

## Site work and landscaping play a key role in green certification

It is projected by many economists that Houston's population will increase by 2 million persons in the next 20 years. As this growth continues, concentration on well-designed, environmentally responsible projects must increase as well. Those projects must take into consideration the important contribution of landscaping and site design.

The phrase "building from the ground up" is often inferred as new construction beginning with the building foundation. Such a viewpoint misses an important aspect of the development process: The ground.

Site design and consideration of the environmental impact of new development on the natural landscape are aspects that cannot be ignored. In fact, thinking about how a site will be utilized and landscaped is essential to the goal of "going green." Projects must begin with thoughtful consideration of site planning issues by a team of professionals including landscape architects with expertise in environmental impact of development, storm water issues, energy saving methods and aesthetics.

### LEED CERTIFICATION

To address these and other important sustainable development issues, the U.S. Green Building Council developed the Leadership in Energy and Environmental Design, or LEED, Green Building Rating Program. It has been a remarkable success in just a few years, transforming the \$315 billion U.S. design and construction industry.

It is a voluntary development certification program that defines high performance green buildings and sites which are healthier, more environmentally responsible, more energy efficient and ultimately more profitable.

The rating system evaluates projects in five areas:

- Sustainable sites.
- Water efficiency.
- Energy and atmosphere.

• Materials and resources.

• Indoor environmental quality.

Points are earned in each area and determine the level of the project's rating — certified, silver, gold or platinum. LEED certified projects have lower operating costs, higher lease rates, increased asset value and have even been proven to contribute to happier and healthier occupants.

Many developers are embracing the LEED standards for new building projects by seeking credits that contribute to more profits and increased asset value. However, owners of existing buildings seeking LEED credits are often faced with expensive interior overhauls that can cost hundreds of thousands of dollars.

By focusing on the exterior environment, new or existing projects can gain valuable credits they may be overlooking for a fraction of the cost. Water efficiency, rain harvesting, organic applications and heat absorbing vegetation are aspects that can economically assist in accumulating valuable LEED credits.

### SITE ELEMENTS

Adequately addressing a project's environmental site considerations begins by using the knowledge and experience of a LEED AP landscape architect to design a site plan which minimizes the impact to existing site elements such as mature trees, natural habitats, waterways and wetlands.

On the other hand, urban sites may have no existing natural features and must be considered from a position of enhancement. In this case, the landscape architect would design a plan with appropriate plants and trees to minimize impervious site coverage and heat island effect.

Heat island effect is the general warming of urban environments generated by heat



**SITE PLANNING**

JO ANN JARREAU



PHOTO COURTESY OF JO ANN JARREAU

Walnut Bend Elementary includes a sustainable landscape design by Jo Ann Jarreau, which was achieved using native plants and without an irrigation system. The elementary school, now open, and Ruby Thompson Elementary, under construction, are built to LEED standards, and the Houston Independent School District plans to construct 24 new schools, proposed in the 2007 school bond, to LEED standards.

absorbing areas such as parking lots, streets and rooftops. These impacts can be reversed on sites by designing streets and parking lots with appropriate tree coverage and other vegetation that supports a healthy landscape.

Additional steps can be taken on the ground by creating restorative wetlands or grass areas that allow rainwater to seep into the soil.

One of the most intriguing ideas to reduce storm water runoff is to capture rainwater in storage tanks to use for irrigation. The benefits of such a system are: less potable water use (which saves money), use of non-treated water (which is better for landscapes), and less site area devoted to detention.

Other techniques that contribute to a reduction of water use are efficient irrigation systems which measure recent rainfall and adjust irrigation periods accordingly or use an underground drip system rather than above-ground spray heads to concentrate water where needed.

Healthy soils hold rainwater or irrigation longer, distributing the water to plants over a longer period of time and decreasing stress on the entire landscape. Soil health can be achieved using composting techniques and adding micronutrients such as compost tea rather than traditional chemical fertilizers. ■

**JO ANN JARREAU**, a LEED-accredited landscape architect, is president of JAJ Landscape Architectural Services ([www.jaj-las.com](http://www.jaj-las.com)).

