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Natural Building and Building Community

by Jeanine Sih Christensen

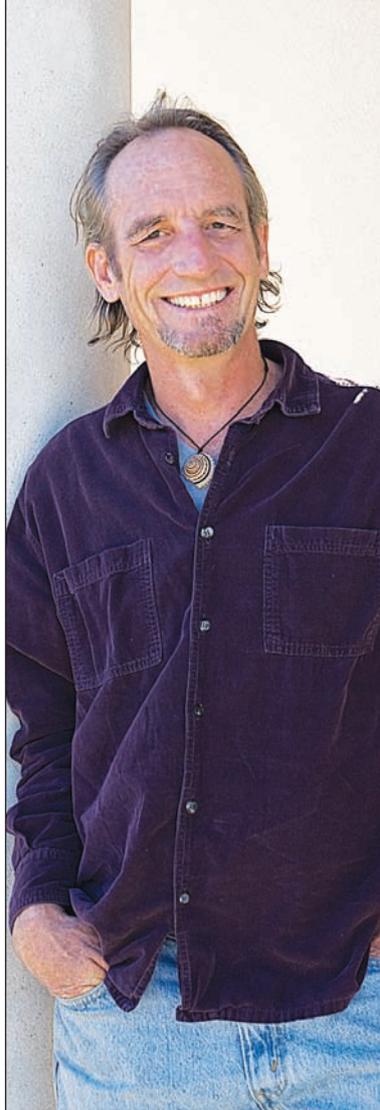
Quiet Valley Ranch got a new chapel on Chapel Hill. Logs were fitted together inside the forks of the supporting posts.

The local live oak timber used in the project was specifically harvested because those trees had died a natural death. The cedar decking was site milled, and the juniper on the roof was culled from the ranch. The hill-like living roof on this Hill Country chapel is made of compost from Quiet Valley Ranch, native plants, and a sheet of pond liner to keep moisture away from the cedar roof decking. In addition to the spiritual implications of having living roof on a chapel, the earth provides a good insulative barrier between the sun and the chapel's interior space. Center photo, above, by Leslie Moyer. All others on this page by Barton Wilder Custom Images.

I started writing about green building in 1994, started work at greenbuilder.com in 1996, later marrying its owner and geek-in-chief, Bill Christensen. For over a decade I have been involved in the green and natural building communities, where I have made some friends, including many people mentioned in this article. Bill and I also performed publicity work, web work, taxi service, and loaned blankets and sheets for the Texas Natural Building Colloquium in exchange for admission but with no financial compensation. My husband and I have performed paid work for both Gayle Borst of Design~Build~Live and Pliny Fisk III of the Center for Maximum Potential Building Systems.

On a cold October morning, the second day of Texas' first Natural Building Colloquium, engineer and septic problem-solver extraordinaire Tom Watson of Embudo, New Mexico, sat sipping hot chai under the metal roof of the ranch canteen, which would end up feeding local, organic, vegetarian fare three times most days to more than a hundred people. I just had asked him about his ideas about dealing with a post-petroleum, weird-climate, social upheaval kind of world, because in the years I've know him, he's been right about many things. "Well," he said, gesturing over his steaming cup, "you couldn't ask for a better group of people to be with when things get bad."

I had only to look at the rows of people at the long wooden picnic tables, likewise hunched over steaming drinks and hot organic breakfasts, to feel his words ring true. The credentials and successes of the natural builders and leaders all around us that morning were impressive and reassuring. Learners were also abundant. Colloquium participants came from Taiwan, Canada, Mexico, California, Missouri, Oklahoma, Tennessee, Colorado, even New Orleans, Louisiana, and Brooklyn, New York, points between, and all over Texas. I felt I was



Frank Meyer of Thangmaker Construction

a magic tie-in with the permaculture practices," Wright said. "It all ties in with what we've got going: reusing materials, relying on local materials, cost saving. Colloquium projects were labor intensive but this saves on construction costs dramatically... a perfect match with our volunteer labor force. It just takes longer."

