THE CASBA JOURNAL

Newsletter of
the California Straw Building Association

CASBA: A Non-Profit Project of **The Tides Center** Volume XIV, Number 1

EVENTS

For more information
on EVENTS contact
Joy Bennett: mbennjr@mac.com

Starting January 9th
LEED Classes
Various SF Bay Locations
www.usgbc-ncc.org

Starting January 16th
Solar Living Institute
SF Bay Area and Hopland
www.solarliving.org/workshops

February 18 – 20th
Solar Energy International
Solar Hot Water Workshop
Fontana, CA $ 595.00
www.solarenergy.com/workshops

Submissions By March 15th
CASBA Logo Design Contest
(see page 2 for more details)

March 16 – 19th
Natural Plasters Workshop
Santa Rosa, CA

March 20 – 22nd
CASBA Spring Conference
www.strawbuilding.org

Straw bale watermelons? Not just for building… Maurice grew fruits and veggies from straw bales.

THE YEAR OF THE HOUSE
Plaster Preparation

by Jim Reiland

Our decision to use earth plasters was one of the most gratifying aspects of the entire project. A finish coat of lime plaster protects our walls from the recent winter rain and snow. It keeps critters out. And only the stacked stone walls and stone walkways around the house are less flammable—an important consideration in wild fire country. I like how the walls reflect light the most.

When I take short strolls around the garden or walk down to the mailbox, I enjoy views of the Oak-Madrone grasslands on our hillside, the pine and fir forested slopes across the valley, and the Siskiyou Mountains beyond. And when I start back towards our house and workshop, tucked into the ridge and nestled among the trees, I'm always stopped short by the shifting shades of pale yellow and gold that move across the walls. This morning they were particularly vibrant against a backdrop of fresh snow.

But the beautiful lime plaster I see is only the top of three plaster coats—there are two earth plaster layers beneath it. Beneath all of that… lots of preparation. Before there can be plaster, there must be preparation!

Our CASBA and Canelo workshop experience with load bearing structures taught us to trim fuzzy bales, fill voids with straw-clay, and slip walls. We had a little experience with window and door preparation, but none with lathe. So we read books, searched the internet, and spoke with several CASBA contractors and fellow owner-builders. Everyone shared generously their time and experience (that's what I love about CASBA… no one holds back!), but unfortunately, no one gave us the same advice. Here's a sampling of suggestions and techniques we heard on various topics:

Wrapping posts: wrap building paper on three sides; use self-stick membrane on the lower sections where there's more moisture exposure cover only the exterior side with paper, but extend it several inches over the straw bales; don't use paper… or anything that might trap moisture.

Lathe over the bales (even though our structures' shear is handled by Simpson Steel Strong Walls), use: galvanized wire sewn through the wall; plastic netting—deer fencing, instead of stucco lathe; hemp or natural fiber netting secured to top and bottom plates, and sewn through the wall; nothing—just plaster the bales!

Lathe over the posts, beams, and around windows and doors, use: self-furring hexagonal "chicken wire" lathe; expanded metal lathe; grass reed mats; burlap; nothing

In the end we did what anyone would do—we followed everyone's advice—though not everywhere. Our mostly earth bermed ICF garage with attached straw bale workshop, and a straw bale house with an ICF walk-out basement let us try a variety of plaster preparation techniques, all of which worked for the folks who suggested them, and seem to be working for us. We've had no major cracking or plaster failures yet.

When does plaster preparation begin? In our case, before the bale stack! Simpson

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CASBA

THE **CALIFORNIA STRAW BUILDING ASSOCIATION**

P.O. BOX 1293 ANGELS CAMP, CA 95222
(209) 785-7077 www.strawbuilding.org

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CASBA is a non-profit organization whose members are architects, engineers, builders, and people interested in straw building. Our mission is to " ...further the practice of straw building by exchanging current information and practical experience, promoting and conducting research and testing, and making that body of knowledge available to working professionals and the public at large."