## Green Landscaping Improves Project Outcome

by Jo Ann Jarreau RLA, LEED AP

*Posted: March 3, 2008*



In addition to being the “right thing to do,” energy-efficient landscaping can contribute significantly to an organization’s recognition as a leader in conservation and health, as the Houston Independent School District (HISD) has just learned. The exterior environment designed by JAJ Landscape Architectural Services for Walnut Bend Elementary — HISD’s first school to be built to the U.S.Green Building Council’s (USGBC) Leadership in Energy and Environmental Design (LEED) voluntary rating system for green buildings — put the project into the range of Silver LEED certification, a major accomplishment for a public school system. Walnut Bend Elementary opened for its first school year in August 2007. Ruby Thompson Elementary, HISD’s second green school, is still under construction.

In deciding to go with a sustainable landscape design, HISD has demonstrated great long-range thinking. As a result of the good will and cost savings generated by its first two green projects, HISD plans to construct twenty-four new schools to the demanding LEED standards — ensuring new schools in its system will be healthier for students, more comfortable for teachers, and more cost-effective and energy efficient.

By seeking out a landscape designer who understands LEED techniques, the Walnut Bend project was able to increase its LEED score in a way that others considering going for LEED certification might not have considered. For example, indigenous plants that are adapted to the climate and rainfall of the region need less water, eliminating the need for water- and power-intensive sprinkler systems. The water efficient landscaping uses no irrigation or potable water, reducing city water consumption by 100 percent for outdoor systems, not to mention earning two additional LEED points. Indigenous plants require no chemicals or pesticides to stay healthy and relatively pest-free, which in turn contributes to the cleanliness of local reservoirs and tributaries. Native grasses do not have to be mowed regularly, which reduces labor and maintenance costs while cutting emissions from motor tools. All of these factors add to the total project LEED score.

Although budget is always an issue, it is important for architects/builders/designers to do an early design payback analysis to understand the long-term savings that can accrue with a sustainably landscaped site. Effective LEED enhancement requires an integration of all designed systems and should always include the outdoor environment. Creating sustainable and energy-efficient

exteriors is our responsibility as builders and leaders.

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Jo Ann Jarreau RLA, LEED AP

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## MULTI-HOUSING NEWS



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### Going Green from the Ground Up

*Published: May 19, 2008*

By Jo Ann Jarreau, ASLA, LEED AP, Jarreau Inc.

Consumers have reached an environmental turning point. According to the latest research, the vast majority is "seriously concerned" about the environment and believes that a company's environmental practices are important in making key purchasing decisions. For builders and property owners who can prove a commitment to sustainability, this means a leg up on the competition with these savvy consumers.



If your projects are using the U.S. Green Building Council's (USGBC) voluntary Leadership in Energy and Environmental Design (LEED) standards as a green building yardstick, congratulations--you're in good shape to attract that concerned majority. But your projects can stand out further from even the greenest competitors by getting a jump on green building's next step--sustainable sites.

To start with, there are currently 18 LEED points that are centered on the landscape. Including a LEED-accredited landscape architect on your team can increase the sustainability of a project in some very visible ways that are easy to highlight for investors and consumers. For instance, a landscape preserved in its pre-build state will require far less maintenance than an engineered one and can take advantage of existing shade trees for insulation. The landscape will look mature and harmonious and will save a project the cost of clearing and replanting.

Heat island reduction is probably one of the best known green activities associated strictly with landscaping. Shade trees again have a powerful impact in this regard, cooling the ground and the air. But additional carbon dioxide removal can be achieved by increasing the number of trees and shrubs on a building site, or preserving those that are already there.

Selecting green roofs, porous or light-colored pavements and sites near transportation and walkable amenities are other LEED-point clusters that a landscape professional can bring to your project. But there are many more sustainability tips and tricks that are about to come down the pike, which all of us in the housing business should be ready to digest.

