

Newsflash: Green Building is Good Business

It's official: green is good. It's good for the environment, good for people, and good for the bottom line. Last year, a green-rated building set a new benchmark for Austin investment properties. 300 West 6th Street was developed by CarrAmerica and received a 3-star rating from the Green Building Program. This building is a prime example of how easily energy efficient and environmentally sound building methods can be incorporated into large-scale commercial construction projects. The building boasts a high-efficiency floor-by-floor self-contained HVAC system; a durable and highly reflective roof; high-performance, low-E windows; energy efficient lighting and daylighting strategies; fly ash concrete; regionally sourced stone and pre-cast concrete panels on the facade; and low VOC paints and finishes in interior spaces. The 445,000 square foot building was recently purchased by Chicago-based Equity Office Property Trust (EOP) for \$290 a square foot, the highest price paid to date for a downtown Austin office building.

Keyvan Arjomand, Director of Investments for EOP, says that CarrAmerica highlighted the quality of the building's construction in their sales material. "We felt that the overall quality of the building - the materials used and the quality of the construction were extremely appealing." It's common for green features to be valued as subset of quality of construction. This is understandable when you consider that green building is quality building - they are one and the same. A high quality building is one that, among other things, is energy efficient; uses durable, low maintenance materials; and creates a healthy indoor environment for the occupants.

"Green features are definitely an added benefit, especially in a market like Austin, where so many of the residents are environmentally aware," says Arjomand. Green features in a commercial building often attract businesses because many of the benefits of green building - such as lower utility costs and better indoor air quality - filter down to the tenants. Lower energy use and operating costs are often the most widely recognized benefits of a green building. "The green features of the building reduce operating costs and allow us to be more competitive in leasing," continues Arjomand. "The building marries smart economics with environmental friendliness."

New Research on Green Buildings

The experience of 300 W. 6th Street is very much in line with examples cited in two recent studies, one focusing on the relationship between the value of a building and its sustainable features, and the other covering the costs and benefits of green buildings.

The first study, called [Green Value](#), was conducted by the [Royal Institution of Chartered Surveyors \(RICS\)](#). The RICS team performed an extensive literature and case study review of green buildings in Canada, the US, and the UK. Although the sample size for green buildings is still small, the RICS that found an emerging link between the market value of buildings and their sustainable features. In general, the study found that green buildings can lease space faster, command higher rents, expect lower tenant turnover, and cost less to operate and maintain. The report concludes that green buildings can be profitable, and that they provide benefits far beyond

simple cost and energy savings. In fact, conventional buildings simply can not provide the same benefits as green buildings - financial or otherwise.

Consider that as more companies begin to see the link between employee productivity and healthy indoor air quality or daylighting, the demand for these features in buildings will only rise. A growing number of companies that sell sustainable products or sustainability-related services want to work in a space that reflects the values of the company. For example, [Seventh Generation \(SG\)](#) recently moved into a new building that, as President Jeffrey Hollender says, "physically expresses who we are as a company and embraces our global environmental imperatives." The building is located in downtown Burlington, Vermont, near public transportation and within walking distance to other business. It was designed with daylighting in mind so the space is filled with natural light throughout the year. Heat mirror windows allow solar gain in the winter and reflect the sun in the summer. Insulation, work stations, and carpet are formaldehyde-free and made with recycled materials. Also contributing to healthier indoor air quality are zero-VOC paints and finishes. There are on-site composting and recycling services, shower facilities, a yoga studio, and space to meditate. The new building is so green, in fact, that they are applying for a LEED rating.

The Real Cost of Green

Another study, [Green Building Costs and Financial Benefits](#), by Gregory Kats, found that although green buildings are perceived to be significantly more expensive than conventional buildings, the average increase in cost is actually less than 2%. The study found that the majority of this cost is due to the increased architectural and engineering design time, modeling costs and time necessary to integrate sustainable practices into the project. The study also states clearly that the earlier green building technologies are incorporated into the design process, the lower the added cost.