Frank Meyer of Austin-based Thangmaker Construction company is a natural builder with long experience and a fair bit of media exposure. He's been quoted in a *New York Times* article on earthen floors. His part-straw bale, part-bamboo, all-heart home made the cover of *Natural Home* magazine. He's also a professional musician with three CDs out and stage time with some big names. During the 2004 Kerrville Folk Festival, Meyer and a volunteer crew built a limestone and cob oven for baking pizzas. (Cob is made of high-clay-content soil, with straw, sand and water, often mixed together by foot, then applied and shaped by hand like potter's clay.) "People were eating them as fast as we could pull them out of the oven," he said.

Meyer got the idea of holding a natural building colloquium at the ranch after noting the cob oven's warm reception. He had been to eight previous natural building colloquia held all over the United States, and

dra Welch of Austin-based Clay Sand Straw and enthusiastic support crews.

Welch took time out from a cob construction project in Lockhart to talk about her history and a turning point. "I was trained as a conventional architect. I did what I was supposed to do: sit in an office with a computer. I was a CAD (computer-aided design) monkey for one and a half years." She shook her head and smiled. "I was at Princeton auditing a class with (sociologist) Robert Gutman, the 'Theories of Housing and Urbanism' guy. He showed us a slide from the nineteen-fifties: 'Best new product to improve your home: asbestos!' I thought to myself, 'What we are doing today that we'll regret in twenty, fifty, a hundred years?' We're dealing with the sins of the past generation of builders. And we're trying not to create a crisis for future generations. I started doing direct service design for... migrant workers and people in west Philadelphia. What I learned was that the products of a building can be incidental. It's the process that makes something beautiful. Whenever I see a carpentry project in progress, I have watched the people who know how to operate power tools literally push everyone else aside. When you have a natural building, where mud gets involved, everyone gets to come in and

A Straw, Wood, Stone and Mud Party at a Texas Ranch

on the set of an alternative lifestyle movie called *Mission: Possible, Fun and Deeply Green*. Lacking black leotards, fantastical electronics and rapelling equipment, our crowd carried its own drinking mugs, and wore jeans, Guatemalan fabrics, waterproof sandals, wool and polar fleece. And much less long hair than you might otherwise imagine.

Natural Building Colloquium: Texas 2007 took place over ten wild windy days at the end of October at Quiet Valley Ranch, near Kerrville. The ranch, home of the well-known Kerrville Folk Festival and more, was already a work-in-progress. Volunteer

Ranch Manager Rick Wright said, "Everything out here in the last thirty-four years was built with volunteer labor and donated materials. In the last ten years we've replaced every original building... Everything before had been portable buildings."

In 2003 Wright began implementing permaculture practices and holding "Kerr-maculture" workshops at the ranch: composting, building soil, reworking land contours to deter erosion, overhauling the ranch's waste system to favor reusables, collecting rainwater, recording ranch weather statistics, getting the ranch certified organic. "This colloquium was

knew their power to inspire and motivate. "I felt obligated," he said, when asked why he took on the job of organizing the Texas colloquium. "No one else seemed to want to do it. We have wonderful resources here: caliche clay, juniper, limestone, and a huge chunk of population... (from) San Antonio, Dallas, Houston." And Austin of course, one of the green building-est towns there is. "Living sustainably is doable," Meyer said. "It's extremely important, and fun, and necessary if we are to survive. Natural building is a piece of that puzzle."

Meyer spent nearly a year of preparation with co-organizer Kin-

work. Natural building is an inclusive process. It's equalizing."

Welch echoed Rick Wright on costs for materials and labor common to natural building projects but emphasized the bigger picture. "When you pay for materials from out of state or the region, that's money that vanishes. It can no longer be of local benefit. Natural building has smaller costs for materials and bigger labor costs. This means you're feeding your local economy."

But why help lead a natural build-a-palooza of hands-on construction projects, speakers with book sales and PowerPoint presentations, night-

time drum circles and jam sessions, float trip, sauna, camping out together on a ranch with novices, friends, and colleagues?