The fact is, in the USGBC's urgency to release its LEED standards, issues concerning sites and landscapes were, for the most part, left out. But a powerful interdisciplinary coalition that includes the American Society of Landscape Architects (ASLA), the Lady Bird Johnson Wildflower Center and the United States Botanic Garden has come together to correct this oversight and formulate guidelines for creating sustainable sites. This alliance has the USGBC's full endorsement, and the guidelines it generates will be incorporated into future iterations of LEED.

Called the Sustainable Sites Initiative ([www.sustainablesites.org](http://www.sustainablesites.org)), this interdisciplinary coalition is addressing land development and management practices for sites with buildings as well as for parks and other open spaces. Standards for sustainable sites are expected in spring 2009. A rating system, expected in spring 2011, will recognize performance in meeting these exterior standards.

The partnership's look at current research is yielding information about benefits not only to local environments and, potentially, global climate, but also to the people who live and work around greener landscapes--no surprise when you consider that LEED-qualified buildings have already been shown to reduce rates of respiratory disease, allergies and asthma among building residents, leading to lower absenteeism and higher productivity. Including land development standards in green building projects will increase these healthy-environment benefits.

Positive social interaction is another benefit we can expect to find when landscapes are designed with well being in mind. For example, in a 2003 *Journal of Arboriculture* study of urban Chicago, the presence of tree and grass cover was tied to lower crime rates.

Tremendous advantages to energy and resource conservation are linked to sustainable sites as well. In developing its recommended practices, the Sustainable Sites Initiative has rethought many of the traditional uses of water, soils, plants and materials in site design. The practices it recommends instead are intended to restore our ecosystem's ability to regulate itself, reducing environmental damage in the process.

Look at water. In the past, landscape design has treated rainwater as a waste product, using large drainage systems that dumped water rapidly into creeks and rivers, causing flooding and erosion and severely reducing the absorption of groundwater needed to keep soil healthy. This rapid runoff is often contaminated by the weed killers and fertilizers used to feed and maintain installed landscapes, which has downstream effects on wildlife and recreation. On the other side of the equation, high-quality municipal drinking water--in shorter supply all the time--is used to irrigate these human-altered gardens and lawns.

How would Sustainable Sites address these issues of water waste and pollution? Instead of draining contaminated water away, landscape designers are encouraged to provide vegetated swales and filter strips to both clean and slow down water runoff. This water can then be harvested and used in place of municipal drinking water in irrigation systems, fountains and custodial applications. And water infiltration (to increase groundwater recharge, irrigate vegetation and reduce soil erosion) can be a built-in feature of landscape plans, by incorporating rain gardens and vegetated catchment areas to capture excess water.

The recommendations briefly outlined here are taken from the Initiative's "Preliminary Report on Standards and Guidelines," released in November 2007. It is a strong start, and landscape architects will be watching its progress closely, as we have been encouraged to comment and contribute what we have learned in the field.

Developers, builders and property owners who commit to sustainable site design will earn more LEED points, yes. But they will also increase asset values, tenant retention, and their reputation as green companies. When the green bar is raised higher, it will start from the ground up.

*Jo Ann Jarreau is a LEED AP credentialed landscape architect in the Houston area.*

#### **Links referenced within this article**

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# THE SUSTAINABILITY

*Commercial installation in a semi-arid area near Bastrop, Texas. Native wildflowers and trees maintained a rustic appearance, appropriate for the recreational area, and will survive the most challenging of Texas summers with minimal water or fertilization.*

## A Picture of Sustainability

**In this third and final installment of our sustainability series, we take a look at what some landscapes that claim to be sustainable really look like.**

**T**he sustainability of a landscape is determined by many factors that can't be seen: watering systems, rainwater catchment, soil amendment, basic design in accord with the natural lay of the land, etc. Can a landscape look traditional and still be sustainable, or does it have to have a native, natural, or cottage garden appearance? Do we have to redefine our concept of beauty to adopt sustainability?