Green Buildings and Energy Efficiency

As part of Kats' study, he reviewed 60 LEED rated buildings and found that, on average, the buildings are 25-30% more energy efficient than a conventional building. These savings come first from reduced electricity purchases (using on-site renewable energy) and secondarily from reduced peak energy demand. This benefits not only the building owner/tenants but also the community at large as the building uses less fossil fuels, thus causing less air pollution.

Green Buildings and Productivity

Kats also reviewed studies of over 11,000 workers in 107 European building and analyzed worker productivity effects from four attributes associated with green building design: increased temperature, ventilation, and lighting control and increased daylighting. Improvements in productivity average 7.1% with lighting control, 1.8% with ventilation control, and 1.2% with temperature control. Although no numbers were given for daylighting, the report states that "significant improvements" have been found. A 1% increase in productivity (about 5 minutes per day) is equal to \$600-700 per employee per year.

It's increasingly clear that developers choose to ignore sustainable building technologies at their own risk. The green building market continues to grow, and as more green buildings are built, the link between a building's value and its green features will only become more evident. The astronomical rise in USGBC members (573 members in 2000 and over 5,000 members in 2005) illuminates the recent explosion in the sustainable building field.

Resources

[RICS Green Value Report](#)

[Green Building Costs and Financial Benefits](#)

[USGBC.org](#)

[GreenerBuildings.com](#)

[Costing Green](#)

[The Business Case for Sustainable Design in Federal Facilities](#)

[Why Build Green?](#)

[The Economic Case for High Performance Buildings](#)

Processed Glass Aggregate Available from City of Austin

Processed glass aggregate (PGA) is made from glass and bottles picked up through the City's recycling program. The glass is processed in the City's recycling facility and has smooth edges. The PGA is screened through 3/8" and 1/8" screens, so it's a mix of particle sizes. The end product is safer to use than sand; however, you should still use gloves and goggles when installing PGA. PGA can be used for pipe bedding, drainage layers, French drains, backfill, hiking and walking paths, unpaved driveways, decorative mulch, etc. Any NON-weight-bearing use is okay. Keep in mind that PGA should not be mixed with concrete. The City produces around 500 tons of PGA per month and is the only glass recycler in the Austin area. In order to keep the glass recycling program going, they need to find end users for the PGA product. Currently, it's free and can be picked up by the truckload (or less) at the City's recycling facility near Ben White and I-35. You must call for an appointment!! Large orders are encouraged and the facility will fill contractor dump trucks. For more information, contact Kathryn Murray, Waste Diversion Planner with the [City of Austin Solid Waste Services](#), at 512- 974-9043.



PGA used to cover a dirt parking lot in San Antonio, TX, that had a problem with dust. By covering the lot with an inch of pulverized glass, the fine glass settled down at the bottom and compacted with the dust, and the gravel sized material remained at the surface to produce a sparkling parking lot. For more pictures and info, see the [Andela Products website](#).

More About PGA

[Clean Washington Center](#)

This site is very informative. It lists several projects using glass cullet, cullet specifications, and also has links to glass organizations, suppliers, products and projects.

[Texas Department of Transportation](#)

A study done by Texas Tech University on the use of glass cullet in roadway construction

[Center for Resourceful Building Technology](#)

Explains the opportunities and obstacles for the many applications of glass cullet.

[Columbia University](#)

Explains problems that arise when using recycled glass in concrete.

[Member Bulletin Board](#)

2006 Cool House Tour

Don't miss the [2006 Cool House Tour](#)! The deadline to nominate a project has passed. If you didn't make it this year, be sure to try again in 2007. Selections haven't been made for this year's tour yet but you can bet there will many wonderful homes on the tour again this year. The tour is Sunday, May 21 from noon to 6 p.m. Guidebooks will be available after May 1st.

