



University of Oregon

SOLAR INCIDENTS

The Newsletter of the Solar Information Center

Vol. 5 No. 3

SPRING 1995

What is the Solar Information Center?

It is a student run organization sponsored by the ASUO and EWEB. The purpose of the center is to serve as a research, education, and information center on solar energy and alternative energies, and their applications in architecture and technology. One of its vital functions is to bring a lecture series on local, regional and global energy issues to promote a higher awareness toward conservation and renewable energy. The center also provides an in-house information source of books, periodicals, abstracts, proceedings, topic-files, and product-files.

**SPECIAL THANKS
TO EWEB FOR
THEIR CONTINUED
SUPPORT!**



Environmental Issues Addressed through Architectural Coursework and Student Projects at U of O

The School of Architecture and Allied Arts at the University of Oregon houses both faculty and students committed to bringing ecological design issues to the forefront of their academic work. Many of our own staff and volunteers at the Solar Information Center come from departments in A&AA School. Student initiative from this school has led to such outstanding projects as the REDI™ Guide and the ECO-Design Arts Conference (see ads on page 7).

Architectural coursework, such as Environmental Control Systems I and II, regularly teach strategies of solar orientation, passive heating and cooling, and energy and water conservation. Other recently taught seminars in the Department of Architecture include Environmental Resources Design, Green Architecture, Passive Solar Heating, Passive Cooling, Daylighting, and Energy Scheming™.

Each quarter, a number of architectural studio courses emphasize sustainable design as well. One such studio was led this past quarter by Donald Watson, this year's Baker Chair for Light in Architecture. Watson is widely known for his pioneering work in passive solar design, including the New Canaan Environmental Center. Another recent studio is described below, as well as a design competition sponsored by the Solar Information Center and the Oregon Country Fair.

An "Environmentally Responsible" Design Studio

By Matthew Swett

This winter, I and 15 other students embarked upon an environmentally responsible voyage with Rob Thallon, our professor. The challenge of our design studio was to design residences that incorporated "sustainable" and "ecologically friendly" principles in as many ways as possible. To further synthesize this challenge, the majority of the studio carried these design ideas through to the specific level of architectural working drawings. This required a full understanding of the materials and systems being used and in so doing fostered a rich learning environment.

"Environmental responsibility" as we

came to discover, is a very muddy issue. To what part of the environment are you responsible? Do we utilize rigid insulation in efforts to increase thermal efficiency, thus conserving fossil fuel consumption, yet knowing that it contains CFCs—a serious detriment to the Earth's ozone layer? This was but one conflict among a series of trade-offs through which we navigated to the best of our ability. This experience made poignantly clear the rift that exists between the practices of today and the dream of "sustainability." Thus, as it is with many things, we as a studio sought to mold and define our own philosophical understanding of sustainability. (Continued on page 6)

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University's Action Is Unsustainable Citizens Appeal the Decision to Bull-doze Amazon

By Michelle Summers

On March 22, 1995 the University of Oregon bull-dozed two of the 48 apartment buildings at the Amazon Student Family Housing Complex. Despite efforts to conserve vital materials and preserve some of the last remaining prototypes for modular housing designed by Pietro Belluschi, Uof O Administrators decided to swipe the slate clean. Within hours the heavy machinery left in splinters some of the last of the old-growth wood, cedar shingles, and fine grain fir floors used to construct these vestible and historic homes.

As an architecture student who hopes to work with cities to both develop and redevelop sustainable and livable communities, it seems to me to make the most sense to save the majority of the buildings and develop new housing over time. Using a hybrid strategy of new construction in-fill integrated with a plan of restoration of the existing site would increase density and preserve the self supporting low cost housing resource for years to come. It was a real shock to see housing that could be rehabilitated for \$5000 a two-bedroom unit (for a 30-50 year life expectancy) profiligately destroyed in favor of new development which is budgeted to cost approximately \$70,000 a two-bedroom unit and which currently has neither a master plan nor an architect.

There is a lesson in my relaying this story. The Amazon Saga is just one of many that should be noted and responded to country wide. In the Amazon situation the University of Oregon's administration has been able to circumvent all public protest using their political clout. This state-owned property has been neglected and destroyed with-

out any officals asking for an accounting of their decision making process or their business practices.

Currently citizens have filed an appeal with the Land Use Board of Appeals (LUBA). \$5000 was raised within the community one week after the City of Eugene issued approval of the demolition of the Amazon Student Family Housing Complex to post the state issued bond needed before a stay of demolition can be granted. University Housing has argued that rapid demolition of the housing is needed in order to keep the cost of new construction down. They claim any delays increase the cost of the project. Given that they have no designs nor intention to hire any designers until September of 1995, it is hard to see how they can lay foundations before they know where the buildings are going to be placed. What is clear is that the 110 two-bedroom apartments that have been left vacant for 1 and 1/2 years have contributed to the 0% low-income vacancy rate in the campus area and the 20% increase in the cost of housing.