The Travis County Master Gardeners' Association, in cooperation with the

Travis County Texas AgriLife Extension Service, featured sustainable gardening in its annual Inside Austin Gardens Tour this April. With one exception, the gardens were designed and maintained solely by Master Gardeners. Most of the gardens selected represented life-long projects by the gardeners, and all incorporated features that are earth friendly, bio-diverse, and incorporate vegetable, fruit, or nut production in conjunction with beautiful flowers. There is very little expanse of turfgrass in any of the back yards, although they were not devoid of turf. However,

most of the designs featured paths and walkways among plants, often placed in raised beds, composting on site, judicious use of water systems, and many had rain barrel collection systems.

The Gani Family Garden is located in a normal Austin subdivision home. It included a set of 15,000-gallon water collection tanks, solar power panels, and drip irrigation. The garden included fruit trees, vegetables, and flowers, all organically grown.

In another, slightly more upscale setting, the Bakatsa family shared a garden that has been an 18-year project, and is still a work in progress. The garden includes olive trees from California and producing apple trees, espaliered in a French design.

The Bakatsa's mixed native plants with the exotic. Their garden also included solar panels on the roof, water collection in place, and compost bins.

Moving to truly upscale Austin, the tour visited the Stocker residence. This property is located near an exposed edge of the Balcones Escarpment and features natural native blue bonnets, along with on-site rocks and boulders that have been creatively integrated into terracing, walls, and beds. There are seven garden rooms, each with its own unique style, a vegetable garden with raised beds, and a greenhouse where annuals are begun each winter. This sustainable garden mixed native, organic gardening with select drip irrigation and extensive use of the natural rocks and hardscape within the garden design.

Landscape Architect Jo Ann Jarreau, ASLA, LEED AP, president of Jarreau Inc. in Houston, Texas, says she is very aware of how sustainability standards are affecting her design strategies. "In the past," she says, "rainwater was treated as a waste product, using large drainage systems that dumped water rapidly into creeks and rivers, causing flooding and erosion, and severely reducing the absorption of groundwater. This rapid runoff is often contaminated by the weed-killers and fertilizers used to feed and maintain installed landscapes, which has downstream effects on wildlife and recreation. And on the other side of the equation, high-quality municipal drinking water – in shorter supply all the time – was used to irrigate these human-altered gardens and lawns. Vegetated swales and filter strips both clean and slow down water runoff. This slowed water can be harvested and used in place of municipal drinking water in irrigation systems, fountains, and custodial applications. And water infiltration – to increase groundwater recharge, irrigate vegetation, and reduce

soil erosion – is a built-in feature of landscape plans by incorporating rain gardens and vegetated catchment areas to capture excess water."

Our informal survey seems to indicate that sustainability standards might be applied to a variety of garden styles. We started this project as a movement toward accomplishing several things: helping get some clarity to what we mean by sustainable landscapes, helping give nursery/landscape professionals tools they need to profit from the sustainability movement, and providing a place for nursery/landscape businesses to begin to take the lead in the sustainable landscape conversation. As we conclude this series, we move the conversation to the internet where

TNLA has established a site called **Sustainability Conflab**. It can be found at <http://tnlaonline.ning.com/>. On the Conflab\* page you can read what TNLA has published about this issue, follow links to other resources, create your own page on the site, find out about or publish events, take part in or start a discussion forum, set up a conversation group, post photos, post video, and most importantly, invite other people to take part in the conversation.

Here's how we see it: If Green Industry businesses want to lead rather than

*(continued on page 14)*

\* What is a conflab?

A conversation; a discussion; talking about stuff.

### Our informal survey seems to indicate that sustainability standards might be applied to a variety of garden styles.



*Rainwater collection systems are an integral part of sustainable designs.*



*A sustainable landscape makes appropriate use of turf, avoiding areas close to large expanses of sidewalk or driveway and allowing permeability when possible.*

*(continued from page 13)*

follow the public perception about sustainability, we have to engage the public in conversation with us. The cost-effective way to do that is to invite the most interested people, the ones with gardens or landscapes and who are users of the social networks on the internet, to join the conversation. Every TNLA member will be invited to sign up for the Sustainability Conflab. That's about 1,700 invitations. If every one of those members invites every one of their customers, and their friends, and their social circle, and each of them invites their friends, and customers, and social circle, the information and

conversation on the site will expand with virtually no financial investment on anyone's part. All it will take is a willingness to participate. On this site, you get to pick if you want to be notified when information is posted, there will be no automatic sending of hundreds of spam messages to your email. Please note: there are advertisements on the site. That's how the Ning can offer this service to us at no cost.

