



THE CASBA JOURNAL

NEWSLETTER OF THE CALIFORNIA STRAW BUILDING ASSOCIATION

CASBA: A NON-PROFIT PROJECT OF THE TIDES CENTER - VOLUME XVI NUMBER 1&2

2011 CASBA Spring Conference

is scheduled for April 1st - 3rd, 2011 at Walker Creek Ranch near Petaluma. More info at:

www.strawbuilding.org

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Daniel Silvernail Steps Down as CASBA Newsletter Editor

After eight years of service editing the CASBA Newsletter, Daniel Silvernail has decided to resign.

Daniel is the principal at DMSA (Daniel Matthew Silvernail Architect), which was founded in 1997 and is based in Soquel, California. With an undergraduate degree in Environmental Biology from California State University Northridge and a Masters degree in Architecture from the University of Oregon, Daniel's architectural practice is informed by his ecology background. Daniel is also a practicing artist who exhibits his work regularly.

Daniel has been a CASBA member longer than anyone seems to be able to remember when asked about it for this article.

We would like to extend our thanks to Daniel for his years of dedicated service to the Newsletter.

Blower Door and Infrared Testing on a Straw-Bale Home

David Arkin of Arkin-Tilt Architects submitted the following report that was prepared about one of his straw-bale projects.

Sierra Energy Professionals, architect David Arkin, contractor Jim Seely and owners Eric Millette and Karen Burch collaborated to conduct a test on the tightness of the building envelope of a straw-bale residence. The system was analyzed by using a testing method known as a Blower Door. The house was shut off to the exterior and pressurized, which allowed for inefficiencies to be identified with a pressure meter, infrared camera, and a fog machine.

The residence is located on Chalk Bluff Road in Nevada City, California, and was completed about a year ago. It is a hybrid construction with wood framing used for the bathroom and straw bales for the rest of construction. The roof was constructed using Structurally Insulated Panels (SIP's). The house has aluminum-framed windows, all double paned. No areas of discomfort are reported and all systems function well.

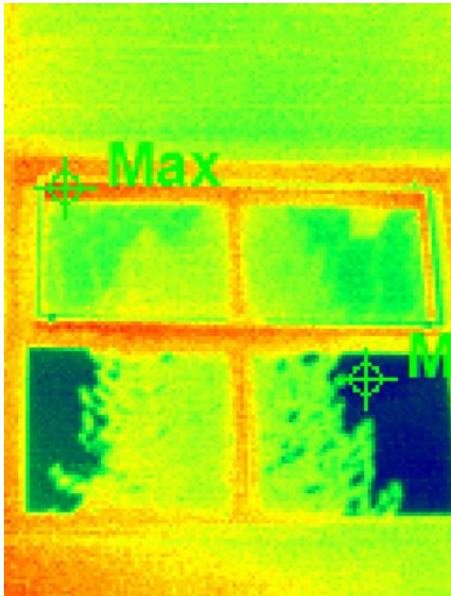


The Millette/Burch Residence in Nevada City, CA

A Blower Door test was set up on the front door, with the fan set to depressurize the interior of the house to negative 50 Pascals(Pa) relative to the exterior. This approximates a 20 mph wind hitting the house on all sides and causes air to infiltrate from the exterior to the interior living space.

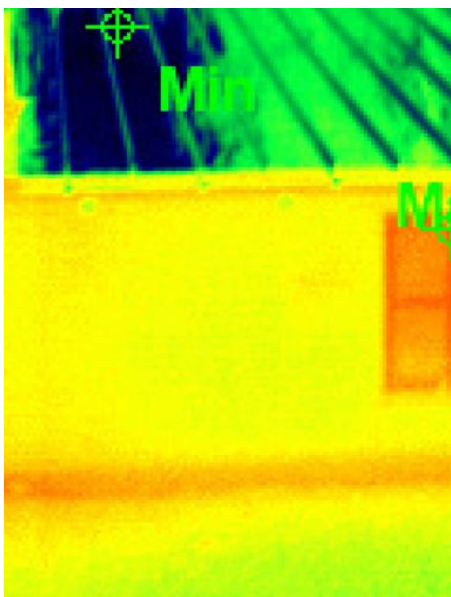
When the house pressure was at a 50 Pa difference relative to the exterior, the flow of air infiltrating from outside into the building envelope was measured to be 617 cubic feet per minute (CFM). This is the equivalent of an 81 square inch (less than 1 square foot) window being open on a flat wall all the time. This is a very low number and no improvements are seen as necessary in this area. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) suggest a minimum natural ventilation of 950 – 1,200 CFM for a house of this size. This house is tighter than ASHRAE suggests without mechanical ventilation but the knowledge and behavior of the occupants alleviates the need for mechanical ventilation.

