, and willing to pay for, high efficiency, the building industry will not balk at providing it.

Third, buyers and builders alike want a simple method for making energy efficiency comparisons.

Most rating programs provide a scale in points, stars, or medals (silver, gold, etc.), or a "certification" level that gives shoppers a quick comparison scale without requiring technical or analytical skills.

Voluntary energy rating systems respond to these assumptions in a "win-win" scenario that complements, or sometimes replaces, regulatory options to achieve efficiency goals in housing. The building industry is particularly supportive of this approach over mandatory standards, although the best approach appears to be a mix of the two.

Keys to Success of Rating Programs (1).

The following points were developed as keys to successful rating programs based upon a national survey:

- Dedicated leader
- Long-term commitment and budgetary support
- Easy participation requirements
- Easy translation of technical approach
- Broad-based industry support/consensus
- Visible, effective marketing to industry and to home buyers/sellers
- Participation integrated into normal business process
- Credible technical development
- Reputation of sponsoring agency inspires confidence
- Little or no cost to home buyer/owner, or cost hidden

Austin's Energy Star Rating Program.

Following most of the key points noted above, the Austin Energy Star Rating Program has been a successful program. Most active builders in the Austin electric service area are rating their homes, free of charge to the builder, and receiving a rating and Energy Guide label to market the energy efficiency of their homes. Builder sales staff have reacted favorably to the label, which gives energy cost and comparison information, as a valuable tool for simply conveying the energy efficiency message to prospective buyers. The 1992 Builders Parade of Homes featured the Energy Star Rating Program, and support from the local Builders Association has been increasing. The rating is accepted by City of Austin code officials as an alternate compliance tool for the local Energy Code.

We are currently revising the Energy Star Program to simplify the rating process, and to integrate the energy rating as an Energy Supplement

to the Green Building Program. These changes are in response to significant increases in building activity, and a desire to more effectively impact the local and regional building industry.

ENVIRONMENTAL RATING PROGRAMS

While there have been various past efforts to quantify the environmental impacts of the built environment, the history of mainstream home rating programs that go beyond the energy aspects of a home is quite short. As far as we know, it began with the development of the Austin Green Building Program. To be sure, previous studies have attempted to evaluate and quantify the various impacts of the built environment (embodied energy, "sun units," etc.). Yet, these studies and methods have not been translated to a usable tool for lay persons.

THE AUSTIN GREEN BUILDER PROGRAM

Development.

The idea to expand the already-successful Energy Star Rating Program to include other environment-related criteria was supported in 1990 by a Department of Energy grant through the Urban Consortium Energy Task Force. The "Sustainable Systems Rating Program," conceived and supported in its early development by the Center for Maximum Potential Building Systems in Austin, became the Austin Green Building Program in 1992 with its public debut. Program in Program in 1992 with its public debut. Development is documented in an Urban Consortium report titled "The Sustainable Systems Rating Program --- Marketing Green Building in Austin, Texas."

Implementation.

Implementation of the Green Building Program centered around a primary marketing piece for the program, the draft of which was named the "Eco-Home Guide." The name of this booklet was later changed to the *Green Building Guide* for its initial printing and distribution.

The Green Building Program focuses on four resource areas related to home building: water, energy, building materials, and solid waste. The *Green Building Guide* considers these in three primary sections.

The first section gives readers some idea of the availability, usage, and local impact of each of the four resources. The source, typical consumption, and other facts are given to lead into the Rating Section.

The Rating Section is the substance of the program, with more than 130 building options

listed in the four resource areas. Each of these options was assigned a rating based on a set of "sustainability criteria" that includes embodied energy, economic impact, environmental impact, durability, system integration, and difficulty. Points are added to reach a total for each resource section. These section ratings were further reduced to a single star rating for the home of one to four stars. Changes to this approach will be discussed later in the paper.

The third section is a glossary that defines unfamiliar terms or explains in greater detail some of the systems listed in the rating section.