TNLA policy has long been that it is the responsibility of members to manage their own marketing and relationships with the end user, and that TNLA does not have the resources to engage

in consumer promotions. TNLA can, however, provide the resource, the tool, the central gathering place to help enable members to do what they do best, share good horticultural knowledge. That's what the Conflab is about.

You may be thinking, "I have my own web site, why would I want to bring my customers to a site where they might find my competitors?" Your editor just took a car to the Toyota dealership on the Motor Mile in Austin. Every car manufacturer is represented in this cluster of dealerships. In fact, dealers who tried to stay in secluded areas were forced by the manufacture to relocate to these cluster areas. What is true for cars might be true for informational sites on the internet as well. Online networking is worth a try, and the price is certainly right! Please take a few minutes to visit [www.tnlaonline.ning.com/](http://www.tnlaonline.ning.com/) and join the Conflab. ☺

**... If Green Industry businesses want to lead rather than follow the public perception about sustainability, we have to engage the public in conversation with us.**



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June 2008

## Going Green from the Ground Up

The green-building ethic—less waste, more efficiency—has gone mainstream. City after city is requiring its new construction projects, both public and private, to adhere to green-building standards. The architects, developers, and builders of America have had to get smart (quickly) about what elements count most toward a building's greenness. The metrics provided in the U.S. Green Building Council's voluntary LEED standards have largely defined the goals of the building industry's greenward turn. But, in the USGBC's urgency to release its standards to an eager building community, the benefits offered by greener sites and greener landscapes were neglected.

Those of us who work with landscapes understand that they can have a powerful impact on the environment. In recent years, those impacts—both positive and negative—have been under study by scientists and engineers around the world. The Washington, D.C.-based American Society of Landscape Architects (ASLA), together with the Austin, TX-based Lady Bird Johnson Wildflower Center and the U.S. Botanic Garden in Washington, D.C., is pulling together this research to formulate guidelines for creating sustainable sites. These guidelines will supplement the voluntary LEED standards and bring site issues under the green-building umbrella.

Called the [Sustainable Sites Initiative](#), this interdisciplinary coalition is addressing land development and management practices for sites with buildings *and* for parks and other open spaces. Standards for sustainable sites are expected in spring 2009. A rating system much like LEED will recognize performance in meeting these standards, and is expected in spring 2011.

The partnership's look at the research is yielding information about benefits not only to local environments and (potentially) the global climate, but also to the people who live and work around greener landscapes. Including land-development standards in green-building projects will increase these healthy-environment benefits. Positive social interaction is another benefit we can expect to find when landscapes are designed with well being in mind. For example, the presence of tree and grass cover was tied to lower crime rates in a 2003 study of urban Chicago by *Arboriculture & Urban Forestry* (formerly the *Journal of Arboriculture*).

Tremendous advantages in terms of energy and resource conservation are linked to sustainable sites as well. In developing its recommended practices, the Sustainable Sites Initiative has rethought many of the traditional uses of water, soils, plants, and materials in site design. The practices it recommends are intended to restore our ecosystem's ability to regulate itself and, in the process, reduce environmental damage. (All of these actions will lead to cost savings for building owners, too.)

Look at water: In the past, landscape design treated rainwater as a waste product, using large drainage systems that rapidly dumped water into creeks and rivers, causing flooding and erosion, and severely reducing the absorption of groundwater needed to keep soil healthy. This rapid runoff is often contaminated by the weed killers and fertilizers used to feed and maintain installed landscapes, which has downstream effects on wildlife and recreation. And, on the other side of the equation, high-quality municipal drinking water - in shorter supply all the time—is used to irrigate these human-altered gardens and lawns.