Letters to the Editor

Letters to the CASBA Journal are welcomed and encouraged. Please limit your submission to 150 words or fewer. A letter published herein is entirely the opinion of its author, and does not represent the opinion of CASBA, its Board, members, and/or your humble Editor.

A Design Contest

Calling all artists to action! **CASBA** needs a **NEW LOGO** for use on our t-shirts, bags, etc. This identity will also be featured on our *new* web site.

T-shirts logos should include a design for both front and back of the shirt.

There are no rules, restrictions or guidelines—let your imagination reign!

Submit your design proposal(s) to:

CASBA
P.O. Box 1293
Angels Camp, CA 95222
Or email: mbennjr@mac.com

Designs for consideration shall be received no later than **March 15, 2009**. Judging will be done by the general membership at the Spring Conference.

The winner will receive appropriate notoriety, recognition, and a handsome reward.

"Men think highly of those who rise rapidly in the world; whereas nothing rises quicker than dust, straw, and feathers." Lord Byron

Natural Plasters Workshop

March 16 – 19th, 2009

Santa Rosa, CA

Interested in bringing your walls to life? Searching for natural alternatives to conventional, toxic wall treatments? Finding color and design intimidating? Hoping to save money by doing some plaster work yourself?

If you answered "yes" to any of these questions, sign up for this hands-on, natural plastering workshop, held in Northern California's beautiful Bennet Valley, outside of Santa Rosa, California, four days, Monday through Thursday March 16 – 19th.

Architects, contractors, and owner-builders welcome! If you are considering building with natural materials (straw, cob, etc.), this is a great time to learn finish plasters to beautify your home.

Remodeling a conventional home? You'll learn how to design, mix and apply your own non-toxic, natural finishes to conventional walls. If you are looking for ways to offer more green finish options to clients, this workshop is for you!

A unique collaboration between instructors Tracy Thieriot, owner of Tactile Interiors, a leader in natural plastering in Northern California, and Bill and Athena Steen, the force behind "The Canelo Project" in S. Arizona, their many years of experience have made many important contributions to the creation and use of earth plasters. California's premier education association for straw building, CASBA, will coordinate the event.

Athena and Bill Steen's early efforts were dedicated to combining earthen materials with straw bale buildings, especially plasters. Over the years they have worked with specialists in clay and lime plasters from around the world: Germany, England, Mexico, and Japan. That knowledge paired with their own research and experience to develop methods for both clay and lime plasters that are simple, beautiful, low cost, accessible, durable, natural, and mostly local. Their recent teaching efforts focus on helping others become proficient with the basic skills of mixing and applying these plasters, enabling them to create beautiful walls within their reach in terms of skill and expense.

Tracy Thieriot has been working with plaster materials since living in New Mexico and falling in love with red clay. She found a passion in learning how to source, transform and work respectfully with local materials and the vernacular building styles of the southwest and Mexico. After moving to California she started Tactile Interiors (TI) which target interior and exterior earthen and lime plasters and paint, including consultation, design and installation of thick-walled plasters, aliz, clay paints, Tadelakt and more. In addition to TI she also runs Ochres and Oxides, a wholesale supplier of pigments, ***…Continues on page 6***

NOTES FROM CASBA CENTRAL

Joy & Maurice Bennett – Angels Camp

At this year's end we want to thank each of you for supporting CASBA. It is through the efforts of those who volunteer for various tasks—especially the Advisory Board and the CASBA Workshop "helpers"—that CASBA stays at the forefront of the straw bale movement.

New memberships continue from those interested in building with straw. Perhaps this tough economy and job losses will turn peoples' attention toward alternative ways to save and conserve energy.

CASBA SPRING CONFERENCE March 20 – 22, 2009 at Walker Creek Ranch, outside of Petaluma. Jim Furness and Jane Holland have volunteered to handle the conference details. Given this program's past performance, it will be an event you won't want to miss. Of special note is the Plastering Workshop with the Steens planned prior to the conference.