AIA Targets 50 Percent Fossil Fuel Reduction in Buildings

Environmental Building News, Jan 06, p 3, by Nadav Malin

The American Institute of Architects' board of directors has set a goal of halving the amount of fossil fuels needed to construct and operate buildings by 2010 and reducing that amount a further 10 percent in each of the following five years. The ambitious goal was set in one of two "[High Performance Building Position Statements](#)" approved by AIA in December 2005. The first position statement, "Sustainable Architectural Practice," charges architects with leading the building industry towards more sustainable practices. The second position statement, "Sustainable Rating Systems," expresses support for "rating systems and standards that promote the design and construction of communities and buildings that contribute to a sustainable future."

Congratulations to GBP Member Ray Tonjes

Ray Tonjes, past President for the Greater Austin Home Builders Association, was elected a Life Director of the National Association of Home Builders (NAHB) at the association's recent International Builders' Show/Annual Convention Meeting.

Looking for a Way to List Your Green Property?

GBP staff is regularly asked by prospective buyers "Where can I find a list of Green homes for sale or rent?" We refer buyers to [Sustainable Sources](#), a long-time GBP member, that provides a variety of online services. The Sustainable Sources website has a [Green Real Estate database](#) that allows builders/sellers to list their properties for a small fee. The database is searchable by construction method, size, and price among other variables.

Green By Design Sponsorships

We are now accepting sponsors for the February 4th [Green by Design Workshop](#) which will be held at the [JJ Pickle Research Campus](#) between 9 a.m. and 4 p.m. The aim of these full-day

seminars is to help the general public understand the importance of green building, so they will ask you--the building professional--for greener homes. Most attendees are **ready to remodel or build new homes** and many of them are looking for architects, designers, builders and trade contractors. These workshops have proved to be very popular and usually sell out. Audience size is dependent on the venue, but typically ranges from 80 to 120 highly motivated people. [Read More....](#)

Sponsorships are \$250, and for that you are:

- Introduced to approximately 100 people who are interested in buying, building, or remodeling a home.
- Provided a table to display promotional items during the workshop.
- Listed as a workshop sponsor on our website and listed on the outside back cover of each participant's workshop binder.

In addition, Green Building Program staff members encourage workshop participants to visit with you during breaks (one morning and one afternoon) and during lunch. And, last but not least, you are fed (breakfast, lunch and a snack in the afternoon)!

Sponsors are accepted on a first come, first serve basis and must be current members of the Green Building Program. Checks or credit cards are accepted. For more information, contact [Toye Goodson](#) (512- 482-5300).

Members who have sponsored Green by Design in the past include:

All Year Heating & Cooling	Meridian Energy Systems
Barley + Pfeiffer Architects	Premiere Building Systems
David Weekley Homes	Rick's Heating and Air Conditioning
Durrett Interests, LLC	Solluna Builders
Elizabeth Salais Architect, Inc	South River Construction
Enviromental Depot	Strand Brothers
Environment Sensitive Pest Control	Termimesh
GoodCommonSense.com	Sans Souci Gardens
Images Of...	Shelter Design and Construction

Let Us Help You Educate Your Clients

If you're a member of the Green Building Program, be sure to use our logo on your website and link to the GBP site. The Green Building site has tons of information designed to educate prospective home builders and buyers. Some thoughts about where to link: our [homepage](#), the [member directory](#), your company's listing in the member directory, the [Sustainable Building Sourcebook](#), the [member case studies page](#) (especially if you have a case study on our site), the

[Seven Steps to Green Building](#) (pdf download), or the [factsheet section](#). If you have any questions or need a web suitable copy of our logo, just [contact us](#).

High-Quality Digital Photographs Needed

We have an ongoing need for high-quality photos of rated projects (300 dpi in 8"x10" size) to use in advertisements, exhibits, and PowerPoint presentations and on our website. We would like exterior, interior, and detail shots. Photos should be well-composed, well-lit, with debris and clutter removed. Pictures of projects with established landscapes are particularly needed. Please e-mail them to your [Green Building Program staff representative](#).