How would the Sustainable Sites Initiative address the issues of water waste and pollution? Instead of draining contaminated water away, landscape designers are encouraged to provide vegetated swales and filter strips to both clean and slow down water runoff. This slowed water can be harvested and used in place of municipal drinking water in irrigation systems, fountains, and custodial applications. And, water infiltration—to increase groundwater recharge, irrigate vegetation, and reduce soil erosion—can be a built-in feature of landscape plans by incorporating rain gardens and vegetated catchment areas to capture excess water.

The recommendations briefly outlined in this article are taken from the Sustainable Sites Initiative's *Preliminary Report on Standards and Guidelines*, released in November 2007. It's a strong start, and landscape architects will be watching its progress closely; we have been encouraged to comment and contribute what we have learned in the field. And, as the evidence in favor of more efficient sites mounts, we anticipate raising the green bar higher, starting from the ground up.



COURTESY OF JAJ LANDSCAPE  
ARCHITECTURAL SERVICES

*The just-completed LEED-certified landscape design and installation for Walnut Bend Elementary, Houston Independent School District's first LEED-certified school, features environmentally friendly materials, including native plants.*

**"In developing its recommended practices, the Sustainable Sites Initiative has rethought many of the traditional uses of water, soils, plants, and materials in site design."**



- Jo Ann Jarreau,  
JAJ Landscape Architectural  
Services



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## Going Green From The Ground Up

### New green building guidelines to address sustainable landscaping

By Jo Ann Jarreau, ASLA, LEED AP President, Jarreau Inc., Houston, Texas -- Texas Contractor, 6/16/2008

The green build wave is rising, and right now general contractors have the opportunity to ride its crest. It is fast becoming expected that professionals in the building trades are ready, willing and able to work green — and that means understanding the U.S. Green Building Council's LEED standards (Leadership in Energy and Environmental Design).

#### Contractor's LEEDing Role

In the chain of events that leads up to LEED certification, general contractors have a special "watchdog" role. It is the general contractor's responsibility to keep accurate records on all materials used that are required to meet LEED standards. Consequently, it is imperative that not only the general contractor but also sub-contractors understand LEED certification, its requirements and its growing importance in winning bids.

One area in which general and sub-contractors can get the jump on understanding LEED is landscape architecture. In fact, eight to 10 current LEED credits are available to projects that incorporate such sustainable practices. But the real news is that the number of available green site credits is about to take off.

#### New Guidelines Coming

Current LEED standards certify green buildings and sustainable structures. However, no official guidelines from the U.S. Green Building Council focus exclusively on site exteriors. The American Society of Landscape Architects (ASLA) is spearheading an effort to set this oversight straight. Called the "Sustainable Sites Initiative" (SSI), this new rating system will recognize performance in achieving sustainable sites much as LEED recognizes sustainable buildings. And the U.S. Green Building Council is on board: SSI guidelines will be incorporated into the next iteration of LEED standards.

Once the SSI guidelines are published in spring 2009, general contractors, landscape architects, developers, builders, and maintenance crews who are prepared to take advantage of them stand to see interest in obtaining their services rising.

#### Key Elements

What are the key elements to include in future bids, to ensure your proposal will be at the forefront of the growing green trend? Several components of your landscape plan, such as water use, habitat protection and reduced light pollution, can demonstrate to clients and other contractors an understanding of sustainable building practices. And (we should be quick to point out) these practices can earn a project LEED credits today — and often with less investment per credit than other qualifying activities.

Look at water use. The demand for high-quality municipal drinking water has risen greatly — up 209 percent since 1950, according to the Environmental Protection Agency. Most sites are designed to use this "potable" water only once, and rainwater is allowed to just flow off site. Sustainable sites treat water runoff as a resource, building in grass swells or rain barrels to harvest water and recycle it for use in irrigation, water features and custodial applications.

Green roofs are another way to reduce a site's dependence on the municipal grid. A green roof is insulating, bringing down heating and cooling costs. And the plants on a green roof protect it from harmful UV rays, prolonging the life of the roof and decreasing future maintenance costs.