The CASBA Advisory Board held a weekend meeting in early November. The Board discussed a wide range of subjects including:

Progress on revising the Detail Book and the Building Officials Guide has been slow but steady. The Board decided that the Update Committee should consolidate the information they have and attempt to put that material into recognizable form. Jim Reiland, along with his wife, Joy, volunteered to "edit" and review the material to unify the efforts of the group.

Additionally Tim Rudolph, in the process of working on the revision, developed a short course for engineers. He will finish his work to that end and present it at the Spring Conference.

The Board would like to offer a Professional Course in 2009 however no definite decision was made. The goal of the Pro Course is to train professionals who want to learn about building with straw. The Board agreed to address the issue in January 2009 after information on the proposed International Conference and the normal CASBA workshops is developed.

CASBA workshops: C J Cavet is our workshop coordinator and she is working on several proposed sites for the 2009 CASBA Workshop(s).

The Board decided on the following refund policy for the workshops: Within 30 days of the workshop: FULL REFUND. Within 10 – 29 days of the workshop: 50% REFUND, unless we can sell the spot OR credit the 50% to a future workshop. Fewer than 10 days: NO REFUND.

In light of the current economic events, we are hearing much about education efforts in "green" building. Here in Calaveras County, there is a movement to create a vocational unit at the local Junior College to include straw bale construction. Additionally, an "ecological" building group is forming, averaging 15 to 20 contractors, architects and solar businesses. If this is happening in far away Calaveras County, what can be happening in larger population centers?

One of the exciting parts of West Coast Green was finding an insurer (Farmers) who was eager to insure straw bale structures. That is, until we found out that they are only interested in insuring high-end ($500K plus) homes. Their attitude is to let the "other guys" take care of the low end. We have been in contact with them to reclama the high-end restriction.

Thank each of you for supporting CASBA. An energetic and involved membership is what makes CASBA such a great family. Keep up the good work in 2009 and beyond.

With appreciation!
Maurice & JoyBennett

CASBA
CALIFORNIA STRAW BUILDING ASSOCIATION

Looking to the Past to Inform the Future

Straw Bale Builders Study the Preservation of Historic Adobe Buildings

By Rebecca Tasker

In 2005, our company, Distinctive Builders, built a 1200 sq ft straw bale building called the Begole Archeological Research Center (or BARC) in the Anza Borrego State Park (near San Diego). After completing BARC, we were invited to bid on creating a protective structure over a turn-of-the-century earthen cabin the park had recently acquired. Located three miles from the nearest potable water, this cabin was over a mile off the paved road, down a soft, sandy track, barely wide enough for a car, sporting a jaunty angle at certain points. When we saw it, forlornly crumbling in the desert sun, we knew we wanted the job.

The protective structure we built was simple—basically a carport providing a new roof for the building, without touching the existing structure. The remote, harsh landscape made building it an arduous process. This experience gave us a hearty *(continues on page 6)*

Earthen cabin, near San Diego

2008 CASBA Workshop Review

by CJ Cavet

As the year comes to a close and work slows down, I am busy planning next year's CASBA workshop. But first I'd like to recap this past year's workshop.

The 2008 CASBA Workshop was held at the Chartwell School in Seaside, which is the first school in the US to receive a Platinum LEED certification. Building a small strawbale structure fit right into their green features. The school is located on the grounds of the old Fort Ord military base and situated on top of a knoll with mostly views of trees and vegetation.

The workshop structure will become an outdoor classroom for the students and is located in a wooded area of the property, amid beautifully wind-sculpted oaks. The host was Jay Tulley, a CASBA member from Monterey and a Green Building project manager, whose wife also works as a teacher at the school. The Chartwell school staff also acted as host, providing generous amenities for our use. Roy Williams, their facility person assisted and supported Jay with the project.

As a first for the CASBA workshops, the building was a *permitted* load bearing 16' x 24' structure with one door and five windows and a hipped roof. The city of Seaside was very excited about permitting their first strawbale building and supportive of Jay's efforts. The future classroom building was earth plastered inside and out and will eventually have an earthen floor as well. The foundation was a poured concrete stem wall to support the straw bales.

