Exciting Green Roof Study Begins at Wildflower Center

From The Hanging Gardens of Babylon to the sod roofs of the Vikings and semi-subterranean ningloos of the Inuit, different types of green roofs have been used widely and successfully for hundreds, if not thousands, of years. Like rainwater harvesting and building with earth, the vegetated roof is an old technology that is becoming popular again in our thoroughly modern world.

Currently, Europe is leading the way in green roof installation and research. Most notably, Germany has installed over 350 million square feet of green roofs since 1989. Green roofs are something of a phenomenon in Germany: the New York Daily News recently reported that 14 percent of roofs installed there in 2004 were green. In the U.S, large cities such as Chicago, Portland, Seattle, and Boston have created green roof guidelines. In 2003, the City of Chicago commissioned a green roof study comparing temperature and runoff characteristics of green and conventional roofs. Now Austin is stepping up to the plate. The Green Building Program hosted a special seminar on green roofs in August 2004. The seminar was very successful and one of the more interesting things announced there was the green roofs study being planned by Brian Gardiner, the President of AusTech Roof Consultants, Inc. and Steve Windhage, PhD, Director of Landscape Restoration Program at the Lady Bird Johnson Wildflower Center.

Brian is spearheading the study and is involved in everything from coordinating the donations, supplies, and workers to helping the roofers put the roofs together. Steve serves as Project Director and has been a hands-on participant of every facet of the study, in addition to being the Wildflower Center's main spokesperson for the study. Also on the Wildflower Center team is Jeannine Tinsley, a Researcher in the Landscape Restoration Program and Mark Simmons, PhD, a Restoration Ecologist in the Landscape Restoration Program. Jeannine has been working on getting the site up to specs for setting up the test roofs and will be responsible for keeping it free of weeds and other pests that may interfere with the testing. Mark has been equally busy working on the technical challenges of recording all the variables inherent in the study. For example, getting the right size thermocouples to measure test roof temperatures, figuring out the proper place to put datalogger equipment, and getting the weather station up and running correctly.

The Test Roofs

Using a $20,000 grant from Roof Consultants Institute Foundation, the Lady Bird Johnson Wildflower Center is installing 24 test rooftops that will be studied over the next three to five years. The test roofs will be five feet by six feet and three feet off the ground. All the roofs will have ¼ inch per foot slope with 22 gauge galvanized metal decking. Six green roof manufacturers will provide their own versions of roof membrane, filter layer, water storage device, root barrier,

and 4-inch thickness of growing media, which is not soil, but usually a lightweight proprietary combination of manufactured and organic materials. Each roof will be constructed in triplicate, and arranged randomly on the Wildflower Center site. Siplast has provided material for the first set of three green roofs, currently under construction. The study also includes two types of non-vegetative roofs. Performance Roof Systems provided the material for the "control" roofs. One of the control roofs is non-reflective (i.e., dark asphalt shingle) while the other is reflective (i.e., "cool" roof membranes). Metal roofs are not being used in the control group.

Goals of the Study

A major goal of the study is to determine which native plants work best for green roof projects in Texas. While other green roof projects have used non-native plants, this is the first study to test native plants for green roofs in a sub-tropical environment like Austin. The Wildflower Center is providing the plants for all the green roofs and the same mixture of plants will be used on each roof. Jeanine Tinsley chose many of the test plants that the study will monitor to see which do the best in our environment. Jeanine explained that, *"As the study progresses, we hope to be able to recommend a wide variety of plants to landscape architects who will be planting green roofs in the near future."* The 21 test plants will include: damianita, Indian blanket, black-foot daisy, sideoats grama, Texas sedge, and red flowered yucca. For a complete list of the plants to be tested, click here.

Defining the Terms

There are two broad categories of green roofs. The first, called an Intensive Green Roof, is also known as a rooftop garden. In a rooftop garden, a deep growing medium can be planted with trees and shrubs. These roofs are often designed as park-like spaces for high-rise apartment dwellers or office workers.

The second type of green roof, called an Extensive Green Roof, is not usually designed for human enjoyment and use, although they are useful to humans in many other ways. These roofs, also called vegetated roofs, are often planted specifically to mitigate the effects of development on the environment. A vegetated roof is typically constructed using a shallow growing medium that is planted with no or very low maintenance vegetation.

Benefits of Green Roofs

Saves energy - The cooling and shading properties of a green roof can keep the building cooler which can significantly reduce air conditioning requirements.

Reduces storm water runoff and pollutants - Green roofs retain water much longer than a conventional roof - which is designed to shed water as fast as possible. The layers within the green roof act as a filter and can improve the quality of the rainwater that does eventually runoff.

