



photo: Bruce Haglund

*The New Forest is an ancient woodland with meadows, moors, and mares.*

## POST-OXFORD, RESETTING THE AGENDA

In the spirit of “Resetting the Agenda,” the SBSE New Forest Retreat will focus on new directions in building science research and architectural education, organized around two objectives: to share new and emerging best practices and to chart a course for SBSE’s engagement in global discussion on the future of both research and education.

### New Topics/ New Approaches

1. Carbon Neutrality in the Studio and in the Classroom
2. Green Is More than Counting Carbon: Teaching Topics Other than Energy

### Resetting the Agenda

3. Forum on the SBSE agenda for architectural research
4. Forum on the SBSE agenda for architectural education.

The first two tracks are about sharing new ideas and approaches to teaching green building topics. Presentation time slots will be short (10–15 min.) and organized into serial sessions, so we can accommodate as many presentations as possible, encouraging everyone’s participation in each session. The second two tracks are about creating coherent position statements representing SBSE’s vision for the future of building science research and education. The Oxford Conference is one starting point for these discussions. We’ll also discuss “A National Green Building Research Agenda,” November 2007, by the USGBC Research Committee, chaired by SBSEer Gail Brager. See <http://www.usgbc.org/Show-File.aspx?DocumentID=3402>.

The retreat content will be driven by your proposals for presentations in New Topics/New Approaches tracks 1 and 2 as well as for things we haven’t anticipated. Send us proposals by February 5. We’ll structure forum discussions and designate speakers on each topic. ■

—Jim Wasley & John Quale

## SBSE CALENDAR

### 2008

- May 3–8 ASES Conf; San Diego, CA
- May 15–17 AIA Conv & Expo; Boston, MA
- Jun 24–28 ARCC/EAAE Conv; Copenhagen
- Jul 22–23 TIA/SBSE Conf; Oxford, UK
- Jul 24–25 SBSE Retreat; The New Forest, UK
- Jul 26–27 Comfort Conf; Windsor, UK
- Oct 22–24 PLEA 2008; Dublin, IE

### 2009

- May ??? ASES Conf; Buffalo, NY ■

## ELECTION RESULTS

Congratulations to our new President–Elect Leonard Bachman (University of Houston) and Secretary/Treasurer Michael Zaretsky (University of Cincinnati). Thanks to candidates Adil Sharag–Eldin (Kent State University) and Kevin van den Wymelenburg (University of Idaho) for running clean, positive campaigns. The new by-laws were approved by an overwhelming 93 percent in favor. ■

—Judy Theodorson

## LETTER TO THE EDITOR

I'm a 5th-semester student of architecture at the Autonomus University of Baja California in Mexicali, B.C., Mexico. I saw your picture on the contact seccion of the SBSE web page and noted that you are always looking for contributors to the newsletter. My faculty just had a workshop about a bioclimatic, low-cost house, we call them socila interest homes, in which I participated. I could write about it; I want to participate with people and projects around the world. ■

—Jp Ruiz, UABC, Mexicali B.C.

*[We'd welcome your contribution. Perhaps you could join us at the annual ASES Solar Conference in San Diego in May. Students are our future!—ed.]*



photo: Timothy Grey

*Eco-Center (completed) at the Ball State field station, an example of an all-grass skin (see page 6). Wait, never mind!*

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## MORE OPINION FROM THE LISTSERVER

*[November and December postings titled sustainable, all-glass skins, or resetting the agenda have been enthralling and are archived at <<http://www.lists.uidaho.edu/pipermail/sbse/2007-November/thread.html>>. Here are some ticklers to stimulate your interest.—ed.]*

## SENSE AND SENSIBILITY VIOLATED

Oakridge High School, in El Dorado Hills (near Sacramento, CA), included in our current field study of daylight spaces in an effort to develop a new set of daylighting metrics, is one of my favorite examples of a well-daylighted school. The school was designed 25 years ago by Nacht and Lewis Architects, making all the right moves—careful north-south orientation and shading, balanced daylighting, and views from windows with judicious use of skylights along the center wall of each classroom. One of our staff just visited it for our study to survey two classrooms and the library while the school was occupied. She was told that new school district policy requires teachers to black out all windows within one minute of an emergency phone call warning of a crazed shooter on campus. Since this school has big daylighting windows along one or two walls in each classroom, with lots of mini-blinds and/or heavy black-out curtains, the teachers don't feel they can respond quickly enough. As a result, almost all the teachers and the librarian are operating their classrooms and the library with all the windows blacked out all the time. Two saving graces at this school, maybe—all the classrooms have skylights, so there is some daylight in the classrooms; and one special education teacher thinks this policy is a bunch of bull and is operating her classroom as an outlaw, leaving the blinds open, because it is better for her kids.