What can we do to change the way our cities are growing? Get involved in the local governments. Go to city council meetings and keep bringing up the issue of low cost housing. Go to the state capital and ask your senator to help pass legislation favoring renewable growth strategies. In this case, you could write a letter to the local newspapers and the University of Oregon Administration asking why the University of Oregon is bull-dozing viable housing that could be cost effectively rehabilitated for 20% of the cost of new construction•

SOLAR INFORMATION CENTER

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THE SOLAR INFORMATION CENTER

LECTURE SERIES AND EVENTS CALENDAR

For more information, please contact us at 346-3696.



Friday, April 7, 7:30 pm, room 177 Lawrence Hall, U of O

An ECO-Design Arts Conference Event (see ad page 7)

“Achieving Eco-nomic Security”

by Jim Bell

Jim Bell is founder and director of the Ecological Life Systems Institute in San Diego, California, researching and creating environmentally sensitive designs for residential applications. A builder, planner, publisher, teacher, and speaker, Bell will discuss ways in which ecological design principles can be used to create an “eco-nomically” sustainable future.

Saturday, April 8, 12:30 - 2:00 pm, room 206 Lawrence Hall

An ECO-Design Arts Conference Event (see ad page 7)

Panel: *“Solar Resources and Applied Technology”*

The purpose of this panel is to make known the solar potential that exists in our bioregion and to explore ways in which to utilize it effectively. Topics will include: solar radiation, water heating, electrical generation, photovoltaic technology, and cost effectiveness in both small and large scale applications.

Panel members:

Dr. Frank Vignola, Associate Director of the Solar Monitoring Lab at the U of O. He is founder and editor of *Solar Spectrum*, an American Solar Energy Society (ASES) publication and has served as both ASES board member and as a reviewer for *Solar Energy* magazine.

Donald Spiek, Donald is an energy management specialist at the Eugene Water and Electric Board (EWEB). He currently administers their solar hot water heating program. His professional experience includes energy management at EWEB as well as six years as a solar contractor.

Gary Beckwith, environmental engineer and store co-manager of Eugene’s new Real Goods outlet. He has been involved in the renewable energy field for years, specializing in the latest in renewable energy products.

Thursday, April 20, 10 am - 5 pm, Erb Memorial Union courtyard

Renewable Energy Fair

The goal of the Renewable Energy Fair is to educate the community about renewable energy and its applications in architecture and technology. The Fair will be one component of the greater Earth Day event held at the U of O campus. Companies and organizations involved in renewables will have display booths and provide free information to visitors. Presentations and video viewings will also be scheduled.

Friday, April 28, 7:30 pm, 177 Lawrence Hall

“Designing for a Renewable Energy Economy”

By Donald Aitken

Donald Aitken, Senior Energy Analyst with the Union of Concerned Scientists in Cambridge, Massachusetts, is a nationally recognized expert in solar design, monitoring, and other renewable energy technologies. He is an authority on the current state of renewable energy in architecture and technology and has taught energy-efficient design and daylighting for commercial buildings at the Frank Lloyd Wright School of Architecture, as well as in workshops for energy engineering and architectural professionals.

Thursday, May 11, 7:30 pm, 177 Lawrence Hall

“Ecological Design and Land Use--Planning for Davis and Beyond”

By Michael Corbett

Michael Corbett is recognized as a leader in the area of sustainable design and urban planning. He was a pioneer in the development of solar architecture during the 1970s and has advanced the use and development of natural drainage systems and edible landscape design. His work advocates a garden city approach that caters to people, community activities, nature and a picturesque aesthetic while deemphasizing the use of the automobile. Michael will discuss his most noteworthy project, Village Homes, as well as plans for the larger scale of Davis itself and nearby areas in California.

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Advanced Computer Technology at the Solar Info Center

New Grant Supports Greater Research Potential

By Sandra Leibowitz

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FRANK VIGNOLA

Solar Info Center Resource Library

Drop by to browse through our current collection of books, periodicals, and other resources, or ask for a free copy of our updated library list.
219 Pacific Hall, 346-3696

The Student Environmental Forum is sponsored by the Solar Information Center.

We meet informally with lecturers on selected Fridays in room 206 Lawrence Hall from 12:00 to 1:00 pm for discussion of current issues in environmental design and planning. Call the Center for a schedule of events or if you'd like to present a topic at the forum.

Don't forget your lunch!

