

ADOBE ASSOCIATION OF THE SOUTHWEST

AASW NEWS

“TO CHAMPION EARTH CONSTRUCTION OF
YESTERDAY, TODAY & TOMORROW”

Adobe Association of the Southwest (AASW), P.O. Box 426, El Rito, NM 87530 Ph 505 685-4633 www.adobeasw.com

2005 Conference held in El Rito

MORE THAN MUD HUTS: Third annual adobe-building conference attracts visionary international builders and speakers.

The development of a sustainable village in Kenya, the conservation of adobe architecture on the Camino Real, and the championing of woodless construction in West Africa are just a few of the highlighted presentations at this year's conference. Held on the “adobe-rich” campus of Northern New Mexico Community College in El Rito, the conference attracts adobe aficionados and builders from around the world. In addition to three days of presentations on recent adobe projects, this year's conference will also feature hands-on exhibits and demonstrations. Participants can get their hands muddy in the adobe mixing pit, help construct a model wall, and learn the basics of mud and lime plastering. A multi-media room showing international films on earthen building and a tour of local adobe architecture will round out the weekend offerings. The AASW conference begins at 1:30 p.m. on Friday, May 20, 2005 and ends at noon on Sunday May 22. The registration fee for the weekend is



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\$60 (\$30 for students), and reasonably priced dorm rooms, suites and cafeteria meals are available. One-day passes are also available. On-line registration forms are available at www.adobeasw.com and also on page 7 of this newsletter.

Work of Simone Swan to be honored at 2005 AASW conference

Each year the AASW conference acknowledges an individual who has made a special contribution to the world of adobe construction. Designer and owner-builder Simone Swan, well known for her work with the Adobe Alliance in Presidio, Texas, will be honored this year. In the 1970's Simone apprenticed with renowned Egyptian architect Hassan Fathy, author of *Architecture for the Poor*, *Natural Energy* and *Vernacular Architecture*. Inspired by his use of earthen materials and interest in indigenous building techniques, Simone

went on to establish the Adobe Alliance in the Big Bend area of Texas in order to realize low-cost housing in the border region. The Alliance has since constructed houses which demonstrate the innovative use of earthen materials on both sides of the border. The goal of the Alliance is to create new building standards for environmentally compatible, sustainable homes and communities. Simone dreams of the day when her group can erect a billboard advertising “Adobe Immobile Homes” in Presidio, where mobile homes abound.

Interview: Joaquin Karcher of One Earth Design–Taos, NM

Joaquin Karcher is an Architect, Designer/Builder based in Taos, New Mexico. We asked Mr. Karcher to talk about his background and his involvement with earthen construction using compressed earth blocks. Here is what Mr. Karcher had to say.

“I started my career doing design/build work for about 10 years. Then I got out of building – at least for clients, and went back to architecture. I always saw myself more as an architect anyway having a master’s degree from Hamburg, Germany. Many of my friends from back then have big offices now in Germany. Some are still into “Lehmbau” (earthen construction techniques) and “Bau-Biologie” (science of healthy living environments). My main talent lies really in creative design. In order to live my potential I decided to focus again on the creative side of the business which is the most rewarding to me. I have always believed that architecture is a form of art and in my heart I am definitively closer to an artist than to an engineer.

I did not really start out with compressed earth block right away. I only got exposed to this technology here in the US. In Germany and Iran I worked with adobe. My first wife was Iranian and her father a Beaux-Arts trained architect and engineer. Great guy! He took me to thousands-year-old mountain and desert villages, entirely built out of adobe. I was totally turned on by those experiences and still have hundreds of slides that are probably pretty rare!