Information about other steps you can take today to "green" your sites and plans is available from the Sustainable Sites Initiative and the U.S. Green Building Council. A LEED accredited landscape architect can provide you with expert advice and perform a design payback analysis to spotlight future savings for your clients for going green right now.

In the past, natural elements in design were viewed purely aesthetically. Selecting native plants and placing them to properly reduce heat islands and wind effects does not take away from the appearance of a site at all. Providing outdoor space for physical activity contributes to healthier residents and opportunities for social interaction, leading to lower absenteeism and higher productivity. A comfortable outdoor walking space with simple tree and grass cover was even correlated with lower crime rates in a 2003 study of urban Chicago from the Journal of Arboriculture. Great job, grass and trees!

Adopting green practices does require commitment, a pledge to look critically at the way a facility is built and run, and a willingness to change plans if needed. That may not be easy, but it is an effort that will pay for itself in improved health, greater productivity, less maintenance, reduced energy costs, and increased asset value.

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Fifties modern meets ranch-style in this redone front yard. The geometric look used negative space and the colors of the exterior brick to draw the eye down. The colorful paving extends the feel of the home out toward the street, reducing the sense of suburban isolation. The paving also reduces the size of lawn to be managed.

# How 'Green' is Your Lawn?

## A VARIED LANDSCAPE SAVES WATER AND ENERGY

**Many homeowners are looking at what they can do to go green inside the home, and yet are unaware of the environmentally responsible practices they can implement outdoors.**

If you took a survey of Houston yards, you would probably conclude that a healthy lawn can mean only one thing — a lush expanse of Bermuda or St. Augustine grass, mowed, weeded and trimmed to perfection. But these resource-greedy turfs contribute to a number of problems for the environment.

St. Augustine grass is an exotic grass imported from Africa and, therefore, requires labor and energy to stay looking good here in our neck of the woods. We feed it a diet of chemicals, which turn around and pollute our water runoff. It requires a tremendous amount of additional water, depleting already-stressed municipal sources. And all that mowing and blowing uses gas that adds to Houston's air pollution problem.

But it doesn't have to be that way. Here are a few ways in which you can make a difference now and move toward having a nonpolluting, sustainable lawn.

### ORGANIC PEST CONTROL

In Houston, homeowners are plagued by all sorts of insects and rodents that want to get inside and out of the elements, including ants, rats, termites, mosquitoes and roaches. The toxic chemicals available to control these infestations are not just pest-killers; they also are harmful to humans and the environment.

But many nontoxic alternatives are available. For starters, borate, or boric acid, is a widely used natural compound that controls insects. Boric acid powder can be poured into crevasses to eliminate ants, roaches, crickets and silverfish. Heat-treated borate penetrates and crystallizes inside wood in fences, decks and framing and protects those structures from wood-destroying organisms like termites. And borate granules can be used all year long in carpets to keep fleas under control.

Another simple, natural pest-control measure is to keep mature plants at least 24 inches from the home. This buffer zone keeps insect habitats where they belong — outside. You also can install plants that repel pests, such as spearmint for ants and aphids, garlic for beetles and mint for mice. And increasing the diversity of plants in your yard can cut down on the likelihood of infestations: A yard dominated by one type of plant is more likely to become a haven for a single insect species.

### WATER CONSERVATION

Wise use of water for your lawn and garden, as well as inside the home, is of major importance for sustainability. Landscaping with plants that are tolerant of dry conditions means less watering, which can result in significant savings of resources and cash.

And if you are up for a larger project, consider putting in a system to recycle rainwater. Commercially available "rain harvesting" cisterns collect rainwater for use in irrigation or outdoor maintenance, such as sidewalk cleaning or car washing.

If you must water your yard, trickle or drip irrigation systems are the most energy- and water-efficient.

### REDUCING ENERGY USAGE

Significant savings on energy bills can be realized by the proper application of shade. The paved areas around your home collect daytime heat and radiate it back into the atmosphere. This is the "heat island effect." Installing vine-covered screens and large canopy trees to shade exterior walls, driveways, patios and other hardscapes can minimize heat islands and reduce the ambient air temperature around your home.