We've made so much recent progress on having daylighting and views considered to be important to school design ... and then paranoia strikes? Sheesh !!! (Stronger words are in order, but I'll leave them to your imagination.)

—Lisa Heschong

## ALL-GLASS SKINS

There are proven architectural languages that can greatly expand our ability to respond to a multitude of dynamic forces without resorting to expensive, high-tech skins. Here is where the architectural languages employed by Alvar Aalto and mid-career Frank Lloyd Wright can shed some light. Aalto is appreciated for his ability to respond to a multitude of human needs from visual comfort to religious inspiration. Historically, we know that he not only drew on Finnish and Italian vernacular buildings, but also from three modern design languages: Russian Constructivism, Cubist Collage, and De Stijl. Mid-career Wright also borrowed freely from De Stijl, and I would argue, from Russian Constructivism (although he claims Navajo). All three modern languages were formulated between 1910-40 (before mass air-conditioning) and can be very flexible when responding to a multitude of climatic forces and human needs. Although it is easy to criticize modernists who used these same languages for purely aesthetic intellectual play (e.g., Eisenman, Meier), it's easy to forget that more environmentally-sensitive architects like Rudolph Schindler, Richard Neutra, Will Bruder, Miller-Hull, and Randall Stout have also used these languages to flexibly respond to the dynamics of sun, wind, and light.

Hypothetically, if we apply the aesthetic logic of De Stijl or Constructivism to a simple south-facing shading device, we find that the overhang doesn't have to be symmetrically centered over a window as in vernacular and traditional designs. Overhangs can shift to the west of center so that more shade is provided from the afternoon sun and more light allowed in the morning when we need more warmth and daylight to help wake us up. Using the asymmetrical logic of De Stijl, this shading device doesn't have to balance locally, but can be compositionally balanced in the overall configuration of the façade. Going further, using the structural logic of Constructivism and Cubist Collage, we can also angle the overhang so that more shade is provided in the afternoon and more light enters in the morning. This kind of flexibility is difficult to think of, much less achieve, in glass boxes or vernacular designs without violating their aesthetic.

Architectural languages are more pervasive and influential than we admit. We seem to naturally default to them when we strive for aesthetic unity (to make it look "right"). Architectural languages are not terribly sophisticated, but their effect should be taken into consideration when tackling the multitude of complex and contradictory forces that are inherent in regenerative design. ■

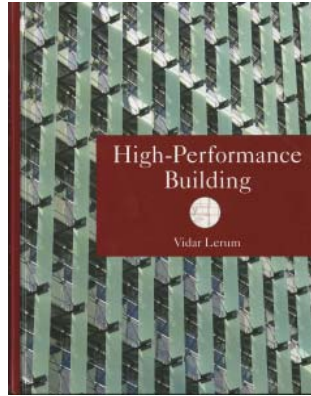
—Phillip Mead

## BOOK REVIEW

### HIGH PERFORMANCE BUILDING

Wiley, 2007

Vidar Lerum's new book, *High Performance Building*, provides a methodology for analyzing and evaluating energy efficiency and thermal comfort in buildings, then applies that methodology to well-developed case studies of seven diverse, critically acclaimed buildings. In many ways, the book is organized like a graduate seminar. It assumes a general knowledge of architectural design theory and concepts, passive and active environmental controls, and energy modeling software while introducing students to a step-by-step, rigorous research methodology. There are several aspects of the methodology that take it beyond the realm of analysis and into the world of "design." The building case studies developed as a result of the methodology are meticulously prepared and provide a depth of information and analysis that is rarely found in most architectural literature. They all include a critical look at the relationship between "claims" about a building (which the author often refers to as the "object," much to my chagrin), the architect's design intentions, and the reality of the "as-built" performance. They also raise important "what if" questions as tools for examining commonly accepted design strategies. One example asks what if the linear Greenland Nature Institute building, in Nuuk, Greenland, had been oriented on an east-west axis as solar design strategies would suggest? (You'll have to read the book to find the answer.) There are many illustrations, and the photos are, in general, quite good; however, plan, section, and site plan graphics are typically taken from other sources and not as legible. Illustrations aside, the content of the case studies and the discussion of decision-making related to data collection strategies make this book well worth adding to your collection. ■