Big news this quarter includes a generous grant from the University of Oregon Office of the Vice Provost for Research to purchase new computer technology for the SIC office. The grant, covering the costs of a Power Macintosh™ computer, a 17" color monitor, a printer, and up-to-date software, greatly supplements our current capabilities for documentation and dissemination of the latest information in the renewable energy and sustainable building fields. We wish to express our gratitude to the Office of the Vice Provost for acknowledging and meeting our growing needs, and to Professors Steadman Upham, Ron Kellett, and David McDaniels for their efforts toward this grant.

The SIC student staff, with the advice of our faculty sponsors, have identified certain areas of our current work that will benefit from this new technology, as well as potential new research projects and programs. The following list describes aspects of our work in which we are improving and expanding—any and all input from our readers would be greatly appreciated to help define and guide our future services.

Increased efficiency thanks to in-house printing. The Style Writer™ purchased will meet our printing needs for daily correspondence, research articles, and publicity. For our newsletter, posters, and other graphic-intensive work we will continue to use the laser printing facilities made available to us by the Department of Architecture.

Improved graphical presentation. New software and a much larger monitor will facilitate and simplify the creation of *Solar Incidents*, as well as our other publications and flyers.

Access to CD ROM databases. The CD ROM drive that will accompany our new computer will allow us to purchase and incorporate databases from major national and international research organizations into our own electronic library.

Greater graphical and data storage potential. A greatly increased level of memory storage capacity will allow us to keep more information files and databases current in the computer.

Improved InterNet access. The new computer will allow us to maintain more consistent on-line contact with other organizations, as well as interested individuals, in our field. A home page on the InterNet is currently being set up for the SIC. As always, feel free to contact us with your questions or comments at our electronic mail address:

sic@aaa.uoregon.edu

Improved dissemination of research work and SIC library resources. Perhaps most importantly, the Solar Information Center will now be able to put its resources on-line, reaching a far greater audience both efficiently and quickly. Expect to find in these files:

—**Solar Incidents**--our quarterly newsletter

—**Resource lists** of our current library holdings (books, periodicals, reports, videos, etc.)

—**Student and intern research projects**, including projects done for environmental-technology-related courses in the departments of architecture, physics, and environmental studies, as well as projects done through the SIC's own internship program•

The Big Picture Meeting Worldwide Electrical Needs

By Larry Wikander

Dennis Hayes, President of the Bullitt Foundation and keynote speaker at the 1995 Northwest Renewable Forum, had a very convincing argument for the importance of solar energy in the foreseeable future.

The Problem: The world presently consumes 11.7 terowatts of electricity annually, which is equivalent to the amount produced by 12 billion tons of coal. Given the rapidly expanding population and the industrialization of third world countries, demand for electricity will be rising rapidly. How much will be needed, and where will it come from?

How Much: Some examples of present annual per capita electricity usage are:

11.5 Kw	USA
6 Kw	Germany
5 Kw	Japan
1 Kw	Third World Technologies

50 years from now, if industrialized countries employed high-tech demand-side management, annual electrical usage could potentially be reduced to 3 Kw/person. This could mean some drastic changes in lifestyle. If the assumptions are made that the growing third world technologies can be capped at this same optimistic 3Kw/ person and that the growing world population can be stabilized at 10 billion, this would mean an overall energy need of 30 terowatts.

Where will it come from? This demand could be met by burning 31 billion tons of coal, but the damage to the atmosphere would be irreparable. Likewise the by-products of nuclear fission make it unacceptable in the long term. The development of a controlled fusion reactor is unlikely. Hydro-power is now producing 0.8 terowatts worldwide, which could potentially be doubled, but opposition is growing to further damming. If geothermal and wind generation were stepped up dramatically to 2 or 3 terowatts each, there will still be an additional need for approximately 14 terowatts which would have to be met with solar energy. There will be no alternatives without widespread major environmental degradation.

In the long run, solar power will have to play a major part in world energy production simply because there will be no alternatives. In the meantime, non-renewable energy resources should be used to develop renewables. Oil and natural gas are bridges to the future and we are burning those bridges behind us•

EWEB Solar Water Heater Rebate

The program is still alive and active. Approximately 300 systems have been installed to date. If you are interested in further information, please call EWEB Energy Management at 484-1125.

Renewable Energy Conference

The 1995 Northwest Renewable Forum, held in Portland on February 14, brought together key players from different parts of the energy arena to discuss the development and implementation of renewable energy sources.

Representatives from local utilities, large utilities, renewable energy producers, utility regulatory commissions, and other interested parties (like us!) worked together to determine what incentives at what level would be needed to encourage local utilities to invest in renewable energy production. While no definitive solutions were reached, many of the current obstacles were identified, and the stage is set for further development•

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Ecological Design Opportunities

Lend Your Voice to Bonneville's Energy Future

The Bonneville Power Administration (BPA) is holding its second annual shareholders' meeting on May 20th in Portland. Your attendance is requested. As a BPA shareholder, (everyone who purchases power from BPA is considered a shareholder), this is an opportunity to lend our visions and voices to the future energy decisions of the northwest. This is critical, for as BPA strives to compete more and more with other utilities, its progressive, environmental, and salmon friendly projects are at risk.