“When I agreed to help organize the colloquium, I had spent two years traveling and learning from other people. I wanted to get those people together, and I wanted them to see our natural building community in Texas,” she said. “There were people from northern California who came in expecting the worst. One guy’s mom said to him, ‘If you are going, better put away those non-conformist T-shirts. People in Texas don’t like people like you.’” Welch said they were all pleasantly surprised in the end.

Birds do it. Bees do it

Practically every animal that builds its shelter does it with local stuff. Natural building materials are, by definition, materials found in nature and processed as little as is feasible. Ideally, those materials are on-site. Lumber used in natural home construction comes from trees cleared from the site, deadfall harvested nearby, or salvaged locally from previous construction. Wall systems, stem walls and floors are made of the stone and soil excavated to level the site, or from as close by as possible if, say, you’re building with straw and your own region just had a drought. Windows, roofing, hardware are from local sources wherever possible, or recycled or salvaged. Assembling natural building materials into a solid dependable house can be straightforward too, as long as the project gets the expertise it needs for long-term success. Yet this applies to any building project.

With natural building though, community is a core ingredient, and not just from its barn-raising dynamics during the construction phase. Austin-based architect Gayle Borst, longtime sustainability advocate and executive director of Design~Build~Live, a nonprofit that co-sponsored this colloquium, put it in context. “Natural building is so much more than natural materials and resource efficiency. Community and social justice are major parts of natural building and rightly so,” she said. “Look at Brad Lancaster’s work in blighted areas of Tucson. Brad is really out there working, doing things. He reworked a strip of land by a road using curb cuts, dug up parts of the pavement to make the road narrower, calming traffic and reclaiming ar-



Kindra Welch of Clay Sand Straw and Gayle Borst of Design-Build-Live

able land. The narrowed streets also reduced the heat-island effect. Brad’s ‘before’ and ‘after’ pictures were amazing. Before, the strip of land by the road was hot, dry, uninviting desert. After, it was green, lush and walkable, with trees bearing fruit and mesquite beans that can be ground into high-protein flour. He puts landscape into production on many levels, and shows how people of all economic strata are entitled to beauty and a quality environment.”

Borst sounded energized by the successes of projects not often associated with natural building’s image of scruffy hippies making whimsical stick-and-mud huts.

Mark Lakeman of the City Repair Project in Portland, Oregon, and Lydia Doleman-Lakeman of Flying Hammer Productions, also in Portland, are showing us what we could all do to build community, right now, Borst said. “Their projects allow people to build community starting from wherever they are. Most of us live in neighborhoods, and City Repair has projects that prove natural building is doable without having to move out to the country, or make mud huts. Intentional communities are great, but they require a tremendous amount of work: you have to find a sufficient size piece of land and buy it, then work with all the people who will live in the community during the design phase, then build all those buildings. (A significant number of intentional communities and ecovillages such as Earthaven, Emerald Earth, Dancing Rabbit, The Farm Community in Tennessee, and Peaceweavers in New York have natural buildings.) City Repair looks at urban communities

and says, ‘Start where you are now, work with what you’ve got.’”

Richard Morgan is manager of Austin Energy Green Building, the program started in the early nineties that put Austin on the green building map. He noted common ground between natural building and the green kind. “Green building and natural building both focus on sustainable design. They both are place-specific and respond to location needs and climate. Both are about being aware of how to meet needs in least intrusive ways,” he said. “We support Design~Build~Live because we see the value of natural building, appreciate the focus it places on good design, the emphasis on locally extracted or harvested materials, and a less materialistic lifestyle.”

Austin Energy Green Building was also a colloquium sponsor. “Green Building (the program itself) has not made natural building a priority for several years now because we need to focus our resources on areas that produce the greatest impact. Working with more traditional builders to improve their designs and specifications simply has a much greater impact on energy, water and resource efficiency.”

A natural building in the city? Is that even possible?