book cover: Wiley

—Diane Armpriest

## STUFF FOR YOU

### ENERGYPLUS VERSION 2.1 AND DESIGN PLUGIN FOR SKETCHUP DELAYED

The *EnergyPlus* plugin for *SketchUp* scheduled for beta testing by mid-December isn't quite ready due to *SketchUp* interface problems. Stay tuned for the go day.

While the beta version will not have all the capabilities intended for the first release, users will be able to draw their building with *SketchUp* and simulate the energy performance using *EnergyPlus*. Users will be able to open existing *EnergyPlus* input files within *SketchUp* and modify the geometry. The first release will allow users to select default building type information, schedules, and HVAC systems, as well as create ASHRAE 90.1-based reference buildings automatically. Both *EnergyPlus V2.1* and the *Design Plugin V1.0* will be available at no cost from the *EnergyPlus* web site <<http://www.energyplus.gov>>. Stay tuned.

—Dru Crawley

### SUSTAINABILITY AFICIONADOS

Check out the recently updated site <<http://toolsforsustainability.com>> for a collection of tools and discussions. Its author, Juintown Lin, indicates that it was recently listed in an article on the "Top 100 Architecture Blogs" at <<http://www.intlistings.com/articles/2007/top-100-architecture-blogs/>>.

—Margot McDonald

### 2008 AIA RFP FOR RESEARCH

The AIA seeks proposals for research projects to be completed in a seven-month period beginning May 2008. The AIA will award up to 10 grants of \$7,000 each. This grant qualifies recipients to have their findings and outcomes published both electronically in the AIA Soloso online database and in a nationally distributed publication, *The American Institute of Architects Report on University Research, Volume 4*. Preference will be given to PhD candidates and junior faculty members focusing on completion or distribution of research or on initial explorations of a particular concept.

Among AIA research priorities are sustainability, limitations of water availability, urbanization, demographic measures of public health and well-being, energy consumption, and better metrics for building performance

Deadline for submissions is April 16, 2008. ■

—Richard Hayes

## AN AFFORDABLE RETREAT?

In light of the weakening dollar, we've tried to keep the retreat expenses within reason. Registration will be only \$100 and accommodation at WIT is affordable. Meals and libation can be had at vernacular prices at WIT's local. See <<http://www.sbse.org/retreat2008/>> for details. All students and faculty from developing countries may be underwritten further by SBSE scholarships—see below.

### STUDENT SCHOLARSHIPS

Up to six scholarships (\$400 each) will be awarded to qualified students to help defray the cost of attending the 2008 SBSE Summer Retreat. Each scholarship will allay most of the on-site retreat costs including 3 nights' lodging (double-occupancy) and breakfasts. A check for the balance of the funds (~\$200) will be presented to the recipient at the retreat. Scholarship students pay SBSE Student Membership Dues (\$15), registration fee (\$25), and their travel expenses. For information about this scholarship and an application see <[http://sbse.org/awards/sbse\\_retreat\\_scholarship.htm](http://sbse.org/awards/sbse_retreat_scholarship.htm)>.

### JEFFREY COOK MEMORIAL SCHOLARSHIP

In honor of Jeffrey Cook, a \$500 scholarship will be offered to a faculty member from a developing country to help defray the costs of attending the 2008 SBSE Summer Retreat. The award will be based primarily on the benefits of the scholarship to the applicant's institution and country. The scholarship is to be used to defray the costs of the SBSE membership for 2008–2009, retreat registration, lodging (double-occupancy), and transportation. The membership and registration fee will be waived and a check for the balance of the funds presented to the recipient at the retreat. For information about this scholarship and an application see <<http://sbse.org/awards/jcook.htm>>.