Green roofs also help air quality by filtering pollutants from the air while adding oxygen to our urban environments.
Reduces urban heat island effect - Many studies have shown that green roofs can be up to 80 degrees cooler than adjacent buildings with traditional roofs.
Lengthens roof lifespan - Plants and other layers within the green roof assembly help protect the roof membrane from extreme temperature fluctuations and other weather-related problems, such as hail.

More Information on Green Roofs

Green Roofs for Healthy Cities
GreenRoofs.com
Low Impact Development Center (LID)
Environmental Design + Construction Article

Simone Swan Gives Lecture in Austin

April was a great month for green building events in Austin. One of the best was the seminar by Simone Swan at Women and their Work.
Simone's talk, entitled "Adobe Architecture: From the Nile to the Rio Grande" took place at the Women and Their Work Studio on Lavaca Street. An obviously larger-than-expected crowd filled the small studio with latecomers finding standing room only. Simone began her talk with no microphone, and her soft voice made it difficult to hear. The presentation was halted and several technical challenges were worked out so that Simone could use the microphone.
Simone remained gracious throughout the delays and carried on her lecture which indeed did cover adobe architecture from Egypt to the Rio Grande. She provided quite a bit of background and biographical information about her mentor and friend, Hassan Fathy. Fathy is well-known for his book, "Architecture for the Poor." Interestingly, Simone told us that the book was originally titled "A Tale of Two Villages"; however, when the book was released in France, the title was changed to "To Build With the People." The American publisher, University of Chicago, changed the name once again to "Architecture for the Poor." When Simone protested the title to Fathy, he told her you couldn't use the term "people" in the U.S. as you would immediately be suspected as a communist!

GBP Fiscal Year-to-Date Rating Report

Part of the way that the Green Building Program measures its success is by tracking the number of residential ratings performed by our members every month. Our goal for 2004-2005 is to collect 650 ratings. Currently, we've collected 345 ratings and are at 53% of our goal for this year.

The GBP requires members to rate projects in order to stay listed as an active member. Being an active member -- attending seminars and rating projects -- assures that your company will be featured in our list ads and on our website

GBP Fiscal Year to Date Rating Report, cont.

The following companies have completed ratings between October 2004 and March 2005:

Member	Number of Ratings	Star Rating
9 Design Inc.	1	5 Stars
Almost Perfect Construction	1	3 Stars
Barley + Pfeiffer Architects	1	3 Stars
Bill Taute Homes	3	3 Stars
CHC Construction	1	5 Stars
D.R. Horton (Milburn Homes)	76	1 Star
David Weekley Homes	20	2 Stars
FAB Architecture	1	4 Stars
Hammonds Homes	156	1 Star
Huffman Homes	1	3 Stars
I & I Revivify	1	4 Stars
Images Of… and Shelter Design & Construction	1*	5 Stars
J&R Custom Homes - Valiant Homes	1	2 Stars
Lantana Homes	2	2 Stars
Matt Bachardy Building Design	2*	3 Stars
Melton Engineering and Homebuilders	3	4 Stars
Peter Davis Architect	1	3 Stars
Peter Hoffman, AIA	1	3 Stars
Powell Development Inc.	1	2 Stars
Rick Black Architect	1	5 Stars
sun&stone and CG&S Design Build	1	4 Stars
Williams Austin Builders	1	3 Stars

Non Members and/or SMART Housing Projects

Member	Number of	Star Rating

	Ratings	
Austin Habitat for Humanity	12	3 Stars
Austin Housing Finance Corporation	8	3 Stars
Austin Revitalization Authority	1	3 Stars
Casa Verde Builders	2	3 Stars
Main Street Homes	1*	1 Star
NuHome Development Company	38	2 Stars
Tramco Properties	10	5 1 Star / 5 2 Stars

- these homes are outside of the Austin Energy Service area and do not count towards our FY goal.

Member Bulletin Board

Zero Energy Homes Project Searches for New Site

The Green Building Program's project to develop a Zero Energy Homes subdivision in collaboration with the City's Neighborhood Housing and Community Development Office in the Montopolis neighborhood is currently on hold. One of the big problems with the site is that it has a 30-foot wide ditch that runs nearly the entire length of the site. To bridge the 8- to 10-foot deep ditch three times (as called for in the site development plan) added hundreds of thousands of dollars to development costs. The added costs combined with the fact that matching the homes' layouts with the existing water line locations would make the solar orientation needed for the PV panels impossible, all drove the costs far beyond the City's affordability goals. One of the City's main priorities in this project is to make the zero energy homes affordable to the people already living in the Montopolis area. This means making the homes affordable to buyers who earn less than 60% of the area median family income. The project is being re-evaluated to determine if the costs can be lowered without compromising the level of energy efficiency needed for zero energy. According to a recent Austin Chronicle article, Julie Beggs, Austin Housing Finance Corporation's spokesperson, said zero energy homes haven't been entirely ruled out in Montopolis, but that the development's affordability is the overriding consideration. The collaboration between Austin Energy and Neighborhood Housing remains in place and the project may be relocated to another area with fewer development cost issues. Austin Energy does intend to move forward with zero energy homes in the low to moderate income price range.