Lest it seem that a natural building inside Austin is entirely out of the question, consider the words of Dan McNabb, who manages the Building Inspections Division of the City of Austin’s Watershed Protection and Development Review Department. “We’re open to (natural building). We’ll inspect it. If there’s no provision in the codes for whatever a natural building has, we would have to lean heavily on the design professional and the rules for Alternate Methods of Compliance. A design professional can use any design from anywhere in the world, as long as it meets the adopted (City of Austin) code. You have to have design professionals—a licensed structural engineer and licensed architect, both registered in Texas—sign off on the building design. Their job is to take the code, as it exists, and make sure that all aspects of the design, all the components, comply.” Buildings occupying two hundred square feet or less don’t require permits, but they still have to comply with all the usual residential permitting requirements like setbacks.

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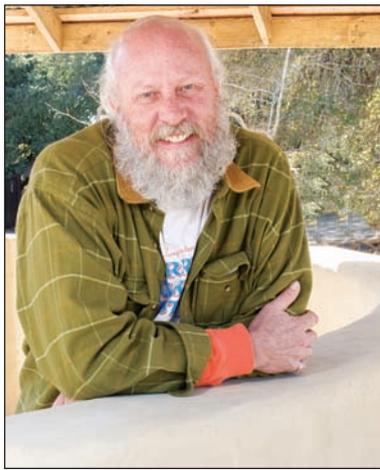
Straw bale infill, one type of straw bale construction, is already permitted by Austin's Land Development Code. A handful or two of such straw bale houses already exist inside Austin's city limits. For privacy reasons those addresses are not offered here due to problems with uninvited, earnestly curious visitors who show up at all hours asking for tours from owner-builders. (For straw bale info, see accompanying "Resources" article.) Straw bale construction, especially the load-bearing type where unframed bale walls support the roof assembly, is considered one natural building technique, as a wall system comprises only fifteen percent of a typical residential building. Straw bale walls by themselves do not necessarily make a building natural, especially if the building is overly large or uses exotic materials from far away.

Of the regulatory and other obstacles one might encounter when trying to construct, say, a cob building in Austin proper, McNabb said, "One problem (with natural building) is 'listings.' Take Underwriter Laboratories, they're a listing agency. Most natural building materials and products don't have enough safety test data." Upon hearing of two-hour fire tests performed in 2007 on earth-plastered straw bale walls at a San Antonio testing facility, he said, "Great, but that's only one chapter out of forty in the building codes. With natural buildings, there's not one common construction method. We're moving forward faster than the industry and that's a real problem."

Gayle Borst from Design~Build~Live added, "The limiting factor to natural building is a lack of natural building professionals. In our central Texas region, I know of only one cob builder, a few straw bale builders, and one compressed earth block builder. I get a lot of people asking for this from all over. I hear from them every year at our booth at the Renewable Energy Roundup."

McNabb pointed out the main purpose of his department: "Life safety is key. We have a very good safety record...and look what we've accomplished with water conservation, lowered energy use, updated codes. There's a 2006 Uniform Solar Code that's going into effect in January 2008."

"The City's building code book our inspectors use is four inches thick. And we also inspect for compliance with plumbing, electricity, mechan-



Rick Wright, volunteer manager of Quiet Valley Ranch

ical, energy and solar codes. Then there are another two six-inch books called 'Commentary.' And then there are all the overlays: restrictive covenants, neighborhood associations," McNabb said. Clearly some compassion and patience on the part of both builder and city inspector is called for.

Hands-on natural building, brains-on presentations

The number and scope of the Texas colloquium's speakers and natural building projects were ambitious compared with other natural building colloquia I have attended. During daylight hours, Quiet Valley Ranch projects were led by one or more experienced natural builders working with colloquium attendees, some of whom worked in exchange for a reduced price for admission (regularly about three hundred to eight hundred dollars, depending on length of attendance). Many projects would involve joyously sloppy hand- or foot-mixing (think "grape stomp") of earth, straw, sand and water, and squishing such mixtures onto walls by the handful. Post-colloquium, the structures would serve as natural building ambassadors for every ranch visitor. The Staff Central building would have load-bearing straw bale walls, roof trusses made from lumber reclaimed from shipping pallets, an earthen floor and a metal roof. The Mixmaster Hut (an icon among festival devotees) would be redone with a foundation of locally harvested limestone, local ashe juniper poles and boards milled on-site, and walls of earthbags, compressed earth block and cob. The pole barn called Kidsville would get a cob addition covered by a living roof made of more local juniper bandsawed into planks with the bark left on, a lay-