Please apply for these scholarships before 5:00pm PST, Wednesday, March 5, 2008. ■

—Bruce Haglund

↯ The new SBSE web master is **Martha Bohm** of Cornell University.

↯ **Walter Grondzik** moseyed on up to Ball State University.

↯ The *LA Times* finally published the long-promised feature on **Harold Hay**. See page 8 for an excerpt and <http://www.latimes.com/business/la-fi-haroldhay10nov10,1,5782216.story?ctrack=2&cset=true> for details.

⊛ The AIA announced that **Alison Kwok's** proposal was among four projects chosen to receive Upjohn Research Grants for work beginning December 1 and to be completed within 18 months. These grants provide matching funds of up to \$25,000 for applied research projects that advance professional knowledge and practice. Her project will catalog the design and delivery process for carbon-neutral buildings through a series of case studies that describe design intent and actual performance. Research methodologies will include interviews with selected practitioners from architecture firms on the West Coast on the design process and strategies for actualized carbon-neutral buildings. Performance outcomes will be measured by using a nationally-implemented set of investigative protocols that focus on particular design strategies. Documenting the delivery process for carbon-neutral buildings will reveal the barriers to sustainable practice by examining the issues faced by design teams during the design process and the role of clients, consultants, and contractors. Examining the results of postoccupancy performance will offer architectural practice a means to “close the loop” of design lessons learned in building design.

↯ **Sandra Mallory** has left architectural practice to become the “Residential Expert” with City Green Building, the City of Seattle’s green building team in the Department of Planning and Development. For more info on the program, see <http://www.seattle.gov/dpd/GreenBuilding>.

↯ **John Quale** will be on sabbatical in the UK from late December through July to work on a book about the EcoMod project. ▮

## A SABBATICAL REPORT—JAPAN

In two days (Dec 12), I leave Tokyo after an 18-month leave cobbled together with a sabbatical and a Fulbright Fellowship. The front page of my morning paper sports a headline screaming, “Fears for Japan’s Economy,” but this is old news, dragging on for over 15 years. Elsewhere are other signs—in the last six months, a major steelmaker sold structural materials of a lower grade than purported (supplied for bridges, yet) and a supplier soaked finishes in water before flame-spread tests, to assure a higher rating.

Writing nearly ten years ago in my first book, *Japanese Architecture as a Collaborative Process*, I spoke of the effect of what was even then “a prolonged and painful recession” and of the degree to which government propped up the practice of architecture. Small towns casually took on massive debt for flashy projects with the expectation the nation would later cover costs; today, there are several notorious cases where such lavish spending has driven towns to bankruptcy. Public works projects are no longer generously funded, and now buildings are rarely used to prime the economic pump.

The private sector is equally stretched. Cranes dot cities; visitors understandably assume this scene is a sign of economic health. (It, in fact, reflects a doubling of maximum height and an effort by large corporations to survive through quantity instead of quality.) Rumors are that SOM nearly pulled out of the recently-opened Mid-Town multi-use project because the developer had begun to cut corners beyond anything even the comfortably-commercial SOM considered acceptable; the Japanese architectural press deplored the prestigious complex as “dreadful,” though one can see the evidence of thoughtful planning beneath the crude construction. A friend at Japan’s most esteemed contractor confided to me that only one designer on today’s teams is thought sufficient to develop initial in-house proposals for major buildings, far outnumbered by marketing and sales staff.

Two years ago, architect Hidetsugu Aneha admitted to cutting corners in construction, specifying so little reinforcing in his concrete structures that many (condominiums and business hotels) were unlikely to survive a relatively modest earthquake of a high 5 magnitude, hardly uncommon. Owners are now stuck with million-dollar mortgages, though the buildings were quickly pulled down. This scenario is not an isolated event; two popular business hotels near Kyoto Station, built in 2003 by another architect, were shuttered this year—changes to the structure on site were not properly calculated, and inspections (under a privatized system put in place in 2000) inadequate. Housing starts in Japan dropped 70 percent in the last three months, reflecting sagging public confidence in architects and contractors, and sterner inspection procedures recently introduced, adding 3–5 months to design—and further cutting available capital.