Cool House Tour 2005

The Texas Solar Energy Society (TXSES) and the Austin Energy Green Building Program are producing the ninth Cool House Tour. The 2005 Cool House Tour will be held on **Sunday, May 15, from noon - 6:00 p.m.** The Tour was wildly successful in 2004; in fact, it sold out, so get your booklet early from Central Market! The Austin Cool House Tour showcases green building materials and concepts, solar technologies and energy conserving designs. The public is invited to visit nine homes selected for inclusion on the Tour from 22 nominated sites. The homes range from affordable craftsman cottages to high-end, custom dwellings, and they all feature sustainable design and materials that result in energy savings. Three of the projects received Austin Energy solar rebates and will be demonstrating PV technology. All nine houses on the Tour have been rated by the Green Building Program. GBP Members with houses on the tour include:

Alarife, Inc (Logan Wagner)
Almost Perfect Construction (Joe Zakes)
Barley + Pfeiffer Architects
Catherine Lee Doar of Habitat for Humanity
CG&S Design-Build
Oliver Custom Homes
Peter Hoffman, Architect
Rick Black Architect
sun&stone
Vehko Architecture
Z Works Design/Build Inc

GBP Staff Katie Jensen Promoted

Katie Jensen, who first came to work for the GBP in 2001 as an intern, and was later hired as a Conservation Program Associate, was recently promoted to Conservation Program Specialist. Katie's done a great job here and we all appreciate her hard work and enthusiastic spirit. Richard Morgan, Program Manager, says, *"This is a well deserved step up for Katie who began her work with the program in the commercial green building group and has recently taken responsibility for coordinating our efforts in the multi-family sector and acting as our representative on the citywide task force developing Austin's new commercial design standards."* Katie is also a member of the Board of Directors of the Balcones Chapter of the U.S. Green Building Council and is a past member of the board of the Texas Solar Energy Society. Congratulations from all of us, Katie!

LZT Architects Wins AIA/COTE 2005 Green Project Award

Congratulations to design/project architect Murray Legge and Herman Thun, Principal, who were

awarded the AIA/COTE 2005 Green Project Award for the Austin Resource Center for the Homeless. The AIA Committee on the Environment (COTE), with the support of the U.S. Environmental Protection Agency's ENERGY STAR® program, selected 8 examples of outstanding sustainable design. The selected projects are best practice examples of a high-performance, sustainable design approach. View detailed information about the building here.

Houses That Work™ Conference

Several GBP Staff and Members headed to San Antonio for the March 3rd seminar, Houses That Work™. The seminar, held monthly all over the country, has been developed by the Energy & Environmental Building Association (EEBA), based on research from the U.S. Department of Energy's Building America Program. Regional case studies are featured, as well as ways to improve the performance, efficiency and durability of the homes you build. The conference provides strategies and concepts that reduce costly callbacks, warranty and liability issues.

The photo above shows GBP staff Mary McLeod with Bill Kelley and Taylor King of Custom Building, Inc. Bill Kelley had this to say about the training, *"Taylor and I found the training informative and well presented. It also provided an opportunity to talk to other professionals in the business about means, methods, and products in construction and ways to do it better. We highly recommend it."*

Other GBP Members who attended include: Ross Tedter of Ross Tedter Architect; Ray Tonjes of Ray Tonjes, Builder; Larry Warren from GreenLight Builder Solutions; Jim Rush of Jim Rush Green Builder; and Eric Perkins with Hammonds Homes. The next Texas Houses That Work™ training will be held in Houston on November 16, 2005.

ENERGY STAR Program Awareness at 74 Percent in Some Areas

Results are now available from the 2004 CEE ENERGY STAR® Household Awareness Survey. According to the survey report, nationwide recognition and understanding of the ENERGY STAR in U.S. households has risen to 64 percent, an increase of 8 percentage points since 2003, and of 23 percentage points since the survey was first fielded in 2000. In many major markets (such as Austin) where local utilities and other organizations use ENERGY STAR to promote energy efficiency to their customers, awareness of the Program averages an amazing 74 percent. The survey also concludes that more than two-thirds of U.S. consumers demonstrate at least a basic understanding of the ENERGY STAR label and 30 percent of American households intentionally purchased an ENERGY STAR-qualifying product in the past year. For more details, see the Report (pdf file).