The National Conservation Act Coalition has drafted a plan and a vision statement that will be delivered to the Bonneville Power Administration at the shareholders' meeting. This will provide the necessary guidelines and the means with which BPA can pursue a sensible energy future. The only thing that is required to put this plan in to effect is an *incentive*! That is where our voices and

Continued on Page 7

Environmentally Responsible Studio

Continued from page 1

True sustainability we realized requires a different paradigm than the one that we are living. To tread that path, we must accept the fact that any building we do impacts the natural environment, and if we accept that sustainability is based upon the health of the natural environment, then we require ourselves to restore the ecological balance that existed beforehand. In today's environment, we are so far from sustainability that we must not only restore our present damages, but repair our past ones. Thus, through care, we can heal the environment to a place where it is self-managing.

The studio took this point of departure, and from there the paths became many, varied, and richly interwoven. Discussions revealed a different point of view for each of us, but strong intentions and ever growing possibilities added their momentum and carried all of us forward. We re-explored the technologies of straw bale, cob, and

rammed earth; technologies that have fallen out of the building trade in this country, but have served us well in past times. We sought to conserve and recycle as many of the resources that buildings use as possible and in many instances redefine "waste" as but another resource. We used materials that supported local industries and utilized low embodied energies. We created spaces unlike the rectangular paradigm of efficiency and sought to give architecture an 'organic' nature. And . . . we did all of this within the rigid context of what can be done now. Thus, our designs are far short of a sustainable model, but they are ones that can be utilized *today*. They can help us navigate the first steps of the long path the human race will have to follow to attain harmony with the environment•

Many of the designs from this studio will be available for viewing at the ECO-DesignArts Conference. They will be listed under Thallon's 484-584 "Environmentally Responsible House" Design Studio.

The Oregon Country Fair Design Charrette

The Solar Information Center is organizing a student design competition for a new information booth for Energy Park at the Oregon Country Fair, in which the SIC regularly participates with informative displays.

The "Argo", Energy Park's ship-like info booth has sailed its last voyage and is no longer 'see' worthy. Rebuilding is scheduled for this spring and the SIC is including the U of O architecture school in the creative redesign effort•

Passive Solar Design Workshop

Saturday, April 29 at EPUD

Dr. Donald Aitken, Senior Energy Analyst with the Union of Concerned Scientists and nationally recognized solar expert, will teach a one-day workshop on cost-effective passive solar design strategies in home design and construction for homeowners, architects, and builders.

The cost of the workshop is \$100, however EWEB will sponsor half the cost for a limited number of registrants.

For more information or to register, please call Gary Harlan or Steve Still at the EWEB Energy Management Department at **484-1125**.

Bonneville

Continued from page 6

desires become a pivotal point of the decision making process. Action has always been the test of idealism.

The SIC will be arranging car pools from the Eugene area for those who would like to attend and either do not have a vehicle or plan to attend and have extra room. The shareholders' meeting is **Saturday, May 20** at the Holiday Inn in Portland. We hope to see you there.

HOPES (Holistic Options for Planet Earth Sustainability) is a student volunteer organization in A&AA committed to sustainability in environmental design.
272 Lawrence Hall, 346-0719

Materials Resource Center
The MRC at the U of O has samples of the recycled building materials listed in the *REDI Guide* and can help you find them.
381 Lawrence Hall, 346-1470

CALENDAR

Friday, April 7

"Achieving Eco-nomic Security"

by Jim Bell

7:30 pm in 177 Lawrence Hall

Saturday, April 8

"Solar Resources & Applied Technology"

by Dr. Vignola, D. Spiek, & G. Beckwith

12:30 pm in 206 Lawrence Hall

Thursday, April 20

"Renewable Energy Fair"

10 am- 5pm in the EMU courtyard

Friday, April 28

"Designing for a Renewable Energy Economy"

by Donald Aitken

7:30 pm in 177 Lawrence Hall

Thursday, May 11

"Ecological Design and Land Use . . ."

by Michael Corbett

7:30 pm in 177 Lawrence Hall

S	M	TU	W	TH	F	S
			5 APRIL	6	7 ECO-Design Arts Conference	8 Design
9	10	11	12	13	14	15
16	17	18	19	20	21	22 Earth Day
23	24	25	26	27	28	29 Workshop @ EPUD
7 MAY	8	9	10	11	12	13

SOLAR INFORMATION CENTER

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219 PACIFIC HALL, U OF O

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