Building Code Basics: On-Demand Water Heaters

A conventional storage type water heater, either gas or electric, has to keep a large tank of 30 to 75 gallons of water hot 24/7, just to provide the occasional need for hot water. The on-demand water heater is tankless; therefore, no supply of water has to be kept hot. The on-demand design uses sophisticated burners or electrical elements to heat water as it flows through the unit, thus providing an unlimited supply of hot water. Because they only use energy when there is a demand for hot water, tankless units can be more efficient. The heating elements are used less often so they tend to last longer and the equipment is not susceptible to calcium and other mineral build-up issues since water does not sit in the tank.

Location, Location, Location

Not only do tankless units also typically last longer than storage units, they are much more space efficient than the large tank units. The compact units can be located in spaces where a conventional tank type water heater may not fit. This can often free up valuable floor space, which can be a big deal, especially for remodeling or small homes. The ideal location for an on-demand water heater is in close proximity to the point of use of the hot water. In a large home, you might choose to install the tankless unit close to the bathroom or kitchen, and you might even install more than one unit. The same requirements for combustion air have to be met and units are available that are direct vent; i.e., one flue pipe brings in combustion air and also exhausts the products of combustion. The direct vent can be vertical through the roof or horizontal through a side wall. On-demand water heaters, just like the tank type water heaters, are required to have a drain pan under the unit if they are located in spaces where leakage can cause damage to the structure. Since freezing is not a problem in Austin's climate, an exterior or outdoor installation is also an option with a tankless unit. This can be a good choice since it alleviates the need for venting and a drain pan (and the related costs).



Is Tankless Right for Your Project?

With all the good things to say about on-demand water heaters, they are not perfect. In new construction, the on-demand units can easily be installed in place of storage type water heaters. For existing buildings, however, on-demand water heaters may not be an appropriate replacement for storage water heaters. As always, it is important to do your research.

The first thing you'll need to do is compute the amount of hot water that will be required to live comfortably with the on-demand water heater. The chart below lists typical flow rates for different fixtures. By using this chart you can get a good idea of the size of the unit that must be installed. To calculate peak demand, add together the flows of the appliances and fixtures (in gallons per minute) that are likely to be used at the same time.

Appliance	Flow (gpm)
Low-flow faucet	0.5-1.5 gpm
Dishwasher	1.5 gpm
Showerhead	2.5 gpm
Clothes washer	4.0 gpm
Whirlpool tub	4.0 gpm

Another issue to consider when replacing an existing natural gas storage type water heater with an on-demand water heater is that the on-demand water heater will require a larger volume of gas. As an example, a 40-gallon storage unit would produce approximately 40,000 Btu, where an equivalent on-demand unit would produce approximately 200,000 Btu. The size of the existing gas line to the water heater or the yard line to the house, or both, may have to be increased to provide the increased demand. This will add additional costs to the job.

A Word About Electric Units

Electric water heaters - both on-demand and storage units - are not allowed in the Austin Energy service area because the more efficient gas units produce fewer emissions and saves money for consumers. Electric units also increase the load placed on the grid and could possibly cause problems during peak demand times. There is an exception that states that an original electric water heater installed before March 1, 1985 may be replaced with an electric heater of the same amperage or less. The Energy code has an exception for new construction to allow electric resistance storage type water heaters if the dwelling is less than 500 square feet.

(Building Code Basics is written by Larry Brinkmeyer - the GBP Code Guru)

March's Green Links

<p>Cool House Tour 2006</p> <p>2006 Affordable Comfort Home Performance Conference</p> <p>Green Corn Project</p>	<p>Plug-In Hybrid Electric Vehicles</p> <p>Techsun: Solar Hot Water</p> <p>Barton Springs/Edwards Aquifer Conservation District</p>	<p>Sustain-a-Ball</p> <p>SmartScapes: Brochure</p> <p>2006 Fotofest: The Earth & Artists Responding to Violence</p>
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