The bale raising workshop was held in July and well attended, with most of the people coming from various parts of the state. Greg McMillan led the workshop with Jay as the assistant. The group installed all the bales for the walls including building and installing the window bucks, door frame and top box beam. After the workshop attendees left, a small group completed the exterior slip coat. Over the course of the summer, weekend work parties completed the work needed to prepare the building for plastering.

The plastering workshop was held in October, and in spite of reduced attendance because of rescheduling, was very successful. Kathy Gregor led the workshops with assistance from me (CJ Cavet). We provided general earth plaster information and recipes, samples of materials and finishes, and a demonstration of sculpting technique. Then after the small group learned how to make earth plaster we proceeded to apply the complete thick first coat on the outside and inside of the structure. The support of the CASBA team in keeping us supplied with earth plaster was awesome.

The workshops presented challenges CASBA had not experienced in the past. This was not an owner builder's site so work took longer then expected since most of it was confined to weekends. Water and power were not close by and required a generator for all powered work and long runs of hoses to irrigation lines. We learned some good lessons from this project, like two months may be too short a time to complete all the work between the two workshops; and there is a need for good window details. We will incorporate this into future workshop planning; along with a CASBA sponsored one day work party before the plastering workshop to demonstrate the weather flashing needed at windows and doors.

Overall the workshops were a success and the Chartwell School is pleased with their new structure. The students have become involved in applying the finish plaster and are having a good time with it.

The CASBA team wants to thank Jay Tulley for all the hard work and tremendous effort he put into the project to make this 2008 workshop successful. We also want to thank Roy Williams, for his constant support, and all the folks at Chartwell School.

The 2009 workshop host is Max Salkin, a Certified EcoGreen Real Estate Agent and Green Building Professional. The 2009 venue is located just east of Glen Ellen on the 60-acre property where Salkin lives with his family. The structure will be the standard workshop size with clay tile roof to match their home already on the site and will be used as a guest cottage. Once the workshop leads have been recruited, the workshop dates will be decided. Watch for details in the near future.

I am looking for a host in 2010 and since we always have a

2008 CASBA Workshop Review... from page 4

fair number of workshop attendees coming from southern California, CASBA would love to find a host in that part of the state.

The host needs to have a site with room for the structure, power and water, along with bathroom facilities, space for parking and camping. The benefits include receiving strawbale assistance from CASBA experts, and valuable help for the two most labor-intensive portions of the project; bale raising and rough plastering as well as some help during work parties. As a sponsor, you will develop valuable friendships within the strawbale community. If you are interested or know someone who might be, please contact me at **cjbwpv@sbcglobal.net**

(continued from front page) Steel Strong Walls in our corners handle shear loads—lengths of heavy-gauge corrugated steel capped with steel plates, perforated with holes for electrical. We decided to fill both interior and exterior steel panel surfaces with a light straw/clay to eliminate voids and bring them flush with the eventual bale wall surface. We glued building paper to the metal panels, then packed them with straw-clay level with the wall plane. We stapled deer fencing across exterior straw-clay surface, and sewed it through with baling wire to keep it snug.

Plaster Stops Because we hadn't worked the plaster stop details out in our plans we installed plaster stops after the fact around the bottoms of the walls and at doorways (the window frames provided a convenient, built-in stop). We couldn't find a manufactured "rain screed" to support our 1.5"+ thick earth plaster coat so we modified a technique employed at a CASBA workshop: for the outside sills we ripped lengths of 1½"w x 2"h treated lumber with a 10° slope, then glued and screwed these to the 4" x 4" sills. We asked our metal roofing fabricator to bend a metal drip edge that matched the plaster stop profile, and we glued and nailed this to the stops, overlapped and mitered at the corners. We had salvaged some redwood joists from an old deck, ripped these into 1½"w x 3"h strips and affixed them to the interior sills—also good for nailing floor trim. The exterior wall's upper plaster stop for the first coat was the bottom of the soffit blocking. Prior to the second earth plaster coat we attached cement board to the underside of the rafters tails in order to "box" the soffit, making it more fire resistant. The cement board's upper edge abuts the first plaster coat, and the second and third coats run to lines drawn on the cement board. In this way we "lapped" the joint to eliminate gaps.