er of rubber membrane, and compost on top for growing plants. An amphitheater would get sculpted earthen plaster walls flanking the front of the stage. A VIP outhouse made of square-milled pine logs from Bastrop would be crafted with traditional timberframe techniques, looking Japanese in its precision and geometry, and joinery without hardware. A structure billed as a "roundwood artistic timberframe" was a commissioned project for Chapel Hill, made from massive deadfall timber taken from Quiet Valley Ranch and a neighboring ranch, juniper planks, local stones for footings, and a curvy living roof. This project, jumping Athena-like directly from the fertile mind of SunRay Kelley from Sedro-Woolley, Washington, would be the site of closing ceremonies for the colloquium, the scene of testimonials, wise words, prayers, challenges and more than a few tears.

Discussions and presentations given by the leaders of these colloquium projects and men and women from all over the natural building fields were offered day and night. It was simultaneously a feast for the eyes, mind and heart and total info overload. I wasn't able to go to every one (I was sharing child-care duty with other parents). I did go to those stellar talks by the aforementioned Brad Lancaster and the folks from City Repair Project. I also saw Janell Kapoor, a cob builder from Kleiwerks International in Asheville, North Carolina. She showed slides of her own work, and those of ancient elegant mud buildings five stories and taller in Yemen, and the world's largest mud mosque in Mali, challenging the notion that natural buildings can't be high-rises or suitable for urban densities.

Mark Jensen, based in Bozeman, Montana, is construction program director for Red Feather Development Group, a kind of Habitat for Native-American Humanity living in substandard reservation-housing. He spoke about Pine Ridge Reservation's first straw bale home for tribal elders built by Red Feather and University of Washington architecture students; a straw bale home for Cheyennes; a straw bale study hall for Crow elementary and middle school students; even a straw bale tribal college. He said that straw bale construction is unintimidating, so community members are willing to lend a hand, and families quickly learn to how build

their homes with straw bales, then pass the knowledge on. He described straw bales as "adult Lego," easy to stack, and how tribes who grow wheat are finding a secondary market for wheat straw, something they would otherwise burn.

Bob Gough of NativeEnergy Inc. based in Charlotte, Vermont, spoke about tribes now using reservation land to generate wind-powered electricity and their new hope for their future.

A presentation by Penny Livingston started with giving thanks to every possible life form in our universe, a thanksgiving process from the "Six Nations" Native American tradition that she said is part of our own tradition since Ben Franklin took the Iroquois governmental structure and procedure wholesale and modeled our (U.S.) government after it. Representing her nonprofit Regenerative Design Institute based in Bolinas, California, Livingston reviewed permaculture philosophy and fundamentals as well as some of her own projects.

Joseph Jenkins, slate roofer and better known as the author of *The Humane Handbook: A Guide to Composting Human Manure*, brought the house down one night. He admitted laughter is inevitable at a lecture about poop. The slides of those huge cabbages in his vegetable garden, and his unasked-for collection of pictures of people's bucket toilets from all over the world, spoke for humane's real worth. Fearless Austinite Jenny Nazak, a permaculture teacher and a "Shades of Green" team member host on Austin's KOOP 91.7 FM, led the colloquium-long humanure recovery project, proving it can be done.

Ecological designer Art Ludwig of Oasis Design based in Santa Barbara, California, gave a well-attended talk on how to safely use greywater—the water that drains out of every part of your house except the toilet—to raise food, support a lawn, and more.

Tom Watson, a one-man outfit, gave a well-attended talk on septic solutions, his ever-evolving wicking septic system, and how to safely use blackwater—that would be the water draining from the toilet—to grow fruit trees, feed and water landscaping.

Both Ludwig and Watson have hundreds of successful projects to their credit and the persuasive logic borne of drought, water shortages, and the obvious folly of wasting nutrient-rich resources. Their question-and-answer periods lasted nearly as

long as their talks.