According to CELCO Energy Services, simply shading an air-conditioning unit can increase its efficiency by 10 percent. You can plant trees and shrubs to shade windows. (About three-fourths of total solar heat gain in a building comes through the windows.)

Changing our minds about what a "green" lawn can be will take some effort. But that effort can absolutely pay for itself in better health, lower maintenance costs, reduced energy use and increased asset value, not to mention the peace of mind that comes from doing the right thing for the environment, starting from the ground up.



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## SOUTH FEATURES

# Greenbuild Guidelines

by Jo Ann Jarreau

**The sustainable sites initiative**



Photos courtesy of JAJ Landscape Architectural Services.

This is a custom-designed rain harvesting system that incorporates a drip irrigation system for plants to get recycled, chemical free water.

The greenbuild ethic—less waste, more efficiency—has gone mainstream. City after city is requiring its new construction projects, both public and private, to adhere to green building standards. The architects, developers and builders of America have had to get smart, and quickly, about what elements count most towards a building's greenness. The metrics provided in the U.S. Green Building Council's voluntary LEED standards (Leadership in Energy and Environmental Design) have largely defined the goals of the building industry's green-ward turn, but in the council's urgency to release its standards to an eager building community, the benefits offered by greener sites and greener landscapes were neglected.

Those of us who work with landscapes understand that they can have a powerful effect on the larger environment. In recent years, those effects, both positive and negative, have been studied by scientists and engineers around the world. The American Society of Landscape Architects (ASLA), together with the Lady Bird Johnson Wildflower Center and the United States Botanic Garden, is pulling together this research to formulate guidelines for creating sustainable sites. These guidelines will supplement the voluntary LEED standards and bring site issues under the greenbuild umbrella.

Called the Sustainable Sites Initiative ([www.sustainablesites.org](http://www.sustainablesites.org)), this interdisciplinary coalition is addressing land development and management practices both for sites with buildings, and for parks and other open spaces. Standards for sustainable sites are expected in spring 2009. A rating system much like LEED will recognize performance in meeting these standards, and is expected in spring 2011.

The partnership's look at the research is yielding information about benefits not only to local environments and (potentially) global climate, but also to the people who live and work around greener landscapes—no surprise, when you consider that LEED-qualified buildings have already been shown to reduce rates of respiratory disease, allergies and asthma among building residents, leading to lower absenteeism and higher productivity. Including land development standards in greenbuild projects will increase these healthy-environment benefits. Positive social interaction is another benefit we can expect to find when landscapes are designed with well-being in mind. For example, the presence of tree and grass cover was tied to lower crime rates in a 2003 study of urban Chicago from the Journal of Arboriculture.

Tremendous advantages to energy and resource conservation are linked to sustainable sites as well. In developing its recommended practices, the Sustainable Sites Initiative has rethought many of the traditional uses of water, soils, plants and materials in site design. The practices it recommends instead are intended to restore our ecosystem's ability to regulate itself, and in the process, reduce environmental damage.

In the past, landscape design has treated rainwater as a waste product, using large drainage systems that dumped water rapidly into creeks and rivers, causing flooding and erosion and severely reducing the absorption of groundwater needed to keep soil healthy. This rapid runoff is often contaminated by the weed killers and fertilizers used to feed and maintain installed landscapes, which has downstream effects on wildlife and recreation. On the other side of the equation, high-quality municipal drinking water—in shorter supply all the time—is used to irrigate gardens and lawns.



JAJ Landscape Architectural Services of Houston has just completed LEED Certified Landscape Design and Installation for Walnut Bend Elementary, Houston Independent School District's first LEED accredited elementary school. Environmentally friendly materials were used including native plants and recycled materials.

How would Sustainable Sites address these issues of water waste and pollution? Instead of draining contaminated water away, landscape designers are encouraged to provide vegetated swales and filter strips to both clean and slow down water runoff. This slowed water can be harvested and used in place of municipal drinking water in irrigation systems, fountains and custodial applications. Water infiltration can be a built-in feature of landscape plans, by incorporating rain gardens and vegetated catchment areas to capture excess water.

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