As the *Green Building Guide* was being distributed, feedback from readers was immediate and almost exclusively positive. This was one of the early indications that the Green Building Program was not going to follow the same implementation patterns as the energy rating. While the Energy Star Rating had its early supporters, it was, after all, a program encouraging energy efficiency. In the mid 1980's, after about ten years of variations on the same theme, energy efficiency marketing did not garner great enthusiasm. The program over the past seven years has been driven more by builders who see the marketing advantage of energy efficient housing than by motivated buyers who demand ever increasing levels of energy efficiency, although the driving force of a rating program should be a balance of the two.

In contrast, the Green Building Program seems to have "hit a nerve." In what appears to be a general shift in priorities by communities awakening to their role in healing the planet's ecosystems, the Green Building Program is one of many initiatives appearing around the world within mainstream activities, and receiving enthusiastic, broad-based support. Local, regional, and national interests have joined individual citizens in early endorsement of the goals of the Green Building Program.

Shortly after being introduced to the public, the Green Building Program was one of twelve finalists worldwide in the United Nations Local Government Initiatives Honours Programme, presented in a special ceremony at the United Nations Conference on Environment and Development, also called the "Earth Summit." This acknowledgment by the global community of the importance of "green building" and sustainable development was instrumental in early public awareness of the program.

Builder Support.

Builders and developers in the Austin area face a strong constituency of environmentally-oriented citizens. There is a desire by the building industry to be presented in a positive manner to this group in light of increased resistance to development in specific areas of Austin. The Green Building Program, as a voluntary program, has given builders a palatable tool for responding to these issues.

The Green Building Program was given early support by a local builder who used Green Builder guidelines to rate his home built for the 1992 Parade of Homes, an annual media event sponsored by the local Builders Association drawing thousands of visitors over two weekends. Cotton insulation, Xeriscape, and a non-CFC foam block building system, reducing the amount of lumber in the frame and increasing the wall R-value, highlighted this home. Media attention was focused on this particular home, even though the Green Building Program was not highlighted as a program in the 1992 Parade.

One of the most gratifying endorsements of the Green Building Program was by the local Builders Association. Representatives of the association were asked to review the Green Building Guide before it was finalized, and have been included in an advisory capacity since the program's introduction. The Builders Association has been instrumental in accelerating the acceptance of the Green Building Program by supporting a focus on green building in the 1993 Parade of Homes. More than 22,000 visitors to the 1993 Parade were introduced to the Green Building Program by six of the seven participating builders. A key factor in this support has been the inclusion of the association in development and regular communication with advocates within the association.

Commercial Interest.

Several discussions have taken place locally with representatives of national and regional commercial interests interested in incorporating the guidelines from the Green Building Program in their facilities specifications and/or their retail operation. These include a regional grocery chain, a national building products retail outlet, and a major computer company planning facilities in Austin. This is an unanticipated result of the program which is building strong commercial support for the program's goals. This support has not surfaced for the energy rating program in seven years of operation.

At this writing new "green building" guidelines for City of Austin commercial projects are being

developed. These guidelines are being introduced within the framework of the recent Architectural and Engineering Guidelines for the State of Texas, which included features related to sustainability and environmentally sensitive design. It appears that this document is already in demand by some of the commercial contractors who see the rapid movement toward "green building."

The Green Building Program team, now expanded to include commercial program representatives, is involved in the development of a new airport planned for the old site of Bergstrom Air Force Base.

The Sustainable Building Coalition.

Another unanticipated result of the Green Building Program has been the formation of a local networking organization named the Sustainable Building Coalition (SBC). The SBC meets once a month, and has consistently drawn 60-70 people over the past three months to evening meetings. The members range from non-technical to professional, interested homeowners to architects and builders. Programs have included presentations on "healthy" homes, sustainable economics, straw bale home construction, rainwater harvesting, and visits to various homes in the area demonstrating passive solar design and other building innovations. The SBC has been extremely helpful in maintaining the momentum of the Green Building Program since its introduction to the public.

Demonstration House

Several other activities have grown from the local interest in the Green Building Program. A demonstration house being designed and built by the Center for Maximum Potential Building Systems is being supported by a grant from the Texas Governor's Energy Office. Partners in this project include County and State Health Departments, the City of Austin Electric Department, local gas utility, Lower Colorado River Authority (LCRA), and the Texas Capitol Area Builders Association. This house will focus on the demonstration of recycled and regional building materials, innovative design, and appropriate technologies.