These infrared images show air and thermal leakage. Green and blue represent cooler temperatures. Yellow, orange, red, and white represent progressively warmer



temperatures. These are exterior views documenting heated air escaping from the interior.

This window is well sealed. The only thermal movement is due to thermal bridging across the window frame.



This section of straw-bale wall is interesting because of what we don't see: any variation in thermal leakage through potential voids in the straw bales or around framing members.

"Any doubts that I had about straw bale or SIP construction are thoroughly gone after conducting these tests. This is definitely the tightest and best insulated house I have ever tested." - Michael Ukraine,
Sierra Energy Professionals

More information can be found at:
www.arkintilt.com/projects/residential/millette.html

Thanks to Sierra Energy Professionals,
PO Box 4112, Truckee, CA 96160
(530) 386-4893 sierraenergypros@gmail.com
www.sierraenergyprofessionals.com

CASBA Member Martin Hammer helps develop affordable straw bale housing in Haiti

Martin Hammer is working with Builders Without Borders to develop straw bale buildings in Haiti to address the overwhelming need for affordable, safe housing since the devastating earthquake.

Builders Without Borders describes itself as “an international network of ecological builders who advocate the use of straw, earth and other local, affordable materials in construction” who believe “that the solution to homelessness is not merely housing, but individuals and communities trained to house themselves.”

The following excerpt is taken from their website: www.builderswithoutborders.com
We look forward to hearing the latest about this project at the Spring Conference.

Project Overview: Builders Without Borders Sustainable Rebuilding Solutions for Haiti

*Ti Kay Pay - Small Straw House
The First Strawbale Building in Haiti
Dec /Jan 2010*

Builders Without Borders first building project in Haiti has begun. Team leader and architect Martin Hammer and team member and lead builder Andy Mueller are in Port-au-Prince to construct the first

strawbale building in Haiti. This fits with BWB's mission to develop and promote safe, affordable, sustainable, and culturally appropriate shelter in places of need.



As with all BWB projects, this work in Haiti includes training and active involvement of people in the communities where the work occurs. This collaboration allows the development of appropriate solutions that are received and owned by the local population. Already, Haitians Jean Louis Elie and Annio Baptiste have become integral members of the Ti Kay Pay construction team, and Jean Louis plans to build his own strawbale home after the first one is complete.

In a recent team interview by CBC Radio-Canada, after only five days of working on the Ti Kay Pay, Jean Louis remarked - "When people see the construction, then they really accept it. Because it's ours. The straw is ours. We make it, we live in it, it's no problem." And he continued, in response to a question about whether it took an earthquake to change people's ideas about how to build in Haiti - "If we had this kind of house, less people would have died."

Using Local Materials and Developing Local Industries - The Ti Kay Pay was designed to use as many in-country and local materials as possible, to build on existing labor and skill resources, and to encourage the creation of local industry. From the foundation to the roof, material and building system choices were made with these goals in mind.

One enormous material resource that is largely untapped in Haiti is the rubble resulting from the collapsed buildings in the earthquake. The Ti Kay Pay design uses crushed rubble in the foundation and in the stem wall in gravel bags. The same crushed rubble is also screened for fine aggregate in the plasters. BWB and one of its partners, the Ecological Building Network, have purchased a

manually operated rubble crusher to generate that material. Alternately, the gravel bags can be filled with the crushed limestone that is commonly used as an aggregate in concrete. This material makes a weak concrete, but works exceptionally well as fill in the gravel bag system.

The gravel bags are made from the ubiquitous tarps that are found throughout the earthquake-affected region. Cut and sewn to the needed size by a local seamstress, damaged and otherwise unusable tarps can be turned into building material instead of becoming part of the waste stream.



Straw bales are central to the Ti Kay Pay construction system. Rice straw is plentiful in Haiti, as rice is commonly grown in the broad Artibonite Valley northwest of Port-au-Prince, as well as near Les Cayes on the south peninsula. At least 80% of rice straw in Haiti goes to waste, usually burned after harvest, polluting the air in the process. Two and sometimes three rice crops are grown annually, making straw a rapidly renewable resource in Haiti. BWB's Ti Kay Pay uses manually baled straw, for its wall system, reinforced with bamboo and covered with interior clay and exterior lime plasters. Clay is readily found throughout Haiti and a tradition of clay plaster exists, and efforts are being made to revive Haiti's lime kilns.