Filling Gaps Next we filled low areas and gaps with straw-clay. We slipped the area, then built up straw-clay to the wall plane. To "fine tune" things we used a straight 2" x 4" "truth stick" to span the vertical distance from sill to box beam. This helped us gauge the wall plaster depth and showed where we needed to add straw-clay, or trim a bale. We knew from experience that gaps and low spots "consume" a lot of plaster, so bringing the bale surface to a mostly uniform and mostly flat plane economized later on materials and time. The bales were stacked pretty straight and plumb as posts spaced every eight feet provided good reference, so there wasn't much trimming. Exceptions were the house doorways and the workshop windows. Instead of being formed by plywood, our house doorway and workshop window openings were shaped with bales. We needed to re-tie about half of the bales in place, and used straw-clay to shape them more or less plumb and smooth.

Paper We wrapped building paper on three sides of the posts before we stacked the bales. Where we expected rain to hit the exterior walls, especially the lower portions, we stapled building paper to the sills and lapped it over the sill flashing. In particularly vulnerable areas we wrapped three sides of the posts with paper, and used self-sticking membrane on the window frames and window sills.

Lathe Where the plaster needed some "tooth" over expanses of wood we used different kinds of lathe—1½" self furring hex (chicken wire), blood lathe, and burlap. We cut 12" squares of diamond lathe, notched them to fit over the upper door and window corners, and stapled them to wood framing through the paper with a pneumatic stapler. All posts and beams were then covered with the hex lathe that stretched from 4" to 6" past the post. This was stapled to the post through the paper or membrane, and secured to bales with Roberts pins. In areas with very low moisture exposure—for example, anywhere under our 8' deep porch roof, or immediately below our 3' roof overhang—we usually painted the bare wood with slip, waited for it to tack up, and rolled a slip saturated burlap strip over it, pressed it flat, and made sure to overlap 3" to 6" with adjacent bale surfaces. When the burlap dried we stapled it to the wood so it wouldn't sag during plastering. We discovered the hard way re-wetted burlap loaded with plaster can pull away from posts and beams, and that wet slip gums up manual, electric, and pneumatic staple guns.

Finally, slip! A thin clay slurry sprayed on the bale walls acts as both a fire deterrent and as a primer to help the plaster "stick." We had worked with a Tyrolessa sprayer at workshops and knew that it requires a large air compressor and two to operate—one to shoot, one to fill the hopper. Acting on a suggestion from Bill Donovan, we purchased an inexpensive wall plaster texturing gun with an adjustable nozzle and an on-off trigger. Our tiny pancake compressor didn't throw the slip very far, but we were able to cover the exterior bale surfaces quickly without losing too much on the ground. When you work hard to extract slip from stubborn, rocky clay soil, you hate to see any wasted. We screened the slip through a $^{1}/_{16}$" screen to keep small stones from clogging the nozzle. We hand ap-

Article... Continues on page 6

plied the slip on interior bale walls to avoid overspray messing up the drywall ceilings and interior walls.

Our plaster prep activities began in mid October of 2007 when a weekend plaster party attended by friends from CASBA and a few neighbors turned into a mostly plaster prep party. We worked alone through the winter and spring of 2008, preparing and plastering exterior, then interior walls. Although each plaster coat called for new preparation, the first, and deepest layer required the greatest preparation, while subsequent coats involved mostly masking, and finally tarping. In late June—with the conclusion of a large plastering party made up mostly of CASBA friends and a few neighbors—we completed the interior finish earth plasters and the second exterior plaster coat. Then, in late September of 2008, almost a year after stacking bales, a dedicated crew of CASBA friends, neighbors, and family finished the exterior soft golden-yellow plaster that I enjoy so much, that makes me smile. **Next Issue: Plastering!**

Looking to the Past to Inform the Future... from page 3

respect for those brave and stubborn souls who reached that valley by wagon and decided to make it their home, building with whatever materials and skills were available to them. Upon completion of our project, the park began planning the stabilization of the cabin: we wanted to be involved.