Austin green building pioneer Pliny Fisk III of the Center for Maximum Potential Building Systems gave a talk about natural resources and the relativity of time itself that was so mind-bending I had to lie down after it was over, and not because it was past my usual bedtime.

Matts Myhrman and Judy Knox of Tucson, Arizona, two longtime pioneers of the straw bale construction revival who operate Out on Bale (un) Ltd. and are authors of several straw bale building books, came to give a historical talk and to dignify colloquium proceedings. On the last night of the colloquium, Knox said, "We are the people we have been waiting for... natural building needs its champions," exhorting those gathered to get out and do good.

Kaki Hunter and Doni Kiffmeyer of OK OK OK Productions, earth-bag (also called "superadobe") builders and educators out of Moab, Utah, spoke to well over a hundred folks in a packed room about amazingly solid buildings built with many stacked woven plastic bags—or one continuously coiled bag—filled with earth. Their many years of experimentation and creativity in locales without hardware stores or most ordinary hand tools showed the true evolution of their field.

"Their technique was fascinating, as was the role in their communities, a real example of natural building bringing cultures together," said Effie Brunson, a sustainable development coordinator for a commercial real estate development company and a board member of Design~Build~Live. This was her first natural building colloquium. "Yes, there were hippies there, but they were all very together hippies," Brunson said. "I am floored by the



Austin architect Ben Obregon applies earth-plaster to exterior of straw bale wall.



Interior of load-bearing straw bale house showing plastic mesh compression straps.



This load-bearing straw bale hybrid house sits on a stem wall of limestone collected from the building site, and features roof trusses made of wood salvaged from shipping pallets. The exterior has earthen plaster on three sides, with the fourth—the front of the building—consisting of straw-clay and site-milled cedar lath.

dedication of these crusaders."

Bruce Thauburn, a commercial construction cost estimator from Corpus Christi, was also attending his first natural building colloquium. "I was searching for sanity in the evolution of construction methods to aid our company's implementing improvements in the Parks and Recreation Department for the City of Cor-

pus Christi," he said. "The field I work in has a rigid and formalized construction process, so finding this casual flowing method of building was a contrast worthy of consideration. I feel the conventional construction world needs more heart, intuition and respect for our mother planet.

"The natural building world could use a more disciplined approach in

the implementation of projects," Thauburn said. "Natural building needs a convergence with the conventional disciplines to awaken the trades and code environments to the positive possibilities inherent in alternative building methods. I felt the colloquium in Kerrville looked like a good possibility for connections. On a personal note, I was hopeful for finding a community of spiritual beings intending a kinder and more compassionate reality. From my early arrival for logistical issues to my last day there, the Quiet Valley Ranch was a soak in both agendas."

Rick Wright, Ranch manager, said, "I knew (the colloquium) was going to be a lot more work than anyone imagined. I walked away with more friends than I know what to do with. And we still need to do the follow-up, to help finish projects."

"Exposure to new ideas, techniques, philosophies and people" and "hands-on experience and contacts" and "a chance to catch up with colleagues and friends" were the most common of the seventy-seven responses to an ongoing e-mail survey after the colloquium asking participants what they got from the colloquium.

Subverting the dominant paradigm, still crazy after all these years

One of two talks given by David Eisenberg, director of the Development Center for Appropriate Technology in Tucson, Arizona, was "Still Subverting the Dominant Paradigm: The Further Adventures of DCAT." A self-described "recovering building contractor," Eisenberg has led the effort to create a sustainable context for building codes since 1995, and in November 2007 received a Leadership Award from the U.S. Green

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Building Council. Taking a midweek break from the colloquium, he drove to Austin with Frank Meyer, Kindra Welch, Mark Lakeman and Penny Livingston and together they met with Mayor Will Wynn, a promising sign of more fun to come.