In Germany I also worked with light-clay, renovated a 400 year old renaissance building (post and beam with willow and straw clay fillings) and participated in an participatory art and architecture exhibit called FREIRAUM firing an underground kiva that we built out of unfired industrial bricks. I had met Nader Khalili a few years earlier at SCI-ARCH and that exhibit was my chance! This event was a big deal in 1986 in Hamburg. Unfortunately it was never properly documented. The who’s-who of Germany’s earth architecture scene had a project there; 13 projects total. It went on over 6 months. It took place outside the compound of an old WW2 military equipment factory. The huge buildings were used by theatre groups for avant-garde music, performances, and art exhibits. It was the biggest center for Free Theatre in Europe at the time. While people in suits, ties and high heels came to the performances, they watched us kneading mud with our bare feet in mud boats or watch the blazing flames of my kiva being fired for 5 days and 5 nights. It was exhilarating to say the least!

Also while studying in Germany I did my thesis on a town

developing plan of Chinle, the community right by Canyon de Chelly, Arizona. I designed a series of passive solar Hogans that were expandable and to be built of local materials. Adobe was the first choice. Years later, when I moved out of Germany to live in the US, I wanted to realize these ideas. In the early ‘80s I lived on the Navajo Reservation in Rough Rock. I was helping my friend Tsosie van Tsinahjinnie test clay and prepare for a kiln firing. While on the reservation, I worked with the tribe and the local chapter on an on-the-job training program for 12 unemployed individuals. Making adobes was out of the question since there were no adobe yards anywhere close and there was no time to make them ourselves. I knew from CRA Terre in France about Compressed Earth Block. They were pushing this technology really heavily at that time. It so happened that I met Henry Elkins from Adobe International out of Grants, N.M. He was interested in promoting his equipment to the Navajo tribe and volunteered to make the blocks for us. That is how it started. Later my friend and partner Jeff Terrell bought a machine that I used for about 10 years.

The advantages of compressed earth blocks (CEBs) versus adobe are that you can produce earth blocks without needing an adobe yard around. Even in very remote areas and tight places. You can pull that machine with a truck to any location and start producing, after having done your homework of course. What I mean by that is testing the soil for suitability and working out a way to load the machine. It is very fast and efficient! Imagine making and laying 1000 earth-blocks per day! We were always able to achieve that and we did it for years. No mixing, no waiting, no drying time. It is just earth without adding anything. No straw, no sand, nothing! You can go wall high in a day. It took us typically 3 to 5 days to finish the walls of a house. That includes making and laying. CEBs are also a lot denser than adobe which makes them very suitable for trombe walls. Disadvantage is their susceptibility to rain. They have to be protected until the roof is on and that can be a hustle. I still cringe when I think about how often I had to get up in the middle of the night in a downpour, drive to the job site and get on the walls pulling tarps with a flashlight in my mouth and the headlights of my truck on the building. So I tell you, computer-aided design work sounds a lot more appealing to me.”

Joaquin Karcher will be a speaker at this year’s AASW conference. Mr Karcher’s topic will be on the commonalities and differences between the European and US adobe scenes.

John Norton: Building sustainable communities in West Africa

John Norton of Development Workshop (DW), will be one of several international speakers at the 2005 AASW conference in El Rito. Mr. Norton will be presenting his organization's recent work in West Africa using unstabilized earth bricks.

Faced with growing problems of environmental degradation and the destruction of forests, and the consequent major shortages of wood for the construction of roofs, the inhabitants of the Sahel countries of Niger, Mali, Burkina Faso and Mauritania in West Africa have over the past twenty years found it increasingly hard and costly to build decent durable houses and other village buildings.

Development Workshop (DW) over the past two decades has responded to this problem through a series of programs to train village builders to build using vaults and dome roofs constructed with hand molded and sun-dried bricks and erected without any supporting framework during the construction process—techniques known today in West Africa as woodless construction. These techniques have their origin in Iran and Egypt, where DW worked in the 1970's, and where vault and dome building skills have been handed down over many centuries through long years of apprenticeship. In the Sahel, the learning process has needed to be much shorter in order to quickly develop skills in the rural communities so that there are enough trained



Building walls using unstabilized earth bricks.



A roofscape of earthen construction in Burkina Faso, West Africa

masons to construct all the different buildings required in a village, from houses to grain stores and classrooms, as well as religious buildings.