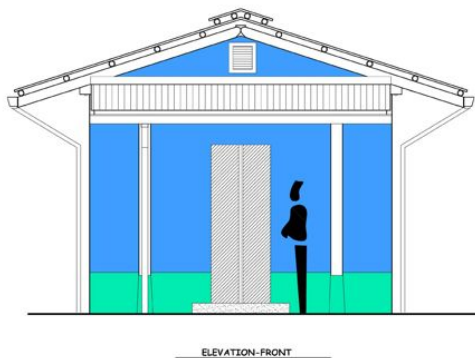
Pallet or bamboo trusses provide the roof structure, covered with commonly available and durable sheets of corrugated steel. Wood from pallets, left from the vast number of post-earthquake aid shipments, has become a new in-country resource for Haiti. Bamboo has long been native to Haiti, and a number of bamboo plantations existed before the earthquake. However, it is now widely seen that strong and fast-growing bamboo has been underutilized as a construction material in Haiti over recent decades. A campaign is underway to increase bamboo plantings and develop a bamboo industry, especially with species such as Guadua that are particularly effective as a structural material. Bamboo also has tremendous potential to help with Haiti's staggering condition of deforestation.

tion. Kevin Rowell of Kleiwerks International, with his extensive experience worldwide with bamboo construction, is a special consultant to BWB regarding this and other natural building materials used in the project.

Cool Houses - Although the thermal insulation commonly associated with strawbale buildings is generally not needed to keep buildings warm in Haiti, the system's excellent balance of mass and insulation moderate temperature and keep the interior space cool. A light mix of straw and clay is used as insulation above the ceiling to shield the interior space from the heat of the sun as it warms the roof during the day. The attic space is generously ventilated, and louvered transoms above doors and windows provide cross ventilation throughout the day. Doors and shutters control ventilation as well as privacy and security.

Culturally Appropriate and Flexible Design - BWB's Ti Kay Pay is a culturally appropriate design derived from the Haitian Ti Kay, the common two-room plus galri (veranda) house, which is the fundamental rural and suburban living unit in Haiti. The BWB team has developed an understanding of Haitian vernacular building traditions with research and field observations and input from its Haitian team member and architect Regine Laroche, as well as with the research of architect and University of San Francisco professor Chris Andrews.

The galri is especially important to the design, since much of Haitian daily living occurs outside. It provides an outdoor space protected from sun and rain and serves as a transition from the more public yard or street to the private interior rooms.



The Ti Kay Pay design also lends itself to expansion. A third room in the back can be easily added, extending the shotgun floor plan. Rooms or porches with shed roofs on one or both sides can be

added as well. Window locations in the design can instead accommodate doors and vice versa as the site or needs of the owner demands.

The design is a blend of traditional and modern in its form and appearance, including the plaster finishes associated with the modern concrete and block buildings Haitians have come to prefer, but with a light roof that so many Haitians are returning to after countless concrete roofs collapsed in the earthquake.

The system of strawbale construction developed for the Ti Kay Pay can also be applied to other house designs, or other building types as well. It is particularly suitable for use in small schools or clinics. Larger scale buildings, including two story buildings, could employ many of the systems developed for the Ti Kay Pay with proper engineering.

Safe Buildings for Secure Lives - The Ti Kay Pay has been engineered to withstand earthquake forces exceeding Haiti's January 2010 earthquake, as well as 145 mph winds from hurricanes that annually threaten Haiti. Mesh reinforced plasters encase the gravel bag foundation, vertical lengths of bamboo stiffen the walls, and steel wire tension ties diagonally brace the corner wall panels, all to resist earthquake and wind forces. Large uplift forces under the roof from hurricane winds are countered with the weight of the building itself, by strapping the roof down to the foundation. Martin Hammer, project engineer Henri Mannik and architect Dan Smith, have used their 40 years of combined experience designing strawbale buildings in seismically active California to ensure the safety of these buildings. They have drawn heavily on numerous laboratory and university testing programs for strawbale wall systems over the last 15 years.

Affordability - The cost of these buildings is extremely important, and is being carefully monitored. The more affordable and the more they can compete with conventional methods of building, the more they will be utilized. Ways to simplify the building system and make its construction more efficient are constantly being explored to reduce cost, but without sacrificing safety or durability, and in fact making the building more so.