Eisenberg willingly spoke at the colloquium about the dark future that we all face if environmental problems don't get solved—fast. "We need to be talking about this not just between ourselves, but with officials and politicians, people who have real impact right now on a lot of lives. We have to start putting handles on all this scary stuff that's hard to deal with, like global warming, pollution and peak oil." He said he saw positive changes in how building officials treat people with alternative building

methods, a "looking beyond the limits of just keeping bad things from happening by enabling good things to happen." He said that having our planet go down the tubes was "beneath the dignity of our species" and affirmed that human responsibility is also human empowerment.

If having hope is the one truly radical act, it's a wonder the FBI wasn't there that minute, investigating each one of us and that DCAT guy up front who was showing slides of his grandson and asking what kind of world we're leaving for all children, and their children, everywhere. ☺

Jeanine Sih Christensen aims for a deeper, darker green life with each passing day. You may e-mail Jeanine at jchristensen@goodlifemag.com.

Resources

This subjective list of natural building web sites (with emphasis given to central Texas applicability) was tempered with the idea that most people reading this do not have a few acres in the country to go build some groovy natural dream home.

City Repair Project—Mark Lakeman and Lydia Doleman-Lakeman work with their fellow Portlanders in this community nonprofit, which has a web site that barely does justice to their methods and results. Check out their many inspiring *urban* projects and a lovely list of potential projects that would make sense in any urban area. For details visit www.cityrepair.org or call 503-235-8946.

Clay Sand Straw—The natural building company is run by Kindra Welch, an Austin-based natural builder and workshop leader who has declared 2008 the year of finishing her natural building projects, so there are abundant volunteer opportunities in Texas to learn aspects of natural building. For more information visit www.claysandstraw.com or call 512-663-3166.

Design-Build-Live—This Austin nonprofit was one of the co-sponsors of the colloquium, and helped the colloquium's organizers. DBL hosts monthly talks by presenters on sustainable topics at Casa de Luz and archives its many previous newsletters and presenters' highlights on-line. For details see www.designbuildlive.org or call 512-478-9033.

Brad Lancaster—This author, speaker, dryland permaculturist and community activist has a rich web site, with info a close-ish match with our own climate if not soils. On his site you'll find his speaking schedule, an avalanche of useful info and resources for creating a paradise in arid places, and his three books for sale. A 2006 presentation of his at http://www.civaneighbors.com/docs/presentations/23July2006_RainWaterHarvesting_Civano.pdf covers some material he presented at the colloquium. For more information visit www.harvestingrainwater.com or e-mail brad@harvestingrainwater.com.

Natural Building Colloquium—The 2007 colloquium is finished, but the official site has a list of all presenters, with links to their own sites as well as good definition of what such a colloquium is about. (Disclosure: this writer and her husband do unpaid volunteer work for this site.) For more information visit www.naturalbuildingtexas.org.

Regenerative Design Institute—Well-known West Coast permaculturist, author and teacher Penny Livingston has several gigs and web sites that keep us informed of projects, crew, classes and engagements. Her bioregion differs from that of central Texas, but her natural building and permaculture aims come with good overviews. Her assertion of the origins of our current system of federal government is corroborated and partially covered in this in scholarly piece: www.campton.sau48.k12.nh.us/iroqconf.htm as well as the *500 Nations* PBS documentary. For more info about Livingston and her work, visit www.regenerativedesign.org or call 415-868-9681.

Straw bale construction—Curious about what straw bale building actually is, and where a bit of our federal tax money goes, all at the same time? Check out the U.S. Department of Energy's well-written, detailed overview of straw bale building at www.eere.energy.gov/buildings/info/components/envelope/framing/strawbale.html. And if you are still curious, consider going to a bale-raising, where straw bale construction is usually done with volunteer labor led by a "straw boss." Visit the web site for *The Last Straw* for a large, active calendar of natural building events, including straw bale and permaculture, at www.strawhomes.com.

Thangmaker—A sing-n-build business operated by Frank Meyer, longtime natural builder and musician based in south Austin. On his web site you'll find his projects, his areas of expertise, and brief overviews on different natural building techniques. Leap at any chance to go to one of his slideshows, because he's got a great eye for images. For more information visit www.thangmaker.com or call 512-916-8100.

—Jeanine Sih Christensen

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