Many of the “builders” who DW works with have had little previous formal experience of building with mud bricks, and a lot of the builders are illiterate as well. Since 1992, DW and its partner organizations and colleagues have progressively refined a training process that adapts to local resources and requirements, and provides a complete hierarchy of local technical and managerial skill. Novice builders learn how to construct a basic vaulted or domed building in 8 weeks, and today, for example, 80% of trainees in Burkina Faso start by building their own home, proof to their neighbors that the trainee has faith in his own newly acquired skills. Over subsequent months and years, builders are given the opportunity to participate in refresher courses to improve their skills, and many go on to train as “woodless construction” site supervisors, trainers and technicians. DW provides courses on marketing the builder's skills, on maintenance of mud buildings, on estimating costs and drawing plans of “woodless construction” buildings. All these activities are supported by training materials and handbooks, many now in local languages and illustrated so that builders who cannot read can still be helped to recall what they have been taught.

Adobe: Building with Earth by Quentin Wilson



Excerpt from *Home Power Magazine*, Oct. 2004

Adobe has a long and dependable history. Although many people classify it as an alternative building material, it is neither experimental nor alternative. Basic design details for adobe construction were worked out millennia ago. According to a 1960 census, 60 percent of the world's population lived in adobe or earthen structures such as rammed earth, cob, wattle and daub, sod, and cast-in-place. The use of adobe in unexpected parts of the United States is continually being rediscovered. The Spanish arrived in what is now the American Southwest to find the Pueblo people using adobe in their multistory buildings. The Spaniards moved in next to or on top of the pueblos and continued the tradition that they already knew from Spain. When the Anglos arrived, they too embraced and continued the adobe tradition with homes, forts, and government offices. Today, you can find adobe homes not only in the Southwest, but also lurking in neighborhoods from Denver to San Diego to Lubbock, Texas, and beyond.

Several rules for adobe construction are enforced by gravity, climate, and the first lay of thermodynamics. Buildings need to be built on solid, dry ground that drains well. The height of the walls can be only about ten times their thickness. Door and window openings should not be in corners, and the total area of openings cannot be too large. In wetter climates, a foundation top must be well above the ground level. A roof with large overhangs and gutters is especially important to keep moisture away from the walls, just as they are in lumber, steel, and timber construction. All of these rules are well known.

You can buy adobe bricks from an adobe block maker, or you can make your own. Brick making is simple, but it's hard work. The concept of making sun-dried bricks and bonding them together with mortar to create walls was brought

to the Americas by the Spanish. The technique probably developed in North Africa or Asia and was introduced to Spain by the Moors. The most cost effective and energy conserving method is to start with a loose pile of earth that has a workable blend of sand and clay. Make a little crater in the side of the dirt pile and add 5 to 10 gallons of water, which will soak in quickly. As soon as the water is gone from the surface, shovel the mud into a wheelbarrow. Wheel it to a flat piece of ground without too much grass, and pour it into a form that makes four bricks at a time. That is just the amount that is comfortably carried in a wheelbarrow. Repeat the process, lift the form off the first adobes, and pour the next batch. If the mix is stiff enough, the adobes will hold their shape and not slump. You might have to get down on your knees and press the mix into the corners of the form. Once the mix and stiffness is adjusted, repeat the process.

Five thousand bricks will make a home of about 1700 square feet. The New Mexico standard, 10-by 14-by 4-inch bricks, average 32 pounds each, equaling 160,000 pounds or 80 tons or 50 cubic yards. Right away you can see the dominant feature of adobe construction— incredible mass. Two people can make a hundred adobes in two to four hours. Two hundred per day is a reasonable production goal, and people who make adobes for a living routinely crank out five hundred per day with two people. At that rate, it only takes ten days to make bricks for a 1,700 square foot home. Settle for a more humane, four weeks of two hundred adobes per day, or eight weeks of making one hundred every evening.

The complete version of Quentin Wilson's article can be found in the Oct/Nov 2004 issue of *Home Power Magazine*

Building Science with Carl Rosenberg of San Cristobal, NM

Carl Rosenberg of San Cristobal, NM will be one of the speakers at this year's conference.