Earthen construction is complex, requiring diverse knowledge. To increase our knowledge, we attended a week-long conference on conservation and preservation of historic adobe structures. Held in southern Arizona and Sonora, Mexico, TICRAT AZ/SON is the Taller Internacional de Conservación y Restoración de Arquitectura de Tierra, translating to the International Workshop on the Conservation and Restoration of Earthen Architecture.

A project of the Missions Initiative, who develops an international partnership for cultural resource management of the hundreds of Spanish Colonial Missions in the southwestern United States and northern Mexico. Co-sponsored by the National Park Service (NPS) and the Instituto Nacional de Antropología e Historia (INAH, the National Institute of Anthropology and History), with assistance from the Preservation Studies Program at the College of Architecture at the University of Arizona, and from Cornerstones Community Partnerships, a non-profit organization devoted to the preservation of architectural heritage and community traditions in the Southwest.

From the moment arrived in Tucson, and throughout our entire trip, we were pleasantly surprised by the caliber of the presenters and the relevance of the information presented. As we met other members of the group (about 40 people), it became clear that this was a well-informed and interesting bunch. Among them: superintendents and staff of various national parks; architects from both sides of the border and both neighboring states; and faculty and staff from the University of Arizona. There were three Afghani cultural heritage specialists with the Ministry of Information and Culture who joined us for part of the week through a concurrent NPS program.

We visited sparkling white iconic missions such as San Xavier Del Bac and crumbly brown yet-equally-iconic missions like Tumacácori. Some had been restored as active churches (Pitiquito), others as historic monuments (Caborca). A few were precariously and painstakingly preserved in a state of ruin.

In addition to lively debates (in English and Spanish) about how to decide whether to restore, preserve, or let a ruin go, we saw pictures of an 800 year-old, 200' tall Afghani earthen minaret. We got our hands dirty making adobe blocks and observed the process of slaking quicklime. We mixed and tested lime plasters, though it would be a stretch to say we helped in any actual preservation. Most importantly, we got to converse at meals and between events and lectures, sharing our experiences and perspectives.

We came to the conference to learn about preserving our little earthen cabin, but we also wished to explore the distinct differences and broad overlap between adobe and straw bale construction. Where straw bale is a system of super-insulation, adobe is one of thermal mass: adobe walls have *(continues on page 8)*

(continued from page 2) tools and other ingredients for natural plasters.

The workshop will be held at an owner-built straw bale structure near Santa Rosa, California in the beautiful Sonoma Valley. This unique building has many interesting features, including a "living" roof, use of FSC certified lumber, and initial plaster coats of site excavated soil.

Covering all aspects of plastering, including sourcing and handling materials, tools and their technical uses, the workshop also addresses making and applying finish plasters, and grafitto and sculpting. Participants can count on rotating through all plastering activities to ensure the broadest possible hands-on experience.

Other topics include interior finish plasters using natural binders of clay and lime. After a review on developing a good plaster mix with clay and sand, and basic application skills, we'll cover a variety of finishes, including polished clay plasters, clay paint (aliz), tadalakt, venetian style lime plasters, polished lime plasters, lime paint and a myriad of others. Finishes will be applied to interior straw bale walls, sheetrock walls, and panels.

Participants may want to extend their learning experience and also sign up for the CASBA Spring Conference that takes place shortly after the plastering workshop ends, an hour's drive down the coast at Walker Creek Ranch (see CASBA Website for details, www.strawbuilding.org).

Details and Fees:

Cost for one person	$ 750.00
Cost for two people	$ 725.00 each

Includes camping and meals from Sunday night – Friday morning. Site camping (recommended) is free. Rooms in local hotels also available.

If you have any questions or concerns about the workshop, contact Kathy or Storm Gregor at (530) 432-8630 (home), (530) 263-3183 (cell), or grelore@c-zone.net.