Read the full project overview and see current photos at www.builderswithoutborders.org

NOTES FROM CASBA CENTRAL March 2011

First a huge THANK YOU to Rebecca for picking up the mantle as Editor/Publisher of the Journal – this publication is a great link for members to learn about activity in the Straw Bale World. We know that the membership will support her efforts by submitting articles and photographs, so get your writing hats on and overwhelm her with information.

And a hearty *Thank You!* and *Well Done!* to Dan Silvernail for his work on the Journal. He brought a high degree of organization and creativity to the Journal. We know Dan will still be busy in the world of alternative building.

2011 is starting off as a pretty good year in spite of the lagging economy. We have acquired several new members (and lost a couple of older members). We are going international with a new member from Egypt who joined just as the changes began in that country. We appreciate the support of one and all.

Our Spring Conference is taking shape under the tutelage of Kathy Gregor and Joy. Our keynote speaker will be Bill Toone from the Ecolife Foundation in southern California, plus the usual gamut of presentations, as well as an extended members' meeting. New this year will be a book and seed swap.

CASBA will be represented this year at the Mother Earth News event in Marin County in September instead of our usual booth at West Coast Green. CASBA will also be represented at a couple of local events, including Earth Day Fair in San Diego as well as Sierra Green Days in Murphy's. We know that building with straw is a survivor and as the economy improves, so will the interest and activity.

We will catch up on where CASBA is presently and discuss where it wants to go in the future. Despite the lagging economic climate, we are still getting members and inquiries from out of state and foreign countries.

We hope we see you at the Conference and again, thank you for your support and help.

~ Maurice Bennett, CASBA Central, 209-785-7077

Upcoming Events CASBA Should Be Part Of?

If anyone knows of any great green event coming thier way and feel it would be a REALLY good spot for CASBA to have a display, do let us know. Generally, CASBA is comped (due to being a non-profit) but even if there is a minimal fee, we should chat. Its good to keep CASBA out there so folks can be educated on the use of straw, etc.

Maury and I will do a table for CASBA at a local event April 30 – May 1st. We did it last year and gave out a fair amount of info. It was great fun too!

~ Joy, CASBA Central, 209-785-7077

What I Would Do Differently...

With all that's happening in our economy -- gas prices soaring, food prices up -- it seems to me that, as much as most of us straw bale folks yearn for that incredible, wonderful, private spot in the country: should we??? I just think we should think long and hard about how wise a decision it really is to live too far from the amenities these days. We are 3.7 miles from our own mailbox.

True, we TOTALLY love our spot and our life-style. I am merely asking, how smart is it, given this economy? And who knows if it will ever go back? Sure, I long for those good old days, but I'm probably dreaming! I am suggesting one looks at ALL their options and carefully considers where to build that oh-so-wonderful straw home!

On another note (I have mentioned this before): How smart is it to have concrete floors? We so love the look and the easy upkeep, but I don't think they are really good for our bodies, especially, as we age (though I'm not an orthopedic doctor, thank goodness). I would suggest one thinks twice about what type of floor to use. Maybe consider cork or something softer in the kitchen and areas where you stand for a time.

Oh, and do remember to consider wide hallways and entries, which seem practical. Thats it! I'd love for you all to contribute to this column. We wish to help those out who are going to build a home.

HAPPY BUILDING!!!! ~ Joy, CASBA Central

Bye-Bye to bb

The Johnny Apple Seed of straw bale has retired. A founding member of CASBA, Bob Bolles traveled up and down the dusty back roads of Southern California for over a decade and a half spreading the seeds of passive solar design and straw building. He was instrumental in the development of straw building in the state, and his influence is seen readily around San Diego County in the numerous straw bale structures in existence today that he consulted on. He helped architects and owner-builders tackle many a municipality, from Riverside to Imperial counties, in the push to win acceptance for this once renegade form of building. Today, if you look up the Green Building Incentive Program for San Diego County's Department of Planning and Land Use, straw bale building is the first subject mentioned on their website. That is due to the efforts of a handful of local pioneers, of which Bob was the initial ring-leader.

Bob has packed his bags and moved to the Tucson area of Arizona now. Before he left, he customized a sea container into a portable workshop and looks forward to working on his own projects for a change... although he doesn't rule out an interesting project in straw with others from time to time.
< grin >

~ Lesley Christiana

Bob Bolles was not only a founding member of CASBA, but also a strong member of the CASBA Advisory Board for many years. He not only pioneered building with straw in Southern California, he helped develop many of the building techniques used today. He was awarded "The Traveling Straw Dog Award" for his contributions to the straw bale movement in California: small tribute to such a stalwart promoter of building with bales.