Mr. Rosenberg will present two topics: "Energy in Natural Building - Embodied and Operating" and "Building Science Basics for Adobe Building".

We contacted Mr. Rosenberg and asked him to tell us a little more about his background and the nature of his involvement with Building Sciences as it applies to adobe construction. Here is what Mr. Rosenberg had to say:

"I am originally from Fairbanks, Alaska. I moved to New Mexico about 10 years ago. I lived in Santa Fe for five years and moved to Taos in 1999. In Alaska I spent 18 years as a builder, designer, contractor and the last 10 years as an energy conservation consultant working for the state and a private contractor performing energy ratings, designing heat recovery ventilation systems and teaching and consulting. In Santa Fe I worked as a consultant for builders on how to build healthy, energy efficient buildings as well as consulting on indoor air quality, mold and radon remediation.

Moving to Northern New Mexico, I was disappointed as to how much embodied energy and materials were needed to build extremely energy efficient buildings. We were actually building two houses, one inside the other, to make a good building. However, this was a great opportunity to utilize my areas of expertise and I was thrilled to work with many local natural builders seeking to attain enhanced energy efficiency. I immediately started working with straw bale, straw clay and adobe builders. Many people are under the impression that simply choosing natural materials would result in a house that was healthy to occupy, or that it would be a low embodied

energy home. For example, many people just simply assume that choosing a strawbale house would be an energy efficient home. Unless the house is designed with thoughtful intent and consideration of the basic building science fundamentals this was not necessarily the case.

Through the application of "building science" I was able to explain why some natural buildings are unhealthy or why some strawbale buildings had horribly high heating bills. The more I was involved the more I was compelled to work with natural builders to share my expertise so they can realize their dreams, building beautiful, healthy, energy efficient and low embodied energy buildings. With energy prices ever increasing, the need for awareness in energy efficient buildings is extreme. I now am adjusting my consulting business to give clients the options to design and build buildings that will be completely energy independent, needing no fossil fuels.

My presentation on building science will focus on understanding the science of heat, air and moisture and applying that knowledge to design and to construct houses that are comfortable, healthful and efficient. I will discuss the physics involved, such as in which cases does the impression that heat rises hold true, and in which special cases the opposite can actually occur. I will also talk about efficient heating systems, how air moves inside and through buildings and how moisture gets into buildings. The emphasis will be to enable designer/builders to create buildings with no moisture problems, great indoor air quality, low or non-existent energy bills, resulting in a healthy environment for the occupants and builders, as well as the planet."

Carl Rosenberg lives in San Cristobal, New Mexico. Mr. Rosenberg is involved in all aspects of sustainable building and runs his own consulting firm, Sunspot Design.



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The Adobe Association of the Southwest would like to thank all of our sponsors who helped to make this year's AASW Conference Newsletter possible.

AASW 2005 Conference Schedule (subject to change)

Friday, May 20, 2005

11AM to 1PM

Registration

1:30 to 4:30 PM

Session I

A William Gustafson, Ph.D., [Texas Tech University](#), Lubbock, Texas, *Rich Folks-Poor folks: Adobe Housing as an Adoption-Diffusion Anomaly in the U.S*

Jean Fulton, [Cornerstones Community Partnerships](#), Santa Fe, NM, *Volunteerism and the Socorro Mission Preservation Project*

Francisco Uvina Contreras, [Cornerstones Community Partnerships](#), Santa Fe, NM and **Luis Fernando Guerrero Baca**, Ph.D., [Universidad Autonoma Metropolitana](#), Xochimilco, Mexico, *Adobe Training in Aguas Calientes, Mexico.*

Carl Rosenberg, San Cristobal, NM, *Energy in Natural Building - Embodied and Operating*

Mack Caldwell, Oklahoma University, Norman, Oklahoma, *Earthworks in China*

5PM to 6:30PM

Dinner

7PM to 7:40PM

Honors: [Simone Swan](#)