Download registration form: **www.strawbuilding.org**

Mail registration to:

CASBA
P.O. Box 1293
Angels Camp, CA 95222-1293

Sending your check and completed registration guarantees your enrollment. For registration information, contact Maurice and Joy Bennett at mbennjr@mac.com or (209) 785-7077. Paid registrants will receive an information packet that includes directions, recommended reading, appropriate clothes check list, etc.

Octagon Workshop
by Bob Theis

The Suskol Intertribal Council is a Native American nonprofit centered in Napa, creating a cultural center on land in nearby Pope Valley. This fall, they called and asked if I could help them complete a small bale building—begun this summer—whose construction had stalled short of a protective roof.

They got me, with two hooks: bale construction needs active promotion in the lower income strata of our society, with the Native American community certainly in that category. And I hate it when straw bale building gets a bad rap because of external circumstances, i.e. "Stay away from hay bale building; they did that down in Napa and it was a real train wreck."

Tracy Vogel met me at the site and we looked over what had been done: a modest octagonal structure, 12' across, with 4" x 4" columns at the corners supporting a low slope 2" x 8" roof, with three courses of three string bales on gravel bag footings between the posts.

If it was to survive the winter, it needed a completed roof first and foremost, and whatever else that could be done to button it up would certainly help.

The Suskol Council was eager for the construction to be educational for the Indian community, and I didn't want to tackle guiding it all by myself. So I contacted CASBA central; would they support a work party deep in the winter? Yes, certainly, came the quick reply, and word went out on the network; come all experienced baleheads, especially those with tool belts.

First to respond was the world's greatest unpublicized energy source, the inextinguishable Mike Jakubal. And Kathy and Storm said they'd come, with some grandchildren along for good measure. Not as large a CASBA crew as I might have liked (where were the rest of you?), but experienced people to move things along with the council volunteers.

The Pope Valley is a gorgeous place, a vision of what all the valleys north of the Bay might have been like fifty years ago. It's amazing to drive from the genteel wineries of the Napa Valley to the old ranches of the Pope. But it also means quite a drive to the nearest hardware store, which puts a lot of pressure on the materials planning. You should have seen my station wagon when I got there!

Hoping to get a jump on the roof, a few of us arrived Friday, unwrapped all the tarps and started figuring out what was needed to complete it. As the original desire was for a round building, we figured that making the roof a sixteen sided figure would give that feeling without the complexities of trying to create true curves. But there were some head-scratchers, like the fact that the rafters over the posts had a different slope than the ones midway between the posts, which put their tails at different elevations. We fired up the new generator and worked until the winter's early night shut us down.

Charlie Toledo, the Council chairperson, put up a teepee on the land for sleeping. As the night's chill came on, Mike and I decided to accept the warmer offer of staying at the her home in Napa. Bear, a volunteer who come down from Covelo to work, stayed in the teepee that night, and told us the next day we made the right choice: when his small fire inside died, it was less than comfortable.

Saturday we stopped for a few supplies and were preceded at the site by Storm and Kathy, who had already got things moving. As volunteers showed up, they were set to tasks, until construction was proceeding on six fronts simultaneously.

One piece of remedial work deserves mention for baleheads: the three bale courses in place were not laid level; there was, in fact, a 6" difference between the highest and lowest portions of the top course. Bear leveled this up by driving the familiar "vampire stakes" (23" long 2" x 4"s cut diagonally) between courses on the low side of the building. We found that a row of stakes could raise the wall about 1½" maximum, so by the fourth course we were back on track. Stuffing the resulting gaps between courses was a task well suited to teenagers.

After some time installing blocking, Kathy and Storm directed laying up new bale courses, which was slow going, as every other bale was a custom length and with an angled end to boot. They got another course most of the way around the building before they had to leave.

Sunday the work continued, but with fewer volunteers the focus was on completing the roof and improving the site drainage around the building.

As a design coach, I am always cautioning people that while bale construction that departs from square corners and simple gabled roofs is sexy, it is a lot more work. Getting this roof up brought that message home once again; I had thought we could knock out the roof in a day, or two at most, but as the dark shut us down Sunday afternoon we were just getting to the preparations for the roofing itself.