Habitat for Humanity.

Yet another unexpected result of the program has been the interest of the local Habitat for Humanity organization. This group has become quite interested in modifying their basic designs to appropriate Green Builder guidelines. This is, of course, subject to cost, but there are numerous opportunities to consider, and the relationship with

this community organization will help integrate the Green Building Program into mainstream activities.

The Green Habitat Learning Project has combined the goals of three primary organizations, Habitat for Humanity, the American Institute for Learning (AIL), and the Environmental and Conservation Services Department, to build a low-cost home incorporating "green Building" features. The home is being built by "at risk" youth from the AIL, supervised by construction professionals. The intent is to build from this project a company that embodies the goals of these organizations in the fundamental operation of the company.

Habitat for Humanity maintains a "Construction Thrift Center" which takes construction materials headed for the landfill and makes them available at a reasonable cost to remodelers, builders, and homeowners for everything from minor repair to major rehab. This Center has been supported by the Green Building Program as one answer to reducing construction waste.

There is also progress in modification of the building specifications for the City of Austin Department of Housing and Neighborhood Conservation. Redevelopment projects through this organization will potentially be subject to building specifications that include "green" features. One project has already adopted this modified specification.

WHAT NEXT?

The Green Building Program is a dynamic process. Many of the important results of the program were unexpected, yet they have guided the direction of the program. After more than two years in the public eye, the program has achieved a high level of public acceptance compared to the Energy Star Rating Program's early years. This has been less a function of typical advertising strategies than of the news worthiness of a fresh and innovative program, focused in an area (the environment) already receiving significant media attention. Marketing materials beyond those already completed will be developed as usefulness dictates. Involvement in building projects will be encouraged to achieve program goals as well as to market the program. Representatives of the Green Building Program will spend as much time as possible working directly with participating builders to increase the number of rated homes available to the public.

One of the more significant modifications within the past few months has been the elimination of the points for each option. While the points were

based on sustainability criteria, it is virtually impossible to assess a numerical value to each option, considering all the factors involved in each option. For instance, a local building material such as stone could have positive aspects in being a regional resource, durable, non-toxic, and a local economic activity. But the method of extracting the stone could range from responsible to irresponsible. With this in mind, the points become more of a burden than a marketing tool. On the other hand, we recognize the value of a simple comparison for home buyers and builders.

The rating will be characterized by "green" building thresholds, or packages, at various levels of participation, from the basic that allows participation from volume builders to award packages for outstanding examples of sustainable building. These packages will be formed from a modified list of the current building options listed in the *Green Building Guide*.

CONCLUSION

The Austin Green Building Program has been received by the public substantially more enthusiastically than its predecessor, the Energy Star Rating Program. A combination of conditions appear to have had an affect on the program's early success.

Austin is an environmentally aware community which is frequently reminded of the challenge of development and environmental impact. The local building industry is seeking to respond to this awareness in a manner acceptable to both environmental interests and those of a healthy local economy. The Green Building Program provides a simple tool for the builders to present their homes acknowledging an awareness of the need for a balance of development and environmental sustainability.

Home buyers appear to have a pent-up demand for "earth-friendly" homes. Until the Green Building Program was released, there was no easy way or tool for buyers to compare the environmental merits of homes. In the past two years, such established energy rating and certification programs as Good Cents and Energy Rated Homes of America have adopted or considered adopting environmental rating criteria. Sustainability is being woven into the fabric of our culture in virtually every area.

The growing call for action in healing the planet's life support systems, and the level of impact represented by the building industry, indicate that programs such as the Green Building

Program can make a significant contribution to shifting building priorities toward sustainable development. In addition to the physical contribution, programs such as this can continuously remind communities of the interactive nature of resources and the global impact of the built environment.

REFERENCES

(1) Vories, R., *Overview of Home Energy Rating Systems*, Energy Efficient Building Association's Excellence in Housing '90 Conference, April, 1990.