Bob never did hesitate to express his strong feelings about building consciously and he still does not. His presence and contributions will be missed by CASBA but his move to Tucson puts him smack in the middle of where the straw building revival began—with Matts Myhrman, Judy Knox, and David Eisenberg—good company for all.

~ Maurice Bennett



The first time I met Bob Bolles was at the founding CASBA meeting at the infamous Bates Motel-like place somewhere in the middle of the Carrizo Plain, on a dark night.

Bob's face was weathered, he smoked, and he talked like he knew what he was talking about, whether he did or not. He seconded motions with his nod or a smile...or maybe he said something. We were all talkers, except a guy from Mexico that Bob had in tow, and Bob was pretty good at getting a word in edgewise, or laid flat, whenever he wanted. I never understood how he got there but he seemed to be on board before he arrived.

He hugged everyone at the end. We all left. The Motel in the middle of the waterless plain disappeared into time and space. Bob kept on working, being Bob, and spreading straw bale in the parched counties of Southern California.

We'll miss him.

~ John Swearingen

Bob Bolles is a hard-workin', hard-smokin' helluva guy with a glowing Buddha heart for all. I want him on my side in a barroom fight, and I want him on my planet when everybody else is getting crazy.

~ Bruce King

Bob and I got to know each other when he sought us out for safer water repellants for his straw bale projects. I immediately appreciated his 'get to the point', no nonsense approach to sustainable construction. Not only did he practice what he preached, he preached a lot about good construction practices and I, like hundreds of others, got smarter from his words of building wisdom. All the best Bob, it will be my turn to buy lunch at Carter's next time you're in town.

~ Jay Watts

the Straw Poll

This is the first in a series intended to spark discussion

If you were involved in building a straw building that used clay plaster on the exterior,
did you paper the wooden framing members?
Why or why not?

Please send your answers to rebecca@simpleconstruct.net
Also, if you have a question you would like to get out to members via the Straw Poll, please send it along.

2011 CASBA Workshop Events:

“Introduction to Straw Building” and “Advanced Earth Plaster Techniques”

Are you planning to build a strawbale home or structure? This is your chance to acquire hands-on learning experience on real, live structures to prepare you for your own future project.

Introduction to Straw Building: a 3 part-series of workshops that will take you through the key components of building a strawbale structure. Two of the workshops consist of a presentation on Friday evening, then instruction and hands-on experience on Saturday and Sunday.

Part 1: Bale Raising Workshop, Friday evening, Saturday & Sunday; June 24, 25 & 26
Instructor: Bill Donovan, licensed contractor

Part 2: Window & Door Details, Saturday only;
August 20
Instructors: Bill Donovan and CJ Cavet

Part 3: Earth Plaster Workshop, Friday evening, Saturday & Sunday; September 9, 10 & 11
Instructor: Tracy Thieriot, plastering contractor,
www.tactileinc.com

Location: Outside of Nevada City in Nevada County, 1 hour NE of Sacramento, CA

The building for these workshops will be an infill strawbale system with post and beam framework. This 24' x 32' structure is a barn with loft and will be used for small farm animals and food production.

Also announcing a special workshop added this year offering advanced techniques in earth plaster:

Advanced Earth Plaster Techniques

The focus of this workshop will be:

- interior fine finishes in clay and lime
- how to design and create samples before committing to the wall
- making your own mixes of finish clay plaster

- and paints
- mixes and products for interior finish lime plasters and techniques
- pigments and color. What they are and how to use them in earth and lime
- special tools and cool things to use
- techniques for troweling, polishing, carving and relief work
- plus exterior earthen plaster repairs

Tracy Thieriot will lead this 3 day workshop on Sept 30, Oct 1 & 2, (full day Friday and Saturday, 1/2 day on Sunday)

Location: an existing strawbale structure on a farm outside of Woodland, CA

Meals are included in the cost of each of the workshops and camping space is available at each site. Hotels & motels are also available less than 30 minutes away.

For more information, cost and registration, go to the CASBA web site: www.strawbuilding.org

Early registration for the workshops will save you money!