The weekend was over, but we still did not have a roof for the winter. I returned the next day, and Mike agreed to stay as well.

And even then, with just the base and the torch-on roofing to install (a thick rubbery roll roofing that is heated with a propane torch to adhere it), the extra work of the geometry fooled us. We had thought we'd get the roofing on in the morning, but it was pushing sunset as the last of the roofing went down. With a real roof on and tarps battened to hang from the eaves, the little octagon should be fine for the winter.

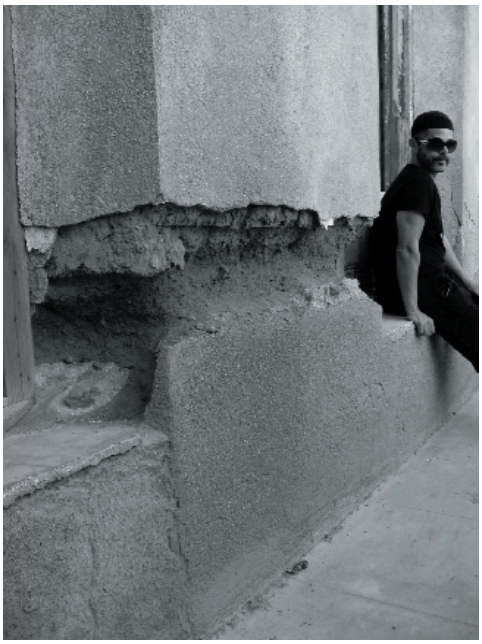
Stay tuned for exciting work parties this spring and summer to finish up the bales and get some clay plaster on this puppy.

(continued from page 6) an R-value of about R5, as opposed to straw bale's R30+. The key to getting thermal performance from adobe is a combination of passive solar design and appropriate thickness. Studies done at the University of Arizona concluded that heat moves through adobe at about 1"/hour. If you want the heat of the midday warming you at midnight, a 12" thick wall would work well.

Both construction methods utilize abundant natural resources with relatively low embodied energy. Water is the enemy of both adobe and straw bale and must be well managed. Both systems are "living buildings" that need to breathe (transpire, to be exact). Because of this, it is in the types of plasters that the two systems are the most similar: clay and lime. The vocabulary terms were reassuringly familiar (sharp sand, shake tests, slaking, and carbonation). It was a treat to see the ubiquitous Lime Cycle diagram presented in Spanish.

One thing adobe does exceptionally well is graphically demonstrate its incompatibility with cement. We saw countless examples of the destructive effect cement has on earthen buildings: from sidewalks trapping and concentrating rising damp, to cement-stuccoed walls showing no sign of the decay inside until they collapsed due to trapped moisture.

In addition to a lengthy, successful use of natural plasters, the history of adobe clearly demonstrates the necessity to shift people's thinking toward a greater involvement in their buildings. Both metaphorically and literally—adobe buildings, like naturally plastered straw bale homes require regular maintenance. The now-restored Pitiquito Mission is an active church, used by the local community. This community involvement facilitates the upkeep of the church, particularly the annual whitewashing. Missions that do not have active communities rely on preservationists to maintain them.



Damage to an adobe wall caused by cement

As a culture, we have lost touch with this concept of being active participants in our buildings. This leads me to what we least anticipated about this conference: how relevant the general philosophical discussion of the preservation of historical earthen structures is to the one going on in the straw bale and larger sustainable building movement. Although some of the conversation focussed on the challenges specific to the public sector (funding, mandates, and mission statements), the over-riding themes were familiar and relevant to the sustainable building dialogue.

As straw bale advocates, we would like to thank our new friends in adobe conservation for broadening our horizons and adding to the critical dialogue of why and how we build. Straw bale building, as a relatively new system of building, has evolved quickly and is uniquely poised to integrate the old with the new. Ours is the task of appropriating the appropriate.

Questions or comments? Contact Rebecca Rebecca@simpleconstruct.net or Alan greenbuilder@roadrunner.com

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CASBA
P.O. Box 1293
Angels Camp, CA 95222-1293
(209) 785-7077