7:40PM to 8:30PM

Special Presentation: [Ronald Rael](#), [School of Architecture, Clemson University](#), South Carolina, *Yemen 2005*

8:30PM to 9:30PM

Social Hour

Saturday, May 21, 2005

9:30AM to 12N

Session II

Patrick Taylor, [Cornerstones Community Partnerships](#), Santa Fe, NM, *Plasters, Renderings and How They Work*

John Norton, [Development Workshop France](#), Lauzerte, France, *Woodless construction in West Africa - recent experiences*

Ms Shinuna Said Al Esry, Mombasa Kenya, *Omanisation, the Making of a Village*

Joaquin Karcher, [One Earth Design](#), Taos, NM, *Commonalities and differences between the European and the US Adobe Scenes*

Antonio Guerrero Arzaga, Architect, Mexico, **Alfonso Aguirre**, Architect, Mexico, *Restoration and adaptive reuse for the Hacienda de Sombreretillo*

Richard Burt, PhD., [Department of Construction Science, Texas A&M University](#), College Station, TX, *The Witchert Buildings of Buckinghamshire, England*

1:30PM to 5PM

Tutorials and Hands-on Demonstrations

Mark Chalom, [Architect](#), Santa Fe, NM, *Solar Adobe Tutorial*

Joe Tibbets, [The Adobe Builder](#), Sabinal, NM, *The New Adobe Code Tutorial*

Chuck Kondas, NM, *Mud Plaster Spray Pump Demonstration*

NNMCC Students, El Rito NM, *Adobe Wall, Corner and Arch Tutorial*

Pat Taylor, Santa Fe, NM, *Lime Plaster*

5PM to 6:30PM

Dinner

7PM to 8PM

Special Presentation: **Quentin Branch**, [Rammed Earth Solar Homes, Inc.](#), Oracle, AZ. *An Extensive Portfolio of Rammed Earth*

7PM to 8PM

Social Hour-Films, Slide Shows and Re-Runs

SUNDAY, MAY 22, 2005

9:30AM to 12N

Session III

John Barton, [Architect](#), Santa Fe & Ojo Caliente, NM *Recent Projects*

Carl Rosenberg, San Cristobal, NM, *Building Science Basics for Adobe Building*

Jorge Calderon-Trueba and Nubia Valles, Architects, Juarez/El Paso, *Recent Projects*

Ed Crocker, [Crocker Ltd.](#) Santa Fe, NM, *Racing Alone: The Dangers of Regionalism Isolationism and Trade Secrets*

Amer Rghei, PhD., Department of Architectural Engineering, [United Arab Emirates University, Al-Ain](#), UAE, *The Renovation of Earthen Settlements in North Africa: A Strategic Approach to Underground Heritage*

Cafeteria Hours:

Breakfast: 7AM to 9AM Lunch: 12PM to 1:30PM Dinner: 5PM to 6:30PM

Library Hours:

Friday: 11AM to 2PM and 5PM to 12Midnight

Saturday: 8AM to 10AM and 12M to 3PM and 5PM to 12Midnight

Sunday: 8AM to 3PM

Registration:

Friday: 11AM

Saturday: 8AM

Sunday: 8:30AM

AASW

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Mission Statement:

**To champion earth construction
of yesterday, today and tomorrow**

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AASW Mission Statement: To champion earth construction of yesterday, today and tomorrow.

Purpose: To be a voice within the earth building community.

Goals: To share knowledge about earthen construction. To participate with other earth construction organizations.

Strategies: To host an annual conference and membership meeting. To publish the proceedings of the annual conference.

Board Members: Mack Caldwell, Mark Chalom, Jim Harford (Treasurer), Reid Hayashi, Mel Medina, Leslie Oldar, Kristina Orchard-Hays (Secretary), Ronald Rael, Simone Swan, Francisco Uvina, Quentin Wilson (President)

AASW Newsletter:

Kristina Orchard-Hays (Editor), Reid Hayashi (Layout), Jim Harford (Graphics/Advertising).

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