Let's Start Some Chatter by CJ Cavet

As a member of CASBA you are automatically added to the CASBA Google email service. If you are not, send an email via the CASBA web site (contact form) to make sure you are on the list. The Google email is not only a way for CASBA to send out information to you but can be used to make your own announcement to the strawbale community or to ask questions of the community. Let's use it more often to keep our questions and ideas circulating amongst us.

Also, many people ask about work parties: when and where they are happening. If you are planning a work party for your project and want to announce it to the community you can do two things: send out the announcement via the Google email and send the information to have it post it on the CASBA web site. The web site will make the announcement available to people who are not members. For the web site, send the information at least a week prior to the event (though earlier is better) to CJ Cavet at cjbwpv@sbcglobal.net.

The Devil IS In The Details!



Ignorance is bliss.

I like this corollary, too: if you knew what you were getting into, you might have had the good sense to do something else.

This could describe our experience both in building a straw bale house, and in helping to edit a book about building straw bale houses.

I say “could.” But, despite moments of hesitation and despair, the challenges of building or editing have been enjoyable and deeply satisfying. Sure beats watching television!

A little history—just a little, I promise. Ken Haggard and Scott Clark produced a handy little book in 2001 titled “Straw Bale Construction Details: A Sourcebook,” published through CASBA. It was an accessible treatment of all that was then known about building with straw bales. It became known as “The Detail Book.”

Californians are an innovative bunch, and they kept coming up with new and better ways to build with straw bales, so before too long, parts of the book were obsolete. Some time around 2006 a group of dedicated CASBA volunteers undertook a revision, which was reviewed by another group of CASBA volunteers, which generated a phenomenal amount of new information. Then life intervened, and the task of updating the detail book was handed on to others.

Here’s a snapshot of what the draft revision looks like today:

- It is written for all audiences interested in building with straw bales—architects, engineers, contractors, building code officials, and owner-builders.
- It re-uses many of the original book drawings, which have been edited and updated to reflect current practice, e.g. eliminating rebar running upright through bales, and much more.
- Design, Engineering, and Plaster Chapters describe what we’ve learned since the late 1990s, taking our understanding of each of these subjects to a new level.

- A Detail Chapter—the core of the book—offers macro details that show how different building elements work together, and micro details that show alternative ways to accomplish any given element. For example, a macro detail illustration for a post-and-beam wall with straw bale infill would reference the many micro details involved, and readers turning to the referenced micro details would see several options.

- Each micro detail begins with a non-prescriptive introduction. Illustrations show options, and comments from architects, engineers, and contractors offer guidance about when to use the option, when it might not be appropriate, tips about how to implement it, etc.

- This detail book “edition” is a snapshot of evolving practices that will undoubtedly change. The hard copy version of the Detail Book is planned as a three-ring binder with removable (updateable) pages, and the details themselves are designed to stand alone (mostly) on one page.

To learn more about the Detail Book draft...you’ll just have to attend the Spring Conference! We’ll be working on details at the conference—filling in blanks and making corrections—to complete what we already have in process. We’ll also be looking for help as we enter the home stretch. If you have CAD or drawing skills, or Adobe InDesign page layout experience, and some time to spare, we need help with chapter illustrations and revised detail drawings!

Our plan is to get this draft into shape for another review. After we incorporate the feedback from that review, we’ll be ready to hand it over to a professional editor (if we give it to an editor now, it might resemble too much the shoe box of receipts and statements that some of us give an accountant at tax time...a bit disorganized and in much need of explanation!). We’re hoping to get the draft into good enough shape that this final step won’t cost too much, or take too long...and then it’ll be finished...for now.

We look forward to seeing you at the Spring Conference, and hearing your thoughts about the Detail Book draft!

~ Jim Reiland & Céline Pinet

Breaking news: Bill Toone will be the keynote speaker at this year’s conference. Bill is the Director of ECOLIFE Foundation, based in Escondido, California. ECOLIFE Foundation is dedicated to resolving conflict between conservation needs and community needs. For more information, visit www.ecolifefoundation.org

A note from the editor: This newsletter is usually produced four times a year. This issue represents a double issue, due to delays caused by the transition between editors. The newsletter depends on receiving submissions from CASBA members. Please send your articles, letters, photos, questions, project profiles, musings, and ramblings to Rebecca Tasker at rebecca@simpleconstruct.net The submission deadlines for 2011 are: June 21, September 23, and December 22. Thank you!

~ Rebecca Tasker

THE CALIFORNIA STRAW BUILDING ASSOCIATION
(209) 785-7077 www.strawbuilding.org

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 bale 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.”



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