Architects able to look abroad for work—Maki, Ito, and Sejima—are building in Berkeley, New York, Toledo, and Toronto or in towns in Europe, few domestic projects on their boards. Several notable young Japanese architects keep offices in Shanghai or Beijing; the hugely popular and respected architect Hitoshi Abe moved to UCLA. Yet still, surprisingly, the practice of architecture is not yet ready to reshape itself. Oddly, there is also room for optimism. Sejima, for example, has always held an extremely casual attitude about energy, but clients in Switzerland and the U.S. are not as indulgent as in Japan, and insisted she address the issue. She now partners regularly with Transsolar while working abroad, but has yet to do so at home, where design fees are often half the international norm. With 53 nuclear plants in Japan (one plant was recently discovered to sit on a fault line and is underdesigned) and electrical demand shooting upward, much more could be done on energy. Waste is another new concern; there are talks of reshaping the residential industry, shifting from planned obsolescence and 20-year life cycles to sturdy 200-year structures.

I first came to Japan as a student twenty years ago, in the midst of a booming economic bubble. Economies grow even exaggeratedly larger now, in Dubai, in Shanghai. And, aging, I worry we architects often thrive on these evanescent economies, unconcerned with the eventual end. ▮

—Dana Buntrok

## ACOUSTIC RESEARCH: A LOUDER BIG HOUSE

[This article appeared in the Daily on 11/1/07. See <<http://media.www.michigandaily.com/media/storage/paper851/news/2007/11/01/News/A.Louder.Big.House-3071094.shtml>>.—ed.]

### PROF'S TEST SAYS SKYBOXES WILL INCREASE NOISE LEVEL AT GAMES

During halftime at Saturday's football game against Minnesota, Mojtaba Navvab, Associate Professor of Architecture, and other researchers measured sound in Michigan Stadium at the 50-yard line to predict what effect the addition of luxury boxes to Michigan Stadium will have in making the stadium louder. Sound often "evaporates" into the air at The Big House, which has a reputation for being a relatively quiet stadium despite touting the nation's largest crowds. Because there aren't many things to reflect the crowd noise, the oval-shaped bowl loses sound. The skyboxes would amplify the sounds of the crowd by further enclosing the stadium, causing sound to bounce back onto the field instead of escaping.

In a press conference in September, Penn State wideout Deon Butler said the noise and intimidation factor at The Big House were low for a stadium of its size. "It's not a super-overwhelming place," he said. "Yes, it's large, and they're supposed to have more people than we do, but it's not overwhelming in the sense that it's not as tense as Beaver Stadium. Their fans aren't nearly as rowdy as our fans."

When Navvab and his team took measurements during Saturday's halftime, they found that the sound, almost exclusively from the student section, was 100 decibels, or the equivalent of a chainsaw. With the skyboxes, which will stand about 10 feet higher than the scoreboards and further enclose the stadium, the sound level of the stadium would reach 110 or 111 decibels, about the noise level of a loud rock concert, Navvab said. He used a sensor that measures sound from all angles at the same time. The sensor consists of 120 small microphones that absorb every decibel source within hundreds of feet. The device can pinpoint exactly how much sound individual people and instruments make in a crowd of thousands.

Navvab and his team then took what each individual microphone measured, compiled it, and used a computer program to translate the measurements into architectural graphics that allow the researchers to see exactly where the sound source is located and where it is loudest. During the game, Navvab and his team measured crowd noise levels from various points along the sidelines. There were other factors the team took into account when measuring, such as the duration of the yells from the crowd. Moji used the sensor to measure how long it took the crowd to reach "full loudness," the point at which the noise intensity level remains steady.

Crowd participation was almost entirely located in the student section. If all 109,840 individuals had yelled at the same intensity, Navvab said the measurement would have increased to 102 or 103 decibels—a significant sound increase. The loud noise from the crowd can drown out the sound of the opposing quarterback instructing his players on the field, giving the home team a significant advantage.

—Elaine Lafay

### THE PROF'S REACTION

I thought of SBSEers during these past weeks while using the acoustic-camera system. I had fun working during the Michigan football games. The photos show me in action conducting crowd noise, not music. It was a challenge to make 109,840 people scream for my acoustic research and testing High Dynamic Acoustics. I had a team from Germany on the field to test how the new sound recording system would work in measuring and/or estimating the crowd noise for the new stadium design at Michigan. The system allows us to capture the sound from all frequencies and levels of intensities within the entire volume of the space, which lets me overlay those levels on the 3-D model of the space and identify every source of sound in the scene. See <<http://www.acoustic-camera.com>>. ■

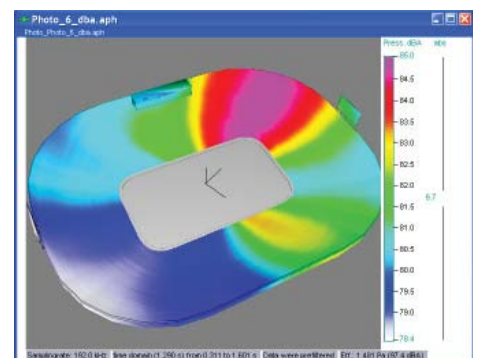
—Mojtaba Navvab



Moji performs pre-game set-up.



Moji directs in-game measurement. The student section is about as loud as a chain saw.



Post-game results visualized. Guess where the students sit.

Images: Mojtaba Navvab

## A LETTER TO NAAB

I sent the letter below to ACSA on Oct 26 on behalf of SBSE endorsing the proposed changes to NAAB Criteria and Conditions proposed by the Sustainability Topic Group chaired by Walter Grondzik. The ACSA Board met Nov 4–6 to review feedback on the proposed changes.

—Chris Theis

*On behalf of the 170 members of the Society of Building Science Educators (SBSE), I am writing to strongly endorse the changes to NAAB Accreditation Criteria and Conditions proposed by the Sustainability Topic Group in preparation for the October 2008 NAAB Accreditation Review Conference. SBSE is an association of university educators and practitioners in architecture and related disciplines who support excellence in the teaching of environmental science and building technologies. We have been an active organization for over 20 years with a membership that spans 18 countries. Our members include the top authors of books on passive solar, low energy, daylighting, and sustainable design as well as many key figures on several of the most influential architectural education initiatives (e.g., Vital Signs and Agents of Change) and recipients of professional awards in the field (AIA/COTE eco-literacy awards and Solar Decathlon entries). Most of our members teach sustainability as an integral element in design and/or technology courses in architecture programs. We collectively believe that a strengthening of NAAB criteria dealing with sustainability (and related concerns such as energy-efficient, green, and carbon-neutral design) is imperative if the design professions are to meet the many environmental challenges now facing society.*

### UPDATE 12/1

There are virtually **no comments** regarding proposed changes to the NAAB accreditation criteria that address sustainability posted to the ACSA www site blog < <http://acsacred.blogspot.com/>>. It may be that the “blog” nature of the feedback is turning folks off—but no feedback may well be taken as a sign of no interest (a huge collective yawn). In my opinion, this impression would not be good. NAAB does not seem like an organization that makes changes without first sensing which way the wind is blowing. Please review the proposed changes and at least say something in support (if you are so inclined). “I Did Noth’N” came in third in the EcoSpot competition <[http://current.com/topics/76173162\\_ecospot](http://current.com/topics/76173162_ecospot)>, but may hit Number One with a Bullet on the ACSA/NAAB criteria charts.

—Walter Grondzik

## BALL STATE'S STRAW-BALE ECO-CENTER

### LIVING SUSTAINABLY IN THE MIDWEST

*[Ball State University students and faculty have designed and built a new addition to the BSU campus. Timothy Gray presented it at ARCC last spring. This article is derived from that paper. Full info is available at <<http://ecocenter.iweb.bsu.edu/>>—ed.]*



photo: Timothy Gray

Eco-Center, under construction, sited at the south end of a restored prairie at the Cooper Field Station, Muncie, IN.

BSU architecture recently completed “Eco-Center,” a student project intended to demonstrate how to live sustainably in the Midwest, reconnecting students and the community to sustainable relationships among buildings, sites, people, and prosperity.

Phase I of this project was researched, designed, documented, and constructed in the course of a single semester (Fall 2006) and resulted in the construction of one of the first load-bearing straw-bale structures in the region. The Straw Bale Eco-Center was conceived as the first built component of an environmental research facility envisioned for Ball State University. The project is sited at the south end of a restored prairie on a university field station, an 80-acre parcel owned by the school, but remote to campus. The first phase of the project was funded through an EPA P3 grant (with some local matching funds) and followed on a master plan for the property prepared by a Department of Landscape Architecture colleague during the previous academic year. The project had three primary goals:

- provide an immersive and comprehensive learning experience for the students involved in the project.
- provide education and community outreach to promote awareness of and highlight issues relating to sustainable building practices while demonstrating a viable alternative to local conventions.
- serve as an ongoing research facility.

The EPA funding for this project was confirmed only late in the summer and, as a condition of the grant, the work needed to be completed by the following Spring (2007). Such logistical challenges within the school curriculum resulted in the class being offered as a three-unit elective rather than a design studio. There was little time for preparation in advance of the class. We hit the ground running!

The class was composed of thirteen students, a mix of fourth-year undergraduates and first-year graduate students. In addition, fourteen third-year architecture students enrolled in the design studio I was teaching at the time were involved in the project, the studio being structured to allow for a two-week design charrette at the beginning of the semester and two weeks to participate in the construction at the semester’s end. The contributions of the third-year studio proved a key to the project’s success.

From the outset the project was thought of in terms of two phases. Phase one would consist of researching, designing, permitting, and building the project to the level of a watertight shell as well as documenting the sustainable features incorporated into the project. Phase two would consist of site work; installing exterior claddings, interior finishes, railings, ramp and hardware; fitting the building out with plumbing and electrical service; monitoring the performance of the bale walls; and continuing with documentation of the project. Phase one (the building shell) was to be completed by the semester’s end with the relatively modest construction budget of \$9,000.

The third-year students kicked off the design process working in teams to generate proposals for the building, finding their architectural expression in subtle design moves grounded in a creative manipulation of the building components. During this same period the elective class was broken into teams researching conventions of bale construction, sourcing and pricing local materials, and researching the few local precedents we were able to find. At the end of

## DESIGN/TECHNOLOGY FACULTY POSITIONS

### CALGARY

Serve as the newly founded Athena Chair in Life Cycle Assessment, an associate or full professor. Info from Linda Corbeil, <corbeil@ucalgary.ca>.

### HOUSTON

Teach design and high performance/sustainable design. See <<http://www.arch.uh.edu/>>.

### IDAHO

Teach sustainable environmental control systems and design studio. Info from Bruce Haglund <bhaglund@uidaho.edu>.

### LIGHTING RESEARCH CENTER

Be a Technical Manager, Research Specialist, Senior Research Scientist, or Director, Energy Programs. Apply online at <<http://www.lrc.rpi.edu/aboutus/careers.asp>>, or telephone Russ Leslie at 518.687.7100.

### MINNESOTA

Teach building technology with design and sustainability. See requisition number 151782 at <<http://www1.umn.edu/ohr/employment/index.html>>.

### UNLV

Address BIM in the context of sustainability. Apply at <<https://hrsearch.unlv.edu>>.

### USC

Teach building technology. Info from Marc Schiler <marcs@usc.edu>. ■

this two-week “burst” the elective class participated in the review of the third-year students’ proposals and used the third-year work as a point of departure to synthesize and develop their own designs.

Parallel to these activities I was working with selected students from the group meeting with a variety of local officials (e.g., University Facilities staff, County Building Department inspectors, Property Governing Board, bankers representing the Property Trust) to both determine the approval process required for the project and to produce the necessary documentation to obtain these approvals within the framework of our very ambitious schedule. We were fortunate in that our plans were met in general with enthusiasm and support by all parties involved. In addition, during this period members of the group solicited donations and matching funds for the project from a variety of sources.

As the design direction was narrowed student teams began sourcing straw and mocking up sections of the wall. Through hands-on experimentation students became familiar with the bale module, the behavior of the material, and methods of pre-compressing the bales. This experience directly informed the design work in studio.

The final design was simplified as a result of the hands-on experimentation, the students’ exuberance grounded in a growing understanding of the behavior of the material, and the realities of actually building the project. The main volume of the building is simply a rectangular room, room size and openings laid out on bale module and conforming to City of Austin, TX, Building Code requirements (there were no local codes available to help guide decisions). This main volume was raised approximately 30" above finished grade on an insulated platform in response to poor drainage and potentially wet site conditions.

An entry porch extends from the south side of this main volume and is set at grade to accommodate head height as well as to allow an insulated slab on-grade to act as a thermal mass. Tall, salvaged windows wrap the south-facing porch, which acts both as entry and as passive greenhouse to help warm the space in the winter months. The generous windows on the entry porch all open, and in combination with a set of clerestory windows on the north side encourage ventilation in the summer months, taking advantage of prevailing winds and thermal stack to help cool the Center.

A porch on the north side of the building wraps around the east end and serves to cover a ramp for handicap access as well as to limit the exposure of the bale walls. The porch also offers a slightly raised platform to enjoy the magnificent views of the natural prairie grasses to the north of the building. A single roof framed from a combination of gable and shed trusses covers and unifies these three elements. ■

— Timothy Gray

## PROPOSE OUR 2009 RETREAT LOCATION

In May 2009 the ASES Solar Conference will be held in Buffalo, NY. Since May isn’t an opportune time to hold a retreat, the choice of a venue is wide open. If you’ve discovered the perfect spot for 50 SBSEers at our annual retreat and are willing to serve as the logistics coordinator, put together a proposal for presentation at the May annual meeting in San Diego or the SBSE Retreat in the UK. We look forward to a legendary retreat at your favorite place. ■

—Bruce Haglund



Unless you take the initiative, you may be doomed to building carbon-neutral dwellings with students at Ball State or Idaho. Idaho’s McCall field campus is portrayed here.



After Retreat 2008 you could head to St. Austell to take in the Grimshaw-designed Eden Project where concerns for light, energy, food, and water are well-integrated

## TOP-10 GREEN BUILDING PRODUCTS

photo: Solmetric Corporation



Solmetric SunEye from Solmetric Corporation

You'll find all the information you need, plus images of each product [from LEDs to urinals—ed.] by clicking on the links below.

**Press Release** <<http://www.buildinggreen.com/press/topten2007/index.cfm>>.

**Product Descriptions** <<http://www.buildinggreen.com/press/topten2007/top-10-list.cfm>>.

**Product Images** <<http://www.buildinggreen.com/press/topten2007/images.cfm>>. ▮

—Jerelyn Wilson



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## HAY'S PASSION FOR SOLAR STILL BURNS

*[I've excerpted some highlights from the Los Angeles Times, Nov 10, 2007, front-page article on our favorite curmudgeon, Harold Hay. See <<http://www.latimes.com/business/la-fi-harold-hay10nov10,1,5782216.story?ctrack=2&cset=true>> for the whole story. Also, Harold will present a forum on passive solar at ASES Solar 2008 in San Diego in May. Be there!—ed.]*

Forty years ago, Harold Hay came up with a way to heat and cool homes using water and the sun. He's still trying to get the world to notice.

Harold Hay wants to help the world save itself, but he's running out of time. Now 98, the retired chemist promotes his cause by funding research and vents his frustration in letters, e-mails, and phone messages to anyone who will listen, and on his own web site, <<http://www.2and50needles.com>>.

Hay is sanctimonious, unyielding, and scathingly critical of other people's efforts and the solar business as a whole. He dismisses the US Department of Energy as being "in the research-forever stage" and the solar trade as "a bunch of money grubbers." Hay has no interest in softening his message. He doesn't have time for subtlety.

It's tempting to write off Hay as a bitter solar has-been, hoping for immortality at the end of his life. But, given today's energy and climate challenges, ignoring his message and achievements could be a mistake. "His invention and what he's been saying for all these years is still very, very relevant," says Becky Campbell-Howe, operations director at the American Solar Energy Society, which gave Hay its Passive Solar Pioneer award in 1986.

Hay calls his invention the Skytherm system, and it was a wonder in the 1960s because it used the sun to heat and cool a home. Hay finally got a full-scale model built in 1973 in Atascadero, CA, near Cal Poly San Luis Obispo. Hay's Skytherm house was recognized by the American Revolution Bicentennial Commission as one of the country's 200 most promising inventions. ▮

—Elizabeth Douglass

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SPRING ISSUE SUBMITTAL DEADLINE